# DEVELOPING INTERCULTURAL AWARENESS AND SENSITIVITY THROUGH DIGITAL GAME PLAY

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# THREE CASE STUDIES WITH THE SIMULATION *REALLIVES 2010* IN AUSTRALIAN, AMERICAN, AND SWISS MIDDLE SCHOOLS

Thesis submitted by

**ANIKA STRUPPERT, M.A.**

B.A. Communication Studies and Linguistics; University of Erfurt; Germany

M.A. Communication Studies (Intercultural Communication); University of Erfurt; Germany

Co-tutelle PhD candidate International Communication; Department of Media, Music, Communication, and Cultural Studies; Macquarie University; Australia &

Department of Media and Communication Studies; University of Erfurt; Germany

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**SUMMARY**

This thesis investigates the potential of the digital simulation *RealLives* for the promotion of intercultural awareness and sensitivity in 12- to 13-year-old middle school students. It comprises three case studies conducted in International Baccalaureate Schools in Australia, Switzerland, and the USA, where teachers used *RealLives* with groups of seventh-grade students in different ways. Using an interpretivist approach, each case study consisted of observations, in-depth interviews with students and teachers, and questionnaire surveys to examine the use of *RealLives* by students and teachers in different school contexts and investigate the potential of the simulation for the development of intercultural awareness and sensitivity amongst young adolescents within classroom settings.

As the findings of the three case studies show, *RealLives* was perceived largely positively by students and teachers in all three contexts. However, the teachers struggled to thoroughly integrate the simulation into their teaching, mainly due to limited time and resources, dense curricula, and technical difficulties. Although each teacher employed the medium in different ways, similar patterns and strategies of use and similar social dynamics emerged among students in all three case studies. Students used the simulation *RealLives* in potentially unique personally meaningful ways. Their use of and interaction with the simulation as well as its potential to promote intercultural awareness and sensitivity were determined by a range of intraindividual and interindividual factors, first and foremost by knowledge and experience, identity, and social learning.

The findings provide evidence that using *RealLives* in school contexts can promote the development of intercultural awareness and sensitivity in a variety of ways. It can increase intercultural awareness in student players — even in students who are already more interculturally competent or focus on game play rather than learning. Moreover, it can advance the development of intercultural sensitivity by creating/reinforcing curiosity in cultural issues, encouraging openness and flexibility through confrontation with new information and unfamiliar situations, and providing a wealth of opportunities for identification with characters and role playing, which can promote empathy and more ethnorelative worldviews.

Overall, the study shows that using a digital game or simulation like *RealLives* can be a valuable educational strategy to promote intercultural awareness and sensitivity and one that adolescents would enjoy, particularly when it is thoroughly integrated into teaching, accompanied by complementary activities, such as discussions and debriefings, and guided by a knowledgeable teacher.

**STATEMENT OF CANDIDATE**

I herewith certify that the work in this thesis entitled “Developing Intercultural Awareness and Sensitivity Through Digital Game Play — Three Case Studies with the Simulation *RealLives 2010* in Australian, American, and Swiss Middle Schools” has not previously been submitted for a degree, nor has it been submitted as part of requirements for a degree to any other university or institution other than Macquarie University and the University of Erfurt, Germany.

I also certify that the thesis is an original piece of research and has been written by me. Any help and assistance that I have received in my research work and the preparation of the thesis itself have been appropriately acknowledged.

In addition, I certify that all information sources and literature used are indicated in the thesis.

The research presented in this thesis was approved by Macquarie University Ethics Review Committee, reference number HE27FEB2009-D06349, on April 5, 2009.

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Anika Struppert
(41335562)

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# CHAPTER ONE

## INTRODUCTION

The 21st century is an era of increasing globalization, characterized by more travel and migration, international cooperation, and worldwide networking, face-to-face as well as through technology (Eitzen & Zinn, 2009; Scheuerman, 2010). Individuals from diverse cultural backgrounds are living and working together more closely and interacting more frequently than ever before. It therefore comes as no surprise that calls for interculturally competent employees and the "education of global citizens" (Davis & Cho, 2005, p. 2) are getting louder.

Intercultural competence is a combination of awareness, knowledge, attitudes, and skills that allows individuals to interact appropriately and effectively in intercultural encounters (Deardorff, 2006b; Lustig & Koester, 2003). While in the past intercultural competence was primarily important for managers of multinational enterprises, expatriates, and humanitarian workers, it can nowadays be considered a key competence for everyone. For Baumer (2002), intercultural competence is one of the three important qualifications that workers in globalized environments need, the other two being specialized knowledge and language competence. Intercultural competence has become a major factor in health care and social services, for example, where it is particularly important in interpersonal communication (Fantini, 2000). Not only does intercultural competence play a crucial role in the workplace, it is also necessary in other public spheres, such as schools and universities, local communities, and family environments, which are becoming increasingly culturally diverse. Thus, "from the arena of international business to the intimacy of family life, there is an increasing need to be able to deal effectively and appropriately with diversity, whether ethnic, racial, religious, or cultural" (Fantini, 2000, p. 26). In light of these changes, it seems advisable to encourage the development of intercultural competence at an early age in order to prepare future generations for life in a globalized world (Struppert, Guo, & Waniganayake, 2010).

Traditionally, intercultural competence has been taught in face-to-face workshops and seminars and has been promoted through student exchange programs, for example. Since these methods are costly and time-consuming, only a minority has been able to participate in them. Finding a less expensive and more widely accessible way to promote intercultural competence could enable more people to develop intercultural awareness, knowledge, attitudes, and skills. To enhance participation in increasingly multicultural societies, new methods to promote intercultural competence are best targeted at children and adolescents. Participation in early childhood programs, for example, can encourage intercultural awareness in young children (Ebbeck & Waniganayake, 2010b). Adolescence is a crucial time of change

in young people's lives, during which cognitive and affective skills related to intercultural competence — including more abstract thinking, perspective-taking, self-image, and identity — are developed (Swanson, Edwards, & Spencer, 2010). Educators in many countries, including the USA, the Netherlands, and Australia (e.g., Lambert, 1993; Leeman & Ledoux, 2003; MacNaughton & Hughes, 2007), have begun to recognize the need to incorporate intercultural competence development into their teaching. A thorough integration into the curriculum and in teaching across subjects, however, seems rather difficult to achieve. Existing practices have been criticized, for example by Sercu (2002), who concluded:

> *What textbooks have been doing is to throw chunks of culture at learners, have them read some texts that deal with cultural topics, and hope that this cultural foot bath will eventually have a positive effect on pupils' mind-sets, and turn them into open-minded and tolerant citizens. (p. 70)*

One promising innovative method to develop intercultural competence — particularly in children and adolescents — is the use of digital games and simulations. Non-digital games and simulations have been employed in intercultural workshops since the 1970s and have thereby proven to be effective tools (Donovan, 2007; The Thiagi Group, 2011). While it can be assumed that the new digital variants of games and simulations can also support the promotion of intercultural competence, they are rarely used in this regard. This is surprising, considering the fact that "computer games have become extremely important for people of different ages and cultures and gender alike" (Vorderer & Bryant, 2006, p. 6). Around the world, digital games and simulations have become popular entertainment media, particularly for young adolescents (e.g., Australian Government, 2009; Interactive Software Federation of Europe, 2010; Lenhart et al., 2008).

Some researchers believe that digital media have such a strong influence on the lives of today's children and adolescents, also called "digital natives" (Prensky, 2001b, p. 1) and the "Games Generation" (Prensky, 2001a, p. 46), that they have begun to alter their cognitive and social development, their media preferences, and communication styles (e.g., Egenfeldt-Nielsen, 2007a; Prensky, 2001a; Subrahmanyam & Greenfield, 2009). For example, digital natives are said to prefer being active and involved, to use a variety of sources of information, and to be better able to process visual information and actions at multiple locations (Prensky, 2001a; Subrahmanyam & Greenfield, 2009). Egenfeldt-Nielsen (2007a) believes that,

> *Digital natives who play a lot of games are provided with skills, such as dealing with large amounts of information quickly even at the early ages, using alternative ways to obtain information, and finding solutions to their own problems through new communication paths. (p. 3)*

Teaching with digital media, including games and simulations, can therefore be considered more appropriate and effective for these youth than traditional methods.

Although digital games and simulations are mainly used for entertainment purposes, researchers such as Gee (2003), Lieberman (2006), and Shaffer (2007) have begun to examine their potential for education and development. Many seem to be convinced that "studying the educational potential for this new and controversial medium is of tremendous importance" (Ritterfeld & Weber, 2006, p. 399). Researchers point out that the specific characteristics of digital games and simulations, particularly their interactivity and multimodality, enable players to engage in a wide range of enjoyable and motivating immersive situations and experiences, which can come close to experiences in the physical world, and allow them to learn from them (e.g., Egenfeldt-Nielsen, 2007a; Gee, 2003, 2009; Klimmt, 2006, 2009). Players are actively involved in the co-creation of personally meaningful characters and narratives, they can make decisions, and see the outcomes of their actions in a safe environment without having to fear consequences in the physical world (Ritterfeld, Cody, & Vorderer, 2009). Due to this and because digital games always require players to learn in order to enable them to use them (Gee, 2003), these media can be seen as "powerful environments for learning (as) players learn new skills, knowledge, insights, attitudes, or even behaviors in games that challenge them to think, explore, and respond" (Lieberman, 2006, p. 379). Prensky (2005) believes that "combining games and learning can potentially add enormously to the motivation of students to learn what they may not be otherwise be motivated to learn, and increase their engagement in the learning process" (p. 102). The definition of learning applied here "goes beyond knowledge gain because it includes the changes in attitudes, beliefs, skills, and behavior that may also be intended in the game" (Lieberman, 2009, p. 119).

Digital games and simulations have already been used to promote knowledge and skills in areas such as urban planning (e.g., Adams, 1998; Gaber, 2007), history (e.g., Egenfeldt-Nielsen, 2005; Squire, 2004), English (e.g., Ranalli, 2008), and health (e.g., Lieberman, 2008; Miller et al., 2009). Over the years, the focus of game designers, researchers, and educators has shifted from edutainment titles, described as "drill and practice activities disguised as games" (Charsky, 2010), to commercially available entertainment software (e.g., *Civilization, SimCity, The Sims*) and, most recently, the so-called "serious games" (Serious Games Initiative, 2008). Serious games are games that are developed to be more than entertainment. They intertwine the entertaining game play of commercial games with educational content. Some of these serious games have been developed to promote social change and to increase awareness about religious and political conflicts, poverty, and hunger,

for example. Titles include *Darfur is Dying, Aiti: The Cost of Life* and the *Global Conflict* series.[1]

The potential of digital games and simulations for the development of intercultural competence has so far been under-researched. Digital games and simulations have already been used for intercultural competence development, mainly in the US Military (see e.g., Johnson, 2009a; Johnson, 2009b; Johnson, Wang, & Wu, 2007; Raybourn, 2009). However, the studies published to date mainly describe the digital games and simulations, such as the *Tactical Language and Culture Training System* by Alelo, Inc. and *America's Army Adaptive Thinking & Leadership* simulation, and the ways in which these are used to prepare Army personnel for overseas deployment. Although the authors of these studies claim that using these media increases intercultural awareness and knowledge as well as decision-making, metacognition, and communicative skills, publicly accessible empirical data is extremely scarce.

*Statement of Purpose*

This thesis was based on the assumptions that digital games and simulations can promote intercultural competence in players due to their specific media characteristics and that they can be an affordable, widely accessible, and at the same time appropriate, enjoyable, and motivating way for adolescents to develop intercultural awareness, knowledge, attitudes, and skills. Considering the lack of available research in this area, this thesis adopted an exploratory approach using three case studies in Australia, Switzerland, and the USA to investigate the potential of the digital simulation *RealLives 2010* (by Educational Simulations) for the promotion of intercultural awareness and sensitivity in middle school students. The study focused on the use of *RealLives 2010* (hereafter simply *RealLives*) by students and teachers, the interactions between students, teachers, and the simulation, and the connections between students' use of *RealLives* and their intercultural awareness and sensitivity. It was guided by three key research questions:

(1) How do students and teachers use and interact with the digital simulation *RealLives* in different school and socio-cultural contexts?

(2) What connections can be found between students' use of *RealLives* in different school and socio-cultural contexts and their intercultural awareness and sensitivity?

(3) What is the potential of the digital simulation *RealLives* to promote intercultural awareness and sensitivity in middle school students, and how can it best be exploited?

[1] For more information on these and other serious games see, for example, the Games for Change (G4C) website, http://www.gamesforchange.org.

*Methodology*

In order to answer these research questions, three cases of seventh-grade students and their teachers were selected in three similar yet different countries: Australia, Switzerland, and the USA. All of these countries are increasingly diverse, though overall perceived as Western countries, and in all three countries digital games and simulations are popular entertainment media. With each country being located in a different region of the world and home to a unique mixture of ethnic groups and different education systems, they promised to provide interesting comparisons.

The three schools chosen for the case studies were International Baccalaureate (IB) Schools, which value intercultural competence and welcome technology in their classrooms. In Australia, an interdenominational Christian IB school participated in the study, in Switzerland, an International School, and in the USA, a Friends (Quaker) IB school. Due to the importance of intercultural competence for the study, an International School — where students can be expected to have a greater degree of intercultural competence — was included to allow for a comparison between more and less culturally experienced participants.

Due to its exploratory approach, this study employed mainly qualitative research methods. It combined participant observations of students and teachers using *RealLives* in school with in-depth interviews with students and teachers about their learning and teaching experiences. In addition, questionnaire surveys were used to collect background information from the participants on their socio-demography, media use, perceptions of *RealLives*, and opinions about the use of digital games and simulations in education. The combination of these research methods made it possible to investigate the phenomenon holistically, in-context, and from different perspectives. Although it was necessary to examine the use of *RealLives* from various angles to more thoroughly understand it, the student perspective was considered most important as it was the students who were using the simulation to further develop their intercultural awareness and sensitivity. This is why the student perspective constituted the focus of this thesis.

*The Digital Simulation RealLives*

The digital simulation *RealLives* was selected as the educational tool and stimulus for the promotion of students' intercultural awareness and sensitivity as it enables users to play out lives of individuals from different countries and cultures and has been described by its producer as "the best way to learn about life in other countries short of going there" (Educational Simulations, 2010). Developed by Educational Simulations, a small Californian

company, *RealLives* has been commercially available on CD-ROM since 2002 with major updates released in 2004, 2007, and 2009. It has been used in numerous middle and high schools — mainly in the USA — to supplement classes in Geography, History, and Social Studies, for example. According to testimonials on the Educational Simulations website, *RealLives* has been perceived very positively by students and teachers alike. However, prior to this study, *RealLives 2010* had not been examined empirically by independent researchers.

Similar to digital strategy games, such as *Civilization*, *RealLives* is a largely text-based simulation, in which users can play out the lives of randomly created or customized characters anywhere in the world from birth to death. To date, *RealLives* is available only in the English language. Although players cannot see their avatars act in a virtual world — but are shown a picture of them, their statistics, and a map with their location — they can influence and control their characters' lives to a certain extent and make decisions regarding education, career, finances, leisure activities, place of residence, family, and relationships, for instance. Players can thereby gain insight into the living circumstances of individuals in various countries and cultures, the opportunities they are given, and the challenges they face. Through pop-up windows and a Learn More option, players are provided with additional information on the history and culture of each country as well as on other aspects, such as diseases and natural disasters. Birth rates and occurrences of events are based on official statistics published by international organizations, such as the United Nations and the World Health Organization, and *RealLives* also includes statistics from and links to these sources. This allows players to experience typical incidents and lives in a particular location, if players do not manipulate the lives. It also provides comparable experiences to players choosing characters in the same place. Since *RealLives* does not include any interaction between characters and does not support a multiplayer mode, it is likely to promote the development of intercultural awareness, knowledge, and sensitivity rather than train intercultural skills.

*Findings*

This thesis was based on the assumption that playing out the lives of characters in a variety of countries and cultures on *RealLives* and possibly identifying with them could lead to an increase in students' intercultural awareness as well as to the development of intercultural sensitivity, including positive attitudes such as curiosity, openness, flexibility, empathy, respect, and ethnorelativism. As the results show, *RealLives* has the potential to promote intercultural awareness and sensitivity in student players in a variety of ways. However, the potential varies from one student to another due to a range of factors; above all, knowledge and experience, identity development, and the social learning environment. These factors also

influence students' use of *RealLives* and result in potentially unique personally meaningful approaches toward the simulation. The findings of the study show that the educational potential of *RealLives* can only be fully exploited when social interaction and peer learning are encouraged, and when students are guided and supported by a knowledgeable teacher. A thorough integration of the simulation in teaching and a combination with other learning tools and strategies seem essential, if educators want students to make the most of the experiences and educational opportunities *RealLives* provides.

Although the results of qualitative case studies cannot simply be transferred to other contexts or generalized, a range of similar phenomena emerged from all three case studies, which suggests their relevance beyond the specific contexts. Based on the findings of this study, a working model for Media-based Socially Mediated (MeSo) Intercultural Competence Development is proposed in this thesis. Further research is indispensable to test this model and to develop a theory of intercultural competence development through the use of digital games and simulations that can be applied to a wide range of contexts.

*Organization of the Thesis*

This thesis consists of four major parts: the theoretical background of the study (Chapter 2), methodological considerations and empirical research methods (Chapter 3), findings (Chapters 4 to 6), and discussion and conclusion (Chapters 7 and 8).

Chapter 2 focuses on the educational potential of digital games and simulations (2.1) as well as definitions, theories, and models of intercultural competence development (2.2). Chapter 2.1 starts with an introduction to the history of digital games and simulations in educational settings before elaborating on the characteristics of these media that can make them valuable tools for learning and development. The section includes a discussion of the value of play, in particular role-playing, for learning and development. It also shows why digital games and simulations appear to be particularly suitable for today's generations of students and for education contemporary theories of learning, such as Vygotsky's (1978) Social Learning Theory. Chapter 2.2 presents definitions of competence, culture, and intercultural competence, followed by theories and models of intercultural competence development. It also elaborates on the cognitive and affective components of intercultural competence, particularly intercultural awareness and sensitivity, which are the main foci of this thesis. Since the behavioral component (i.e., the intercultural skills) was not included in this study, it is only touched upon briefly at the end of the section.

Chapter 3 explains the methodological underpinnings and the empirical research methods employed in this study. The first part of the chapter (3.1) outlines the methodological

considerations. It is followed by an explanation of the research design (3.2), comprising rationales for the selection of the simulation *RealLives* and the case study approach, and a description of case and participant selection. This section also includes the research timeline. Section 3.3 describes the empirical research methods used in this thesis: participant observation, in-depth interview, and questionnaire survey. In section 3.4, the methods of data analysis — qualitative content analysis and statistical analysis with SPSS — are explained. Ethical considerations, particularly with regard to the students' age group, are discussed in section 3.5. Chapter 3 concludes with detailed profiles of the three cases (3.6). These provide the backdrop against which the findings in Chapters 4 to 6 are to be seen.

Chapters 4, 5, and 6 contain key findings that emerged from the three case studies conducted at the Australian, Swiss, and American schools. Using the method of within-case comparison, each chapter presents the findings of one case study in a comparative manner. The sub-sections of the findings chapters address the use of the simulation *RealLives* and the interactions between students, teachers, and the medium (sections 4.1, 5.1, and 6.1) as well as the connections between the use of *RealLives* and students' intercultural awareness (4.2, 5.2, 6.2) and sensitivity (4.3, 5.3, 6.3).

In Chapter 7, the findings presented in Chapters 4 to 6 are discussed in relation to the research questions and in consideration of existing theories and research results. The discussion focuses on three main factors that emerged from the findings as being of particular importance: knowledge and experience (7.1), identity (7.2), and social learning (7.3). Following the discussion of these aspects, a model is proposed that illustrates the process of intercultural competence development through the use of interactive digital media in social learning environments (7.4).

Chapter 8 contains the conclusions that may be drawn from the study. It summarizes the key findings (8.1), addresses the limitations of the study (8.2), and points out opportunities for further research (8.3).

# CHAPTER TWO

## THEORETICAL FOUNDATIONS

This chapter takes a closer look at connections between (digital) games and simulations on the one hand, and learning and development on the other. It also includes the theories and models of intercultural competence development this study is based on.

### 2.1 The Educational Potential of Digital Games and Simulations

The first section of this chapter outlines the educational potential of digital games and simulations. It introduces important definitions, concepts, and theories underlying this thesis project, summarizes existing work in this area, and points to key debates as well as gaps in research.

#### 2.1.1 A Short History of Digital Games and Simulations in Education

Traditional (offline) games and simulations have been used for educational purposes for a long time. In the 18th century, the military already employed war games and simulations for teaching tactics, decision-making, and conflict solving (Egenfeldt-Nielsen, 2005). Since the introduction of computers in the 1960s and 1970s, digital variants of games and simulations have found their way into schools, universities, and other educational environments. Before looking at some the uses of digital games and simulations in education, the concepts of *game* and *simulation* need to be introduced.

Although the debate about what distinguishes a game from a simulation is ongoing and the term *simulation game* has become increasingly popular, there are characteristics that are considered typical for games versus simulations. A game can be described as a challenging but nonetheless enjoyable rule-based activity, in which participants attempt to achieve goals by creatively applying knowledge and skills (Heinrich, Molenda, Russel & Smaldino, 2002, cited in Akilli, 2007). Games typically create fictional worlds with their own rules, distinct from those of the physical world (Akilli, 2007). In contrast, simulations are simplified representations of real-life environments, abstract versions of the physical world that focus on specific aspects (Akilli, 2007).

Drawing on earlier work by Gredler, Akilli (2007) characterizes simulations as “based on a dynamic set(s) of relationships among several variables that change over time and reflect authentic causal processes” (pp. 4-5). The course of play in simulations is less linear than in a game, and the focus is more on exploration than on winning (Akilli, 2007). Nevertheless, players usually develop their own goals (Gee, 2009). One advantage of simulations is that

they enable users to influence and manipulate parts of the system and to observe the effects these changes have (Lieberman, 2009). This allows them to understand the underlying rules of the simulation, which are at the same time rules of systems in the physical world.

Despite these differences, games and simulations also have a lot in common and can be hard to tell apart in practice. Both create play worlds in which participants can act and see the consequences of their actions without serious risk to their real-life existence (Gee, 2003). Similar to simulations, games can be based on real-world scenarios (Akilli, 2007) and can incorporate real-world aspects, while users of simulations often perceive and use simulations as a game. Prensky (2001a) argues that simulations are not in and of themselves games, but that they can become games if game elements, such as goals, competition, and fun are added. Shaffer (2007), on the other hand, believes that the fundamental characteristics of games are the rules they are based on, not goals, competition, or fun. Following this definition, simulations are also games. Thus, the boundaries between games and simulations are not exactly clear (Akilli, 2007), which is arguably one of the reasons why the term *simulation game* has become popular. Since players often focus on different aspects of a game or simulation and use it in ways that are not necessarily intended or foreseen by game designers, producers, and researchers, it is important to ask players how they individually define, perceive, and use a particular medium in a specific context.

Historically, computer games and simulations have been used in education alongside other media, such as instructional television and videos, since the 1960s, when computer-assisted instruction (CAI) emerged (Egenfeldt-Nielsen, 2007a). CAI describes the "use of a computer to provide course content instruction in the form of drill and practice, tutorials, and simulations" (Chambers & Sprecher, 1983, p. 3). It was employed mainly in teaching mathematics and reading, but also in language studies, philosophy and other subjects (Chambers & Sprecher, 1983). By actively involving learners in the learning process, enabling them to learn at their own pace and providing immediate and systematized feedback, CAI met many theoretical demands on "a 'good' learning environment" (Chambers & Sprecher, 1983, p. 20) and was therefore believed to result in better quality and more effective learning. There appeared to be "widespread agreement that computers have the capacity to facilitate individualized instruction and that their flexibility permits a variety of instructional strategies. Many believe that these machines have the potential to enhance the productivity of the individual teacher and improve the quality of the learning process" (Hammond, 1972, p. 1005). Motivation was also considered an important factor in using CAI with educators hoping for it to increase student performance and positive attitudes (Chambers & Sprecher, 1983).

A number of educators and researchers expected CAI to cause a “revolution in the classroom” (Hammond, 1972, p. 1005) and to “sweep the country and ultimately change the entire structure of education” (Chambers & Sprecher, 1983, p. 6). Empirical studies, however, failed to show overwhelming positive results and significant learning gains (Fletcher-Flinn & Gravatt, 1995), which led to “disenchantment with CAI” (Chambers & Sprecher, 1983, p. 17) in many educators and funding agencies. Reviews and meta analyses of CAI studies came to the conclusion that CAI either moderately increased learning outcomes compared to traditional classroom teaching or showed no difference at all (see e.g., Chambers & Sprecher, 1983; Fletcher-Flinn & Gravatt, 1995). Although CAI was usually perceived as more exciting, rewarding, and satisfying for learners, empirical findings highlighted that the educational potential did not lie in the medium alone, but that “the quality of human effort” (Chambers & Sprecher, 1983, p. 23) and the integration in the curriculum was crucial. It was concluded that “course material must be carefully prepared by knowledgeable people, be used in a setting where teachers provide academic and personal support as needed by students and it must be inexpensive” (Chambers & Sprecher, 1983, p. 23). The main obstacles to an effective use of CAI identified were the high costs of technology, inadequate teacher training and conservative attitudes or even resistance of institutions (Cobourn, 1982a, cited in Chambers & Sprecher, 1983; Hammond, 1972).

Nevertheless, CAI was considered “an effective educational tool under the proper conditions” (Chambers & Sprecher, 1983, p. 23) and it was suggested that it be judged and compared with other types of instruction not only by greater learning gains, but also by other criteria, such as versatility, time and cost effectiveness, presentation of realistic problems, immediate feedback, opportunities for collaborative learning, facilitation of monitoring and control, and enjoyment (Lyon et al., 1992, cited in Fletcher-Flinn & Gravatt, 1995). As will be shown later in this chapter, the experiences with and the discussions on CAI bear a striking resemblance to the recent discussions on the use of digital games and simulations in education, which is why they have been presented here at some length.

The type of drill and practice learning that was already part of CAI can still be found today in so-called edutainment titles (Egenfeldt-Nielsen, 2007b). Edutainment, “the combination of educational and entertainment use on a variety of media platforms including computer games” (Egenfeldt-Nielsen, 2007b, p. 264), has mainly been used to teach younger children mathematics and literacy (Egenfeldt-Nielsen, 2007a). Initially believed to be a way to make learning fun, it was soon criticized for its separation of learning and playing, lack of intrinsic motivation, drill-and-practice principles, simple game play, poor quality, and its use as stand-alone activity (Egenfeldt-Nielsen, 2005). Charsky (2010) explains,

> *Edutainment and instructional computer games were once touted as the savior of education because of their ability to simultaneously entertain and educate. (...) Yet, both edutainment and instructional computer games have received a terrible reputation for being the worst type of education, drill and practice activities masked with less than entertaining game play (Van Eck, 2006). (p. 177)*

Despite such criticism, edutainment products constituted the biggest group of educational digital games in 2009 (Ratan & Ritterfeld, 2009).

In the 1970s and 1980s, an increasing number of adventure games emerged (e.g., *Oregon Trail, Where in the World is Carmen Sandiego?*), which better integrated learning and playing (Egenfeldt-Nielsen, 2007a). Since the 1990s, there has been a strong focus on multimodal learning; that is, on the combination of text, images, and sound, attempting to cater for different learning styles and preferences (Egenfeldt-Nielsen, 2007a). More attention has been given to the individual characteristics of learners as well as to metacognitive skills, such as problem-solving (Egenfeldt-Nielsen, 2007b). Many of the titles used since the 1990s are not explicitly educational (e.g., *SimCity, The Sims, Civilization*), but educators have recognized the educational potential of these commercially successful games and simulations, which many students enjoy playing in their free time, and have introduced them to subjects such as Geography and Urban Planning (e.g., Adams, 1998; Gaber, 2007), History (e.g., Egenfeldt-Nielsen, 2005; Squire, 2004), and English (e.g., Ranalli, 2008).

Since the year 2000, an increasing number of game designers, producers, researchers, and educators have been working on a new category of educational games, the so-called "serious games" (Prensky, 2001a; Serious Games Initiative, 2008), which are games that have "a purpose beyond entertainment, often for prosocial change" (Sherry & Dibble, 2009, p. 146). This purpose can range from the promotion of a deep understanding of political and religious conflicts to the promotion of healthy sexual behavior. Serious games attempt to better integrate learning experiences into the game by combining successful elements of commercial games with innovative educational approaches on the basis of existing research. Although entertainment is not the main purpose of a serious game, "an educational computer game should, in theory, be able to exhibit the same holding power on players as any other commercial computer game" (Egenfeldt-Nielsen, 2007a, p. 10). Learners should enjoy the activity and develop an interest to learn more about the topic (Graesser, Chipman, Leeming, & Biedenbach, 2009). In a "deep serious game" (Gee, 2009, p. 67) learning to play the game means at the same time learning the educational content, attitudes, or skills. However, seamlessly intertwining learning matter and enjoyable game play is not an easy task. Studies have shown that better learning outcomes usually entail a decrease in enjoyment (Graesser, et

al., 2009), which makes it difficult to design a fully enjoyable serious game. Thus, further research in this area is necessary.

*Empirical Studies on the Educational Use of Digital Games and Simulations*

A number of studies have examined the use of digital games and simulations in education and their effectiveness in terms of learning outcomes. They have found positive outcomes with regard to eye-hand-coordination, spatial skills, the recognition of strategies and patterns, decision-making, problem solving, and transfer of information (see e.g., Kirriemuir & McFarlane, 2004; Lieberman, 2006; Sandford & Williamson, 2005; Subrahmanyam & Greenfield, 1994; Vorderer & Bryant, 2006; Yelland, 2005). Simkins & Steinkuehler (2008) are convinced that "researchers have been using games as learning tools and are meeting with success" (p. 338). To support their argument, the authors refer to Squire's (2004) study on the use of *Civilization III* to promote understanding of historical processes (see below), Shaffer's (2005) work on epistemic games, which teach professional practices and thinking in areas such as science and writing, and Steinkuehler's (2008) research on massively multiplayer online games, in which participants are engaged in "high-level literacy, math, and science reasoning practices" (Simkins & Steinkuehler, 2008, p. 339). Studies on multi-user environments, such as *River City* (Dede, Clarke, Ketelhut, Nelson, & Bowman, 2005), *Quest Atlantis* (Barab, Thomas, Dodge, Carteaux, & Tuzun, 2005), and *Virtual Singapura* (Jacobson, Kim, Lee, Seo, & Sok, 2008) have also demonstrated an increase in science knowledge and inquiry skills as well as greater student motivation and engagement.

However, some researchers have bemoaned that many empirical studies on the use of digital games and simulations in education have been idiosyncratic, have had methodological flaws, and/or have only detected small effects and shallow learning (e.g., Egenfeldt-Nielsen, 2007b; Sherry & Dibble, 2009). According to Sherry & Dibble (2009), "The most we can say about these studies is that players learn some short term facts from game play versus not playing the game" (p. 156).

Egenfeldt-Nielsen (2007b) provided a comprehensive review of 20 empirical studies conducted with action, puzzle, adventure, strategy, and role-playing games, as well as simulations between 1981 and 2006. These studies covered a wide range of activities in subjects ranging from Mathematics and Science to Geography, Health, Engineering, History, and Social Studies. Upon analyzing these studies, he concluded:

> *Looking at the research into educational use of computer games, one is struck by the quite optimistic tones from most studies; however, one should be cautious. Indeed many of the studies have severe flaws related to researcher bias, short exposure time, no control group and lack of integration with previous*

> *research. (…) We can certainly say that you learn from computer games but the support for saying something more valuable is weak. (…) the studies in general do not ask the hard questions concerning educational use of computer games. None of the studies actually compare computer games to other teaching methods or activities, to examine whether computer games are worth the initial efforts in learning the interface, setting up computers and other practical problems (Egenfeldt-Nielsen, 2004). Most of the studies are one-shot studies with a lack of knowledge of the characteristics of computer games and with weak connections to earlier research. (pp. 268-272)*

This situation has not changed much, and more well planned studies are still needed to determine the value of digital games and simulations for educational purposes.

In his own doctoral thesis, Egenfeldt-Nielsen (2005) examined the use and educational potential of *Europa Universalis II*, a commercial historical strategy game. In the study, 72 students (aged 15 to 19) and two teachers used the game for 2½ months as a major component of a history course in a Danish high school. Egenfeldt-Nielsen (2005) looked at the playing experience on three levels — appreciation, exploration, and linking — and concluded that problems occurred on all three levels:

> *The appreciation caused problems for many students as they did not have the necessary knowledge of history and computer games to identify the relevant elements in the game experience. When relevant elements were recognized students failed to explore due to distrust of the value of the game experiences. Finally the linking between the game experience and other areas rarely happened. (p. 3)*

As a result, he recommended that games used in formal educational settings be accompanied by concrete educational goals as well as directions for exploration. He also underlined that educators should not expect learning opportunities in relation to the curriculum to reside in a game that is used in isolation.

In another dissertation, Squire (2004) conducted three case studies with underachieving American ninth-graders in a world history classroom of a Boston Media and Technology Charter School (18 students), during a subsequent one-week summer camp at the same school (five of these students), and with 10 sixth- and seventh-graders in an after-school computer club. The project examined the use of the commercial historical strategy game *Civilization III* in these contexts. It found that students' engagement "was a complex process of appropriation and resistance" (Squire, 2004, p. 4); students negotiated the purpose of playing the game among their identities, the classroom goals, as well as the affordances of the medium. The results showed that students were confused and struggled considerably to learn how to use *Civilization III*, and it took them several days to appropriate it as a game, and even longer as a learning tool. It was hard for them to make sense of the activity, see the relevance for their own lives, and its educational value. The use of *Civilization III* seemed to work best

in the after-school context, where the use of an entertainment medium did not contradict a culture of formal education. Eventually, most students became engaged in playing the game in their own unique way, which led to unique questions from the students, the emergence of different conceptual understandings, and varying interpretations of history. Most students asked numerous questions, which the teachers appreciated, but few of these questions were "why?" questions. Many students did not understand why they failed in the game, did not reflect on the underlying rules and structures of the game and of history in general, and relied heavily on the instructor to make connections and solve problems. Squire (2004) concluded that "*Civilization III* was effective for introducing students to related geographic and historical concepts, but not as good at facilitating deep conceptual understandings of them" (p. 358). All students developed their own flexible goals, ranging from replaying history and exploring geography to building and protecting civilizations, to simply beating the game or socializing. Peer communication and collaborative learning were most prevalent in the after-school context, where students were sharing and comparing their experiences, scaffolding each other, and working in affinity groups. The other — more formal — contexts led to more aggressive parallel play and less interaction. As some of the most powerful learning took place when students were preparing a presentation and had to reflect on their experiences, Squire (2004) argued that the social practices surrounding game play can be as important as playing the game itself. Overall, *Civilization III* provided possibilities for history learning, but the extent to which students took advantage of them varied considerably. Squire (2004) concluded that "history and geography became tools for game play and successful students developed conceptual understandings across world history, geography, and politics" (p. 4). During the study, Squire encountered a number of problems from disobedient students to failing technology and teachers' inability to implement the unit on their own. Thus, the "significant, unsolved challenges in integrating such a complex game within classroom settings" (Squire, 2004, p. 4) also constituted an important outcome.

Another study on history learning is reported by de Freitas (2006a), who summarized a research project by Russell Francis in collaboration with MIT researchers. In this study, *Revolution*, a game on American Revolution history (based on the adventure game *Neverwinter Nights*), was used with home-schooled students and a high-school history class. The aim of the research was to explore the potential of the software to support learning and teaching social aspects of history, particularly through storytelling and experiential learning. The study found students' identification with the historical figures in the game to be important for learning as it allowed them to reconstruct history from the characters' perspectives and to reflect on social historical figures, their views, and experiences (de Freitas, 2006a). However,

since the knowledge players construct through role-playing “might remain tacit” (Francis (2006), p. 17, cited in de Freitas, 2006a, p. 44), reflection in the form of discussions or group activities and support from a tutor are crucial. In addition, player autonomy emerged as an important motivator in the study (de Freitas, 2006a).

In 2001, Tsikalas examined how playing digital games can promote learning in multicultural low-income communities. Over the course of six weeks, she observed a handful of (pre-)teenagers playing *The Sims* (among other digital games) in a community center in East Harlem, New York City. She noticed that the participants were confident with the technology and quickly and easily learnt how to use *The Sims* without the tutorial. The children also discovered the underlying rules of the simulation and used this knowledge while playing. They were highly focused and physically engaged with the simulation, frequently talking to the characters, for example. There was plenty of interaction between the participants, who often compared their playing strategies and watched others. Participants developed different strategies and goals, ranging from trying to lead a normal life to creating as much drama as possible, and focused on different aspects of *The Sims*. Tsikalas (2001) concluded that participants showed “fine-tuned visual attentiveness and were able to keep track of everything that was happening in the environments they built. They also exhibited great facility in spatial manipulation” (p. 8). Tsikalas (2001) noted that playing *The Sims* allowed participants to play out interpersonal conflict and problems and search for solutions similar to play therapy. Moreover, the children were able to try on a variety of identities, and their talking during play possibly supported the development of verbal fluency. Tsikalas (2001) found that the participants discovered and followed the underlying rules of the simulation, as well as the cultural norms and values embedded, but usually did not reflect on them on their own initiative. To create more play and learning opportunities, Tsikalas (2001) suggested an expansion of the range of character types, more opportunities for players to capture and script play moments, and more opportunities for mathematical experiences. She also proposed adding more options for social interactions of child characters, for example science kits, invention centers, or a historical re-enactor (Tsikalas, 2001).

Another study with *The Sims* was conducted by Ranalli (2008), who used the software with a small sample of nine intermediate-level learners of English as a Second Language at a Midwestern American university. The learners, from a range of Asian, Arabic, and Spanish-speaking backgrounds, were given pre- and post-tests and weekly quizzes to measure their language learning. Since students were working in pairs while using the digital simulation and were also provided with supplementary material, such as vocabulary exercises, cultural notes, and an online dictionary, the effect of the simulation could not be singled out. The results of

the study showed that students enjoyed the activity, learned more vocabulary, and believed that simulation games could be helpful for language learning, though not necessarily more useful than an English course (Ranalli, 2008). Students criticized the fact that there was no spoken English incorporated in *The Sims*, which meant that they could not practice their listening skills, and that their efforts to keep their characters happy distracted them from the new vocabulary (Ranalli, 2008). The simulation therefore showed clear limitations with regard to language learning.

Gaber (2007) investigated another simulation commonly used in educational contexts, *SimCity*, in urban planning university courses. He had used *SimCity* for over a decade to enable students to test existing planning theories and try their own theories and considered it a "very useful tool in teaching students the complexities of cities and a handful of insights into the problem-solving and craft of planning" (Gaber, 2007, p. 117). However, he acknowledged that the educational benefits of the simulation were only as good as the instructor's efforts to integrate it into teaching. Through surveys, Gaber (2007) collected empirical data that focused on his three learning objectives: learning about multidimensional systems in cities, acquiring problem-solving skills, and procedural knowledge and developing "a sense of 'craft' of plan making" (Gaber, 2007, p. 119). Over the course of three years, 20 students of his *Death and Life of Great American Cities* course (12 undergraduates and eight graduates; four of the graduate students were planning students) completed the survey. The results showed that most students (3/4 of undergraduates and all planning students) believed that *SimCity* had a significant impact on their thinking about the complexity of cities. Moreover, the simulation was well perceived with regard to problem-solving and procedural knowledge, albeit mainly by graduate students. 62% of graduate students and 75% of planning students agreed that the simulation had presented them with city planning techniques that improved their cities, but *SimCity* did not have much impact on the development of a sense of craft. According to Gaber (2007), the reason for this was that the "simulation provides a very basic cut-and-dry representation of land-use problems, leaving students with little room to think about or develop new or innovative planning ideas that can impact their craft" (p. 120). He nonetheless considered *SimCity* an extremely successful additional educational resource in the area of urban planning. The study showed that a simulation like *SimCity* does not necessarily match all goals educators might have and that it might work better with some students (in this case graduate and planning students) than others.

*Empirical Studies on the Use of Digital Games and Simulations for IC Development*

Empirical studies that focus specifically on the development of intercultural competence (IC) through digital games and simulations are hard to find. Most publications in this area simply present software designed to promote intercultural competence and explain the development and use of these products, mainly in the US Military (e.g., Johnson, 2009b; Johnson & Friedland, 2010; Raybourn, Deagle, Mendini, & Heneghan, 2005). Empirical data is extremely sparse.

Raybourn (2009) examined the use of *America's Army Adaptive Thinking & Leadership*, a virtual multi-player environment for the development of intercultural competence and metacognitive agility (self-awareness and self-regulated learning) in United States Army Special Forces team leaders. She administered questionnaire surveys and conducted focus groups with a total of 85 officers between the ages of 26 and 38 (Raybourn, 2009). Her preliminary results showed that the users were engaged with the realistic scenarios in the environment and reported they had learned more about their personal strengths and weaknesses by participating in the activity (Raybourn, 2009).

Lane et al. (2008) conducted a study with 30 participants recruited at the University of Southern California. These participants used *ELECT BiLAT* (*Enhanced Learning Environments with Creative Technologies for Bi-lateral negotiations*), an immersive virtual learning environment developed to teach preparation, execution, and understanding of bi-lateral meetings by allowing users to practice negotiation, trust building, and meeting behavior. The environment included an intelligent tutoring system, a coach that provided support in meetings between learners and virtual characters. In the study, participants received instructions, watched a video on how to use *BiLAT*, took a pretest of a situational judgment test (SJT), then virtually met with three different characters, had a fourth meeting with no coaching or tutor, and took a post-test of the same SJT. The virtual meetings were either video-only, without a coach, or with a coach. Learning was assessed in the fourth meeting as well as through pre- and post-test comparisons. The results of the study showed that guidance "seemed to improve learners' understandings of culturally-related 'phases' in meetings (…) as well as greater success in an unsupported posttest meeting, but with no overall increase in cultural understanding when compared with learning in passive and unguided conditions" (Lane, et al., 2008, p. 35).

Another study on intercultural learning through digital technology was conducted in Australia, where engineering students were using the online role-play simulation *Mekong e-sim* for six weeks as part of a 13-week blended learning course (The University of Adelaide, 2006). In the simulation, students took on identities of stakeholders in the South-East Asian

Mekong region and debated development projects and related social, political, economic, and scientific conflicts. Assessment through surveys, in-depth evaluation of social interaction, and the analysis of student debriefing essays at the University of Adelaide in 2004 and 2005 showed that,

> *97 percent had improved their ability to see engineering projects from multiple perspectives; 88 percent said the experience contributed to the development of their communication and teamwork skills; 97 percent found their awareness of the complexity of sustainable development issues had increased; 94 percent said their understanding of the political, social, economic, and scientific dimensions of engineering decision making had grown; and 88 percent stated that the e-Sim taught them the requirements of working in an international environment. (The University of Adelaide, 2006, heading What is it?, para. 4)*

The researchers found a high level of social interaction between students and a high rate of student satisfaction. Results of randomly administered surveys also indicated that students developed "awareness of sustainability issues, the multidisciplinary and multicultural dimensions of engineering issues, and the importance of teamwork, particularly in an international environment" (The University of Adelaide, 2006, heading Why is it noteworthy?, para. 3).

As far as *RealLives*, the simulation used in this study, is concerned, Tsikalas (2008a, 2008b) examined the impact of *RealLives 2004* on identity exploration, information learning, and sense-making in 13 sixth-graders from low-income families in New York City, who were using the simulation in their leisure time outside of school. Tsikalas (2008b) found *RealLives* to be engaging and motivating and discovered positive effects on decision-making and problem-solving skills. The children engaged in various types of play — projective and identified play and experimentation — and developed individual strategies to manage their relationships, education, profession, and finances. Tsikalas (2008b) concluded that the use of *RealLives* could support healthy adolescent development and help diagnose and address maladaptive behavior. Using such a simulation allowed educators to deliver information in an engaging way that encouraged the development of students' "self-regulatory skills such as goal-setting, monitoring and self-reflection" (Tsikalas, 2008b, p. 7). Tsikalas (2008b) believed that the simulation could also be used as the basis for classroom discussions and counseling.

Although this study did not look at intercultural competence development specifically, the types of play identified, and the ways in which players experimented with various identities and courses of life in different countries could have an impact on players' intercultural awareness, knowledge, and sensitivity. Students' cultural values also seemed to

be reflected in their playing, for example in the phenomenon that almost all students wanted to enroll in higher education (Tsikalas, 2008b). Such values are likely to collide with the living circumstances in other countries and could lead to reflection and the development knowledge of and attitudes toward other countries and cultures. According to Tsikalas (2008b), one student mentioned that playing *RealLives* had shown her that life in different countries followed different rules and that Americans had more freedom than people in other countries. This corresponds to intercultural awareness development; that is, an individual becoming aware of the fact that life is different across cultures and that their own culture and way of living is only one of many (see Chapter 2.2). Based on the results of Tsikalas' (2008b) study, it could be assumed that *RealLives* had the potential to promote intercultural awareness and sensitivity in adolescents.

*Summary*

The above-mentioned empirical studies on learning with digital games and simulations in different formal educational environments and after school contexts suggest that these media can promote learning in various subject areas and encourage the development of metacognitive and social skills. The studies on intercultural competence development indicate that digital games and simulations might have the potential to foster the development of intercultural awareness, knowledge, attitudes, and skills, although none of the studies explored commercially available software, its use with adolescents, in school, or in different cultural contexts. The results of the studies highlight that learning with digital games and simulations usually does not happen automatically, and that reflection and discussion with peers and teachers and the specific socio-cultural and institutional contexts play a crucial role for the learning outcomes and the success of the activities. While students and teachers generally enjoyed the activities and were motivated and engaged (at least once they had learnt how to use the software), this did not guarantee relevant educational outcomes. There were also a range of obstacles and pitfalls, particularly in schools, which need to be considered. Further research is indispensable if one wants to determine the potential of digital games and simulations for the development of intercultural competence in children and adolescents and find ways to fruitfully integrate these media in formal educational environments.

### 2.1.2 Characteristics of Digital Games and Simulations

Combining characteristics of traditional (offline) games and simulations with the specifics of digital entertainment media, digital games and simulations have been considered valuable educational tools for several reasons. Although some researchers see digital games and

simulations as fundamentally different cultural and technological artifacts due to the use of technology for leisure, creativity, and play, and different aesthetics (cf. Bryce & Rutter, 2006), there are important commonalities between digital and non-digital games as well as between digital games and other forms of technology.

*Traditional Games and Simulations*

A game can be defined as a "rule-based system with a variable and quantifiable outcome, where different outcomes are assigned with different values" (Juul (2003), p. 30, cited in Egenfeldt-Nielsen, 2007a, p. 14). In this system, a player attempts to influence an optional and negotiable outcome, which s/he feels attached to (Juul (2003), cited in Egenfeldt-Nielsen, 2007a). Similarly, Heinrich, Molenda, Russel, & Smaldino (2002, cited in Gibson, Aldrich, & Prensky, 2007) describe playing a game as "an activity, in which participants follow prescribed rules that differ from those of real life [while] striving to attain a challenging goal" (p. 3). This definition highlights that the rules of games differ from "real life" (thereby distinguishing games from simulations, which are based on real-world rules) and that achieving a goal in a game is usually a challenge. Egenfeldt-Nielsen (2007a) notes that goals are "tied to the conflict and necessary for the player to really invest strong feelings in the game" (p. 15). He points out that "even when computer games do not set up specific conflicts and goals, many players will invent their own and use the simulation to achieve these goals, making up their own game experience" (Egenfeldt-Nielsen, 2007a, p. 15). Attempting to reach a goal in a game motivates and engages the player. This motivation can encourage learning (e.g., understanding the underlying rules of the game and developing strategies to reach the goals) and the development of skills; it can lead to even greater interest, motivation, and engagement (Lieberman, 2006). The right level of challenge required to achieve a goal is crucial as tasks that are too easy can reduce enjoyment and cause boredom, while games that are too challenging can lead to player frustration and resignation (Malone & Lepper, 1987, cited in Egenfeldt-Nielsen, 2007a).

Gibson et al. (2007) describe playing a game as "a competitive activity that is creative and enjoyable in its essence, which is bounded by certain rules and requires certain skills" (p. 4). Competition, creativity, and enjoyment are often associated with game play, and they can support learning in several ways: Competition — either with characters in the game, with other players, or with oneself (e.g., trying to beat personal high scores) — can motivate players to be creative, try various strategies, and encourage exploration and learning. Motivation and enjoyment through competition can lead to longer playing as well as more

engagement and investment by players, which could increase learning outcomes. Prensky (2005) summarizes the motivational qualities of games as follows:

> *Games engage and motivate us through their goals and our struggle to achieve them, through the decisions we make and the feedback we get from them, through the opponents and challenges we have to overcome, and through the emotions and connections with others we feel when playing. (p. 102)*

Malone & Lepper (1987, cited in Egenfeldt-Nielsen, 2007a) identified five categories in which games can be considered fun and rewarding: (1) the right level of challenge, (2) stimulation of curiosity by unknown and complex worlds, (3) motivation and emotional appeal through fantasy, (4) interpersonal motivations, such as collaboration or competition with peers, and (5) player's control and choice. All these factors contribute to the creation of positive emotions in players. Games are only enjoyable and entertaining for players when positive emotions outweigh negative ones, which depends on the perceived level of challenge and self-efficacy (see below) and players' ability to cope with failure, among other factors (Klimmt, 2006). Depending on the player and context, using a simulation can also be an enjoyable, creative, challenging, and motivating experience, although the focus is more on exploration than on winning or reaching a particular level. According to Klimmt (2006), studies in developmental psychology have shown that children enjoy exploring and trying things and thereby satisfy their curiosity and reduce negative emotions, such as uncertainty and anxiety.

Games have been grouped into various genres, such as puzzles, adventures, action games, sports games, role-playing games, and educational games, for example. Simulations are sometimes considered a game genre, particularly when their entertainment value is emphasized. In this case they are often called *simulation games* (e.g., on the Electronic Arts website, http://www.ea.com/genre/simulation-games). When simulations are used for educational purposes — in pilot training or medical education, for example — they are usually not considered games since Western cultures typically associate games with play, which is seen as opposed to work (Malaby, 2007). Education is regarded as a form of work and therefore not compatible with play.

The distinction between play and work and the idea that children play while adults work, stem from the Victorian era (D. Cohen, 2006). Resistance by school officials, teachers, parents, and even some students to use games in formal educational environments shows that this division still exists. In contrast to these thoughts, serious games attempt to dissolve these contradictions and break the boundaries between work and play by thoroughly integrating learning in enjoyable game play experiences. A closer look at the functions and the value of

play, in particular for the development of young children, shows that play and work are by no means contradictory concepts; play has even been described as “children’s work” (Jalongo, 2010, p. iii). Children frequently engage in game play and in doing so “pick up many basic rules both of social structure and of the structure necessary for language learning” (D. Cohen, 2006, p. 95).

Huizinga (1956) describes play as a human characteristic that can be found in all cultures, albeit in different forms. While play is determined by culture, it also creates culture by providing people with a means to express their norms, values, beliefs, and worldviews. Caillois (1964) defines play as a voluntary action within specific local and temporal boundaries that takes place in another “world”, a play world or alternative reality. Play is characterized by uncertainty in that its course and outcome are unclear, but it is also regulated by conventions. Play is autotelic, the main reason for playing being the action of playing itself. This includes experiencing emotions, such as happiness and suspense. Schlütz (2002) considers intrinsic motivation the most important characteristic of play. “Intrinsic motivation refers to a motivation that arises directly from doing the activity, whereas extrinsic motivation is a motivation that is supported by factors external to the activity” (Egenfeldt-Nielsen, 2007a, p. 59). When games are played in formal educational contexts, they combine intrinsic and extrinsic motivation, or proximate and ultimate (in this case educational) motives (Schneider, 1996).

Children naturally engage in play frequently from their early years (Gibson, et al., 2007) and play is the “typical and innate way for young children to make sense of their world” (Ebbeck & Waniganayake, 2010a, p. 11). This is why theorists and educators have stressed the importance of play for children’s cognitive, emotional, and social development. Different types and levels of play have been identified for children of different ages and in different stages of development by theorists such as Piaget and Parten (Degotardi & Pearson, 2010). According to Einsiedler (1991), children’s play is an intrinsically motivated deliberate chain of actions that focuses more on the process of playing than on the outcome, is accompanied by positive emotions, and a form of “as if” experience separated from real life. Free from the pressure and constraints of the real world, children construct knowledge and develop skills, including communicative competence and perspective-taking, they try on a variety of roles and much more in their play worlds (Klimmt, 2006). Playing can also help children cope with difficult and complex situations in their lives (Klimmt, 2006). D. Cohen (2006) explains:

> *It is not just that play rehearses emotional and social skills that will be used later. The process of playing, of manipulating what behaviour is for real and what is not 'for real' is crucial to the very necessary human process of discovering that other people have ideas, hopes and beliefs – and that these can be influenced and manipulated. (p. 182)*

Play provides a distinct frame for actions, which allows and encourages individuals to think and act differently than they normally would (Goffmann, 1974, Fritz, 1993, cited in Schlütz, 2002). "Through framing something as make-believe, we can engage in activities that are normally not acceptable, potentially dangerous or completely unknown" (Egenfeldt-Nielsen, 2007a, p. 108). The play frame opens up a new world of opportunities while at the same time reducing the severity of consequences by providing a safe environment separated from the real world (Schlütz, 2002). Both games and simulations provide such safe play worlds that allow players to try actions and see the consequences without any serious real-world risk. Players can explore sceneries, ideas, and concepts and learn from experiences (Egenfeldt-Nielsen, 2007a). They can also make experiences that would not be possible in the real world due to a lack of opportunity or power. In the play world, players can exercise power and control they do not have in the real world, which can increase feelings of confidence (Schlütz, 2002).

Although play happens in a play world that is separated from the real world to some extent, there are connections between the two worlds. Fritz & Fehr (1997) consider the fit of a player's actual life with the play world ("strukturelle Kopplung", or structural coupling) crucial for players' interest and involvement. As Huizinga (1956) explains, an individual's norms, values, and beliefs are reflected in play as well as developed and expressed through it. By playing, individuals often try out and practice strategies of behavior for future situations in their daily lives (Mogel, 1991). Play is also important for identity development as "through play, children are constructing an identity — who they are, what they know, what their joys and fears are" (Ebbeck & Waniganayake, 2010a, p. 6). In play, children explore and experiment with their identity and take on various roles, that of a mother, a doctor, or a policeman, for instance. Developmental psychologists consider such role-playing and the associated development of role knowledge, including typical actions, tools, social status, power, and so forth, a central aspect of children's development (Klimmt, 2006).

Role-playing is a type of playing activity, in which participants willingly suspend disbelief, pretend they are in a different world, and think and act as if they were someone else (MacCallum-Stewart & Parsler, 2008). Through acting out various roles, children can learn to think and act like someone else, thereby developing important cognitive, affective, and behavioral competences. As Tronstad (2008) states, "Role-playing is to construct and develop

a coherent identity for the character" (p. 256). This requires knowledge about the role as well as skills. The capacity for role-playing develops through social interaction rather than cognitive maturation (Berg, 1998, cited in Harley, 2010) and children need time and space as well as a range of role models to be able to engage in role-playing (Harley, 2010).

Considering the value of play for human development, the combination of play and learning seems to be a natural one. Indeed, organized forms of play, such as games and simulations, have been employed for educational purposes for a long time. Teachers have used role-playing activities in the form of mock trials and Model United Nations debates, for example (Simkins & Steinkuehler, 2008). One could argue that such activities that take place in a formal educational environment are not voluntary and intrinsically motivated and therefore not play (cf. Berndt, 2005). However, students often volunteer and are eager to engage in such activities in school and might not perceive them as extrinsically motivated "must-do" learning activities. Only empirical studies can reveal whether or not students engaging in activities such as the use of digital games and simulations in an educational environment consider the activity play or not.

*Digital Games and Simulations*

While digital games and simulations possess the characteristics and qualities of non-digital games and simulations described in the previous section, the digital technology adds opportunities, but also constraints, to them. Playing a digital game is still a voluntary and intrinsically motivated rule-based activity with an uncertain course and outcome and particular local and temporal boundaries. It takes place in a separate, safe play world and allows the player to think and act in ways that are not necessarily possible in the physical world. The technology offers additional opportunities for playing, such as immersive historical settings for instance, but at the same time requires resources and media competence, which are not necessary for traditional play.

Based on earlier work by Ritterfeld & Weber (2006), Klimmt (2009) identifies five characteristics of digital games and simulations that seem to be relevant for learning and development, particularly for the promotion of social change. These characteristics are the narrative, interactivity, multimodality, social/multiplayer use, and the specific play frame. Since social change and intercultural competence are closely related, these characteristics of digital game play could also be relevant for the promotion of intercultural competence through digital games and simulations.

The importance of the play frame has already been discussed. It allows players to try a variety of actions and make "as-if" experiences without having to fear serious consequences

in the physical world. According to Klimmt (2009), ignoring such consequences allows fantasy to take over players' minds and encourages role-playing "in contexts that would not be feasible, appropriate, or desirable in nonplayful action" (p. 253).

Social and multiplayer use can also be found in traditional games as well as in digital games and simulations, but modern technology can create much larger player communities through Local Area Networks (LANs) and via the Internet. Nowadays, thousands of players from around the world can play together at the same time, compete with each other, exchange and discuss their experiences in Internet forums and blogs, and ask others for help online. This type of mediated interaction adds to the face-to-face interaction when playing in groups with friends or others. Competition has been identified as the leading factor in the selection of a game title and with regard to a positive perception (Vorderer & Bryant, 2006), which highlights the importance of social and multiplayer use for players.

Multimodality refers to the ability of digital games and simulations to combine different modes, such as audio, text, video, and haptic elements, which enables players to "hear, see, observe, do, perceive and feel in a richer universe than most other media" (Egenfeldt-Nielsen, 2007a, p. 117). Modern technology can create highly detailed, multi-dimensional, and seemingly authentic virtual worlds, and high-fidelity simulations that make it easy for players to connect with and immerse themselves in, and haptic feedback can literally make players feel the game world (Klimmt, 2009). At the same time, the combination of modes can increase the entertainment factor of these media (Klimmt, 2009). Modern digital technology can create completely fictional worlds as well as seemingly realistic simulations of the physical world and thus allow players to connect with a wide range of characters. Players can experience episodes in history or life in far-away countries as if they were there. Advanced digital games and simulations are able to represent even complex environments and processes realistically, from various perspectives, and on different levels of abstraction, which can facilitate learning (Klimmt, 2009). Although this perceived realism might not be necessary and, some might argue, could potentially limit player imagination and creativity, it could also encourage players to relate to the game content and to transfer knowledge and skills from one context to another.

Interactivity is often considered the most important characteristic of digital games and simulations. It has been defined as "a perceived degree that a person in a communication process with at least one more intelligent being can bring a reciprocal effect to other participants of the communication process by turn-taking, feedback and choice behaviours" (K. M. Lee, Park, & Jin, 2006, p. 263). Usually, interactivity refers to two human beings interacting with each other; that is, acting and responding to the actions of the other and

thereby providing feedback. Digital games and simulations are similar to this in that they allow — even require — the player to act, and then respond to the choices the player makes and provide feedback, often immediately. The quick alternation between player input and feedback can be considered the basic level of game enjoyment when playing digital games (Klimmt, 2003, cited in Wang, Shen, & Ritterfeld, 2009). Specifically for digital games, Klimmt (2009) defines interactivity as "a game property that allows users to influence the quality and course of events occurring in the game world" (p. 251, cf. Klimmt & Vorderer, 2007). This means that the player is not just watching events unfold, but possesses control and agency; that is, the "power to take meaningful action and see the results of our decisions and choices" (Murray, 1997, p. 126). The player becomes the center of action and is closely connected with what is happening in the game (Klimmt, 2009). He or she causes the events in the game and is at the same time affected by the outcomes of his or her actions (Klimmt, 2009). This can evoke feelings of self-efficacy; that is, players feeling that they are capable of managing a particular situation (Bandura, 1977a, 1995).

In interactive learning environments, learners gain direct experience and are encouraged to actively apply their knowledge and skills (Lieberman, 2006). In contrast to watching a movie, listening to a lecture, or reading a book, digital games and simulations require learners to physically and mentally interact with the content, to be active, involved, and in control. Players are challenged to explore the virtual world, to think about it and respond (Lieberman, 2006). According to Lieberman (2006), users "typically enjoy interactive, experiential learning that gives them a great deal of control, involves them in active decision making, and provides continuous feedback that lets them know how well they are doing" (p. 382). Interactivity also allows players to somewhat control the pace, the interface, and the complexity of their experience and thus to adjust the activity to their own level of knowledge and skills and their personal pace (Blumberg & Ismailer, 2009; DiPietro, Ferdig, Boyer, & Black, 2007; Prensky, 2001a).

Another important aspect of many digital games and simulations is the narrative, the unique story or trajectory (Gee, 2009) that players co-construct by interacting with the game or simulation. Players choose from a wide range of options within a hypertext structure and thereby directly influence the story (Klimmt, 2001b). Not knowing the course of the game, the outcome and whether or not goals will be achieved leads to suspense, similar to reading a novel or watching a movie — or maybe even stronger due to the player's active involvement in the creation of the story (Klimmt, 2006; Vorderer, 2000). When using digital games and simulations for educational purposes, the predefined elements of the game ideally ensure that the story corresponds to the desired learning matter while still allowing students to make

choices and create their own trajectories. A narrative can also cause stronger emotions in players, such as feelings of empathy for the character (Klimmt, 2009).

Together, the above-mentioned characteristics of digital games and simulations create complex virtual environments that players can connect with and act and make experiences in. "Through their creation of new and different worlds and characters, video games can challenge players' taken-for-granted views about the world" (Gee, 2003, p. 140). Ritterfeld (2009) claims that "virtual environments provide a stage for self-exploration (Probehandeln) that is unmatched in the physical world" (p. 206). Players can replay episodes from their past to try alternative choices or learn how to cope with difficult situations and emotions (Ritterfeld, 2009). They can make choices they might want to make in the future and experience possible outcomes, all in the safe environment of the game world.

The complex multimodal interactive environments of digital games and simulations encourage immersion, which can lead to a sense of presence in the game (Ritterfeld, 2009). Although players do not experience presence all the time, but rather feel a "constant push and pull between the virtual and the physical worlds" (Ritterfeld, 2009, p. 209), immersion and presence are important for learning. They can create authentic experiences that evoke the same physiological and affective responses as experiences in the physical world (Picard, 1997, Reeves & Nass, 1996, cited in Lieberman, 2009). Immersion can even lead to an experience of flow (Csikszentmihalyi, 1991), in which players feel as if they were one with the activity, only concentrate on their playing and forget about everything else. Particularly during flow, players can experience intense emotions, such as happiness, sadness, or surprise, which can support learning but could also be an "affective distraction" (Jennings & Fondren, 2009, pp. 111-112) when using digital games and simulations in an educational context.

As J. Cohen (2001) points out, players may identify strongly with characters that are similar to themselves or seen as role models. This can cause nurturing feelings and make players think about being in similar situations themselves one day, which can motivate them to learn more about a topic and maybe even to take action (Lieberman, 2008, 2009). Bandura's (1977b) Social Learning Theory states that human beings learn by observing and modeling attitudes and the behavior of others. Thus, players could also learn from observing and modeling game characters. While some fear that identifying with various characters can lead to fragmented selves (e.g., Turkle, 1995), others believe that it can help players explore different options and develop flexible, yet in their core stable, identities (Konijn & Nije Bijvank, 2009).

Based on the ideas of Marcia (1966) and Meeus et al. (2005), Konijn & Nije Bijvank (2009) argue that playing digital games and simulations can promote identity development by

encouraging the exploration of various identities as well as temporary commitment to a character and his/her identity. This is particularly relevant with regard to adolescent players, whose primary developmental task is identity development (Erikson, 1968; Konijn & Nije Bijvank, 2009). It is important to note, however, that researchers have found stereotypes (particularly gender stereotypes) in digital games (see for example the discussion in Bryce, Rutter, & Sullivan, 2006; Jansz & Vosmeer, 2009), which could have a negative influence on players' identity development.

Konijn & Nije Bijvank (2009) identify four mechanisms in digital games and simulations that can support identity development: wishful identification, mastering challenges, immersion/presence, and perceived realism. Wishful identification, in which "the observer tries to emulate the character" (Konijn & Nije Bijvank, 2009, p. 186) allows players to experience what it would be like to be someone else and to explore various identities. This implicates commitment to the character and the game world. Experiencing how characters master challenges can promote feelings of power and control, self-efficacy, as well as self-esteem and pride, and can motivate the player to put even more effort into the game (Konijn & Nije Bijvank, 2009; Lieberman, 2006). Immersion, or the "degree to which the player feels integrated with the game space" (Taylor, 2002, cited in Konijn & Nije Bijvank, 2009, p. 190), can lead to a sense of presence, of being in the game (Tamborini & Skalski, 2006). This allows players to experience situations as if they were actually in the game and learn from them. The fourth mechanism, perceived realism, is based on the assumption that experiences that are perceived as realistic might have a greater influence on players than those that are perceived less realistic (Konijn & Nije Bijvank, 2009). Realism can be perceived in a variety of ways, with regard to the graphics, the character, its behavior, the situation, or the story, for example (Konijn & Nije Bijvank, 2009). While it might be difficult — particularly for young players — to judge how realistic a digital game or simulation is (cf. Peter & Valkenburg, 2006), they seem to identify more when the degree of perceived realism is high (Konijn & Nije Bijvank, 2009; Konijn, Nije Bijvank, & Bushman, 2007). In order for players to see their characters as role models, players "must somehow attribute realism to the game characters – either in outer appearances, situations, acts, professional outlook, peer relationships, or whatever relevant aspect, they should somehow be realistic" (Konijn & Nije Bijvank, 2009, p. 194).

Although the virtual environments of many digital games and simulations invite players to identify with a range of characters (Gee, 2003), not all players do so to the same extent. Research has shown that even participants in so-called massively multiplayer online role-playing games (MMORPGs) often do not role-play in the way described earlier

(MacCallum-Stewart & Parsler, 2008). In *World of Warcraft* (one of the most popular MMORPGs), for example, only a small number of players actually want to role-play and use the separate role-playing servers (MacCallum-Stewart & Parsler, 2008). The majority of players do not engage in real role-playing, but use the character as a tool, as an extension of themselves, or to achieve particular goals in the game (MacCallum-Stewart & Parsler, 2008). Those who do role-play, however, are highly committed and put considerable time and effort into it (MacCallum-Stewart & Parsler, 2008). According to MacCallum-Stewart & Parsler (2008), "the real engagement for most role players comes through the formation and development of their character as a 'real' person" (MacCallum-Stewart & Parsler, 2008, p. 243). Due to the knowledge and skills this requires, the player competences are more important in role-playing than the capacities of the game character (Tronstad, 2008). Role-playing implicates that "the player is more explicitly aware of the character being different from him or herself, having a separate identity with a history, drives and motivations of its own" (Tronstad, 2008, p. 257). Considering the effort and competence it requires, role-playing can be considered a more demanding type of game play (MacCallum-Stewart & Parsler, 2008). MacCallum-Stewart & Parsler (2008) identify several reasons why players nevertheless engage in role-playing in *WoW* voluntarily: Through role-playing, players can test personal ideals, act out parts of their identity they are not able to express otherwise, engage in moral, mental, or physical challenges, in team work and conflict resolution, experience power, immerse themselves in a different environment, and escape reality to some extent (MacCallum-Stewart & Parsler, 2008). Since role-players are conscious about the role and their character, immersion and flow are harder to achieve for role-players than for other game players (MacCallum-Stewart & Parsler, 2008). Thus, "being totally in character is to a role-player something of a Holy Grail, but it is rarely achieved" (MacCallum-Stewart & Parsler, 2008, p. 228).

When Shaffer (2005) proposes the use of epistemic games based on professional practices to enable students to learn by participating in professional "communities of practice" (Lave & Wenger, 1991, p. 29), he also suggests a form of learning through role-playing. By playing such games, students learn to see the world, to think and act like a professional urban planner, architect, or engineer similar to an internship, apprenticeship, or training (Shaffer, 2005). Players develop an epistemic frame of a specific community of practice, which includes shared interest and common practice, as well as identity, understanding, and epistemology (cf. Lave & Wenger, 1991). Digital epistemic games could be used to enable students to see how different groups of professionals think and work, not necessarily to train them in the profession, but to allow them to "see the world in a variety of ways that are

fundamentally grounded in meaningful activity and well aligned with the core skills, habits, and understandings of a postindustrial society" (Shaffer, 2005, heading Pedagogical Praxis, para. 2). The combination of such games with other material and reflection activities could enable students to develop necessary knowledge at the same time.

Digital role-playing has been employed fruitfully in educational contexts, for instance for the promotion of leadership in early childhood education students (Linser, 2004; Linser & Waniganayake, 2004) and for the development of communication, collaboration, and leadership skills in engineering students (The University of Adelaide, 2006). In these contexts, role-playing was integrated in the teaching of university courses together with other resources and activities. The safe environment of the simulation enabled students to take on various roles, including roles they would not want to or be able to take on in the physical world, to experience and try a variety of attitudes, values, strategies, pressures *et cetera* that individuals in these roles usually have, and to see the consequences of their actions. Taking on the different roles also allowed students to protect their own identity. Linser (2004) emphasizes that through digital role-playing, "students gain the sort of insight into the material that comes from the way they understand their own personal experience" (heading Evaluation results and discussion, para. 6). They do not just hear or read about the issues they are supposed to study, but actually experience them.

A digital simulation like *RealLives* provides opportunities for players to engage in role-playing and to actually experience how others think and act when living under different circumstances in different countries and cultures, and the consequences this has, although it does not require it. Similar to MMORPGs, players can choose to connect with their characters in a variety of ways and decide how to develop their character, for example, as an extension of themselves, a model, or a particular role (e.g., a female Muslim nurse in Indonesia or a male Hindu beggar in India).

Klimmt (2009) proposes a number of mechanisms how the special characteristics of digital games and simulations (play frame, social/multiplayer context, modality, interactivity, and narrative) can support learning and promote social change. He identifies several mechanisms that can increase exposure and motivation, which are considered crucial factors for learning (Renninger, Hidi & Krapp, 1993, cited in Klimmt, 2009): The entertaining and fun nature of digital games and simulations can encourage users to play longer and more often and thus to expose themselves to the game content (and possibly learning matter) (Klimmt, 2009). It can increase attention and motivation during game play as well as interest and desire to learn more about a topic afterwards, which can lead to better learning outcomes (Klimmt, 2009). Moreover, the play frame can reduce resistance by players to engage in new and

potentially uncomfortable ways of thinking and acting (Klimmt, 2009), and therefore facilitate perspective-taking and problem-solving. Since members of a group tend to think and behave in similar ways, multiplayer or social gaming can also encourage learning. Players often talk about their experiences and help and scaffold each other (Klimmt, 2009).

In addition to these motivational factors, Klimmt (2009) points out several mechanisms that could promote comprehension and knowledge construction: The multimodality of digital games and simulations appeals to different types of players and learners and enables them to experience situations in different ways; the interactive nature of digital games and simulations increases players' involvement and the connection between player and content, which thereby becomes individually meaningful (Klimmt, 2009). Interactivity and multimodality can create seemingly authentic environments, which could facilitate the transfer of knowledge and skills to similar contexts (Klimmt, 2009). The narrative and social interaction with other players could also promote comprehension of game content (Klimmt, 2009).

Last but not least, Klimmt (2009) mentions mechanisms that could support attitude change: Similar to engagement and knowledge construction, the play frame can reduce resistance to unfamiliar attitudes (Klimmt, 2009). The narrative can contribute to attitude change by reducing counter-arguing in providing a credible story and a source of information that might not be remembered as fictional later on (Klimmt, 2009). Stories also help players to make sense of the events happening in a game or simulation; they increase comprehension, retention, and perceived personal relevance (Klimmt, 2009).

Klimmt (2009) admits that this long list of mechanisms paints a very optimistic picture. He acknowledges that not all of these mechanisms might be working at the same time and in all contexts, and that even the use of serious games, which should incorporate all these factors, is no guarantee for successful learning (Klimmt, 2009). Therefore, he highlights the importance of the right game design and implementation in order for these mechanisms to work. If a game is not designed carefully enough, players could, for instance, draw wrong conclusions or develop unwanted attitudes (Klimmt, 2009).

Gee (2009) also identifies a number of properties that make games, particularly carefully designed deep serious games, powerful learning environments: Playing games allows players to experiment with the rules of the game and to find out how to best use them for their own purposes in order to reach their personal goals (Gee, 2009). Players can explore relationships between tools and affordances in the virtual world and in doing so discover "effectivity-affordance matches" (Gee, 2009, p. 71, cf. Gibson, 1979). Digital games and simulations also give players "microcontrol" (Gee, 2009, p. 69), enabling players to control

the movements or actions of their characters in detail and experience either an intimate relationship with a character or power over a whole group of characters (e.g., an army). Another important aspect is the trajectory, the unique story of a game. Each character in a digital game or simulation is a unique combination of the player's identity and the character's properties, and the story that is created through interaction between the player and the game is therefore personally meaningful to each player in a unique way (Gee, 2009). Moreover, playing digital games enables players to learn through personal experiences, which is said to be more effective than learning abstract concepts (see the section on contemporary learning theories below). These experiences are stored in the player's memory, interpreted, and used as the basis for future decisions (Gee, 2009). Since players are usually not required to provide explanations for their failures in games, reflection through sharing experiences with others and debriefings might be necessary to help players understand and generalize from their own concrete experiences (Gee, 2009). Players also need to have sufficient opportunities to play in order to be able to test and revise their strategies and the abstract concepts they develop on the basis of experiences and reflection (Gee, 2009).

*Digital Games and Simulations for the Games Generation*

Digital games and simulations are considered particularly appropriate learning tools for today's youth for a number of reasons. Firstly, they can provide additional opportunities for children and adolescents to play in a world that has been said to offer fewer and fewer such opportunities. Educators note that "as the world changes, opportunities for children to play diminish. In some contexts children no longer have sufficient time, space or adult support to be 'players'" (Ebbeck & Waniganayake, 2010a, p. 5). Even when children can no longer play outdoors in overpopulated, busy cities where parents do not have time to play with them, they can explore other environments and give rein to their imagination and fantasy by playing digital games.

Secondly, digital games and simulations are perceived as more appropriate learning tools for children and adolescents who have grown up with digital media and use them frequently (Egenfeldt-Nielsen, 2007a; Gibson, et al., 2007; Prensky, 2001a). Some researchers believe that these digital media have such a strong influence on the lives of children and adolescents that they have begun to alter their cognitive and social development, media preferences, and communication styles (cf. Prensky, 2001a; Subrahmanyam & Greenfield, 2009). Prensky (2001a) claims, "It is clear that we now have a generation with a very different mix of cognitive skills than its predecessors – the Games Generation" (p. 46). The "digital natives" (Prensky, 2001b, p. 1) are said to share a number of characteristics that

distinguish them from previous generations that did not grow up with digital media. Egenfeldt-Nielsen (2007a) explains:

> *Digital natives who play a lot of games are provided with skills, such as dealing with large amounts of information quickly even at the early ages, using alternative ways to get information, and finding solutions to their own problems through new communication paths. (p. 3)*

They like to be active, to use trial and error methods, and to find things out by themselves; they also do not get frustrated so quickly when they cannot find solutions (Egenfeldt-Nielsen, 2007a). Moreover, members of the Games Generation often do several things simultaneously, and they prefer graphics over other modalities (Egenfeldt-Nielsen, 2007a). Technology is embraced and regarded as a friend; it helps them to stay informed and connected (Egenfeldt-Nielsen, 2007a).

Due to these developments, there have been calls for more interactive learning and teaching methods with digital games and simulations in order to enable learners to actively experience and explore situations and problems, not just read or hear about it. According to Egenfeldt-Nielsen (2007a),

> *(the) twitch-speed generation is not comfortable concentrating on one task at a time, but is engaged in a variety of tasks at the same time. The traditional educational system is not challenging enough and is in opposition to this new way of learning. (p. 34)*

Even if one disagrees with the idea of a Games Generation with considerably different cognitive skills and attitudes, it cannot be denied that children and adolescents in many countries nowadays have more experience with digital media than previous generations, and that using digital games and simulations has become normal for many of them (cf. Australian Government, 2009; Interactive Software Federation of Europe, 2010; Williamson, 2009). One could therefore assume that the use of digital media for learning would be appreciated by these youth. According to Egenfeldt-Nielsen (2007a), “it is well-documented that computer games are seen as motivating and interesting by many students” (p. 179). Reports, such as the Teaching with Games report published by Futurelab (Sandford, Ulicsak, Facer, & Rudd, 2006), support this.

Another reason why digital games and simulations are believed to be valuable for education is that they align with several contemporary theories of learning and proposed methods of instruction within the constructivist paradigm. These theories

> *position learners as active participants, and attribute to them an important level of control over their own learning and development activities. Thus, both the contemporary learner and the digital game player are in charge of realizing their desired outcomes. (Konijn & Nije Bijvank, 2009, p. 190, cf. Westera, 2007)*

Constructivism considers learning an active and contextualized process of knowledge construction rather than acquisition. Irrespective of the method of instruction, new knowledge is constructed on the basis of prior knowledge and prior personal experiences, to which new information is linked. This leads to the formation of hypotheses about the world, which are then tested and revised, if necessary.

According to Piaget, one of the most influential theorists in this area, knowledge is constructed individually through assimilation (i.e., new experiences are fitted in with existing knowledge) and accommodation (i.e., existing ideas are questioned and revised when new experiences do not fit), and play is the way in which children usually do this (Ebbeck & Waniganayake, 2010a, cf. Piaget, 1951). Dewey (1938), another important theorist, also stressed the importance of continuity, that is a connection between old and new experiences and information. In addition, he believed that human beings learn by interacting with their environment, by testing hypotheses and seeing their outcomes (Dewey, n.d.). Playing and learning with digital games seems to align with these ideas as

> *the student is playing and constructing knowledge through interaction with the game universe. The knowledge slowly builds on top of existing knowledge from previous experiences arising from inside the game universe and other spheres of life facilitated by instruction. It is an experience-based hermeneutic exploration in a safe, rich environment, potentially scaffolding the student while maintaining student autonomy and ensuring a high emotional investment in the activity. (Egenfeldt-Nielsen, 2007a, p. 178)*

Within the paradigm of constructivism, a range of theories and methods of instructions have been developed, arguably the most influential being Vygotsky's (1978) Theory of Social Development, Lave & Wenger's (1991, 1998) theories on Situated Learning and Communities of Practice, Kolb's (1984) Experiential Learning Theory and Bruner's (1967) method of Discovery Learning. Since playing digital games and simulations can be linked with these theories and models in various ways, a brief overview of them is provided hereafter.[2]

[2] For a more detailed discussion of these theories and models see, for example, Illeris (2008) and Schunk (2007).

Vygotsky's (1978) Theory of Social Development stresses the importance of the social and cultural context for development and learning. According to this theory, culture-specific tools mediate interaction and social interaction enables a less knowledgeable individual to learn from, and with, more knowledgeable others (e.g., adults, teachers, or more advanced peers). This allows for development in the so-called zone of proximal development (ZPD), a zone that cannot be reached alone but only through interaction and with support from more knowledgeable others (Banham, 2010). Vygotsky considered play crucial for the cognitive, emotional, and social development of children (Ebbeck & Waniganayake, 2010a). His theory is relevant for learning with digital games and simulations as it emphasizes the importance of play for development as well as the opportunities collaborating with others provides with regard to development in the ZPD. By playing digital games with others, players can achieve more than they would be able to achieve on their own. The game or a virtual world can also provide such scaffolding, as can the teacher when digital games and simulations are used in a classroom environment.

The Theory of Situated Learning (Lave, 1988; Lave & Wenger, 1990) defines learning as situated in a specific socio-cultural context as opposed to the acquisition of abstract out-of-context knowledge. Situated learning takes place naturally and often unintentionally through social interaction. Lave & Wenger's (1991) idea of "communities of practice" (p. 29) advances this idea. A community of practice is a group of people with a shared interest in a domain and a commitment to the group (Lave & Wenger, 1991). By participating in a community of practice, individuals form identities and relationships, share ideas, learn from each other, and develop similar skills and a repertoire of resources (Lave & Wenger, 1991). According to Lave & Wenger's (1991) theory, participants strive to move from the periphery to the center of a community of practice, which motivates them to learn more and become experts of the community.

Researchers have already begun to investigate new communities of practice that have emerged with the rise of the Internet as well as digital games, particularly through massively multiplayer online games (e.g., Shaffer, Squire, Halverson, & Gee, 2005; Steinkuehler, 2004; Wolf, 2007). The aforementioned study by Squire (2004) showed that such communities can also emerge when using digital games and simulations in the classroom. In this study, small groups of students with similar interests in particular aspects of the game developed that were working and developing goals together and sharing and co-constructing knowledge (Squire, 2004).

Kolb's (1984) Experiential Learning Theory, which is based on earlier work by Dewey (1938), Lewin (1951), and Piaget (1970), emphasizes the importance of concrete

experiences and subsequent reflection for the construction of knowledge. His Experiential Learning Cycle describes the learning process as an ongoing cycle of four sequences: (1) the learner makes a concrete experience, (2) the learner reflects on this experience, (3) the learner develops abstract concepts, such as models or theories, and (4) the learner tests these hypotheses and concepts through active experimentation, whereby new concrete experiences are made (Kolb, 1984). Concrete experiences are "here-and-now" experiences that are "followed by collection of data and observations about that experience" (Kolb, 1984, p. 21) and used to test abstract ideas.

Although Kolb's theory referred to experiences in the physical world, one can also consider the experiences players make when they engage in digital games and simulations concrete; that is, here and now, and useful for testing abstract theories and concepts. Moreover, experiences made in virtual environments can seem quite real to players (see e.g., E. A.-L. Lee, Wong, & Fung, 2010; Markham, 1998). Digital games and simulations enable players to make a wide range of concrete experiences, even experiences they would not be able to, or that would be too risky to make in the physical world (Egenfeldt-Nielsen, 2005). Empirical studies have shown, however, that these experiences do not necessarily lead to reflection and the development of abstract concepts since players use and engage with digital games and simulations in unique ways (Egenfeldt-Nielsen, 2005; Squire, 2004). Social interaction with other players, peers, and/or more knowledgeable others (e.g., teachers or parents) seems important, if not essential, to keeping the learning cycle going.

One method of instruction that has become popular within the framework of constructivist theories is that of Discovery Learning, initially conceptualized by Bruner (1967). Discovery Learning is based on inquiry; learners are encouraged to discover facts and relationships between phenomena themselves, which is supposed to increase engagement, motivation, learner autonomy, responsibility, and independence (Learning Theories Knowledgebase, 2011). Drawing on prior knowledge and experiences, learners explore and manipulate systems, perform experiments, and solve problems. This promotes creativity and problem-solving skills and is said to lead to a better retention of knowledge because learners discover the information themselves (Coffey, 2009). Specific methods of Discovery Learning are, for example, guided discovery, problem-based learning, simulation-based learning, and case-based learning (Learning Theories Knowledgebase, 2011).

Discovery Learning has been criticized for the cognitive overload in complex situations, and the problems this can cause (Coffey, 2009). Concerns have also been raised regarding the development of misconceptions when learners construct knowledge on their own and the difficulties teachers might experience in detecting such developments (Coffey,

2009). Also, this method of instruction might not be suitable for or effective enough in formal educational environments where a curriculum must be followed, and all learners are expected to possess specific knowledge and skills at the end of a term.

Considering that digital games and simulations enable players to explore and manipulate all kinds of environments, fantasy worlds as well as seemingly authentic ones, they could be used as the basis for discovery learning. Players could also perform experiments and solve problems in virtual worlds. However, the above-mentioned criticism also holds true for digital game-based Discovery Learning: It can be difficult for teachers to ensure student players focus on information that is relevant to the curriculum and do not develop misconceptions. Guidance and support from a teacher or other more knowledgeable individuals seem essential.

All in all, digital games and simulations possess a range of characteristics that make them potentially valuable for education. They combine the features of offline games and simulations and traditional play activities with the specifics of digital technology, first and foremost interactivity and multimodality. Digital games and simulations appear to match the needs and lifestyles of the Games Generation better than traditional learning tools and are in line with a number of contemporary theories of learning and methods of instruction within the constructivist paradigm.

However, this does not mean that all digital games and simulations are necessarily suited for learning, that they are appropriate for all subject areas, or effective in all contexts. Graesser et al. (2009) purport, for example, that few games seem to be able to promote deeper learning, such as the “analysis of causal mechanisms, logical explanations, creation and defense of arguments, management of limited resources, tradeoffs of processes in a complex system, and a way to resolve conflicts” (p. 84). In addition, the authors underline the importance of tutors and mentors when using serious games. Without such support “students are prone to settle for shallow learning” (Graesser, et al., 2009, p. 95).

While students might enjoy playing digital games and simulations in their leisure time, they might not do so in formal educational environments, which are characterized by assessment and a specific curriculum (see for example the study by Squire, 2004). On the other hand, students might enjoy playing a digital game in school that they would not choose in their free time, where more appealing choices are available (Lieberman, 2009). The diversity of learners in a formal educational environment is certainly an important factor since studies have shown that “game players prefer games that require cognitive skills consistent with their own cognitive strengths” (Sherry & Dibble, 2009, p. 157). Research has also found significant differences between male and female players with regard to their genre preferences

(Hartmann & Klimmt, 2006; Sherry & Dibble, 2009). Nevertheless, when used in formal educational environments, digital games and simulations "must have at least moderate appeal to all learners, who are often a diverse group" (Lieberman, 2009, p. 126).

Even when learners enjoy using a particular digital game or simulation in the classroom, the medium also has to meet other demands. It must avoid offensive content and biases, needs to be in line with the curriculum, and effective in terms of the desired learning outcomes (Lieberman, 2009). This can be difficult to ensure when students are using the digital game or simulation in different ways and largely autonomously. As Egenfeldt-Nielsen (2007a) acknowledges, "When learning is driven by the student's own discovery in computer games, the quality of learning improves, but not necessarily the number of topics or contents covered" (p. 60).

More learner autonomy when using digital games and simulations also requires technological know-how, media competence (also with regard to interpreting the content, detecting potential biases etc.), as well as a sense of responsibility and self-discipline, which not all students may have developed to the necessary extent. Not only does this apply to students, teachers as well are required to show competence in dealing with the new technology, its content, and new forms of (inter)action and learning in the classroom (Yelland, 2006). They need to be experts in using the software, must be able to teach their students how to use it and to provide help and support throughout the activity. According to Egenfeldt-Nielsen (2007a), the concrete experiences made while using a digital game or simulation can only lead to deeper knowledge and understanding of more abstract scientific concepts with the help of further instruction. Similarly, Bünger (2005) highlights the importance of follow-up communication between students and teachers for the achievement of desired learning outcomes. Thus, using digital games and simulations for learning in formal educational environments might be desirable from a theoretical point of view and/or a student perspective, but not necessarily from a teacher's standpoint. It is hard work to thoroughly integrate a digital game or simulation in classroom teaching. Contrary to initial fears that computers would make teachers redundant, empirical studies conducted to this date usually stress the importance of a well prepared and competent teacher for the successful outcome of the learning activities (e.g., Egenfeldt-Nielsen, 2005; Squire, 2004). Taking all the above-mentioned aspects into account, the use of digital games and simulations for educational purposes seems to be in many ways promising and desirable, but also quite a difficult undertaking.

## 2.2 Intercultural Competence — A Key Competence in the 21st Century

This thesis investigates the potential of the digital simulation *RealLives* for the promotion of intercultural awareness and sensitivity, two components of intercultural competence. Since intercultural competence — including the underlying concepts of competence and culture — has been defined in numerous ways, this chapter briefly discusses these concepts (2.2.1) before describing different models of intercultural competence (2.2.2) and elaborating on the main components of intercultural competence (2.2.3).

Researchers in various academic disciplines have pointed to the changes that increasing globalization has brought over the past decades (see e.g., Appadurai, 1996; Pieterse, 1994; Scheuerman, 2010). Fantini (2009), one of the leading figures in intercultural communication, describes the "dramatic effects" of globalization by saying, "More people than ever before in the history of the world now have both direct and indirect contact with each other, and increasingly, this includes people from a variety of diverse language and cultural backgrounds" (p. 457). Spitzberg & Changnon (2009) draw special attention to the rise in overseas study and employment and highlight the fact that people nowadays travel in "mass quantities" never seen before (p. 4). These and other developments have resulted in increasing contact between individuals from different cultural backgrounds, and intercultural competence has become a key competence in the 21st century.

Intercultural competence is desirable from an international and a domestic perspective (Lustig & Koester, 2003). Internationally, it is important due to increased traveling for private and professional reasons, international cooperation, collaboration in business contexts, and the media connecting people across the globe (Lustig & Koester, 2003). From a domestic perspective, intercultural competence is crucial with regard to the increasing cultural diversity of our societies (Lustig & Koester, 2003). Researchers such as Pusch (2009) point out that global leaders in the 21st century need to be able to stretch their mind "to encompass the entire world with all its complexity" (p. 70). They need to be capable of thinking in different ways and looking at issues from a variety of perspectives in addition to their own.

Even if one believes that the increase in diversity, hybridity, and contradictions within cultures caused by globalization make it "no longer possible to understand foreign cultures" (Moosmüller & Schönhut, 2009, p. 220), it is nevertheless important to be aware of the cultural backgrounds of interaction partners and to develop competence in dealing with cultural diversity to reduce feelings of insecurity, speechlessness, and powerlessness, and to encourage effective and appropriate interaction (Moosmüller & Schönhut, 2009, cf. Graf, 2004; Hauser, 2003). In the field of intercultural communication, which concerns itself with communication between individuals from different cultural backgrounds, the development of

intercultural competence is considered one way to prevent or solve communication problems, such as misunderstandings, and to facilitate interaction between culturally-distinct individuals (Straub, Weidemann, & Weidemann, 2007).

One could assume that individuals nowadays naturally develop greater intercultural competence due to their growing up in more culturally diverse environments. Studies with exchange students and expatriates have made it clear, however, that simply living in a culturally diverse environment does not automatically lead to the development of intercultural competence (Pusch, 2009). Research has also shown that particularly members of ethnic majority groups often do not question their cultural identity, but simply perceive themselves as normal (Harris & Rockquemore, 2010), or deny cultural differences for fear of being racist (Moosmüller & Schönhut, 2009). This prevents them from reflecting on cultural particularities and from moving away from their ethnocentric "default position" (Pusch, 2009, p. 74) to a more ethnorelative view (see section 2.2.3). As Deardorff (2009b) notes, "Intercultural competence usually does not naturally occur, and thus it becomes crucial to address the intentional development of intercultural competence" (p. 268). A range of methods to intentionally promote intercultural competence already exists, such as workshops and guided exchange programs. The use of a digital simulation like *RealLives* in schools could be another option.

To this day, the study of intercultural competence has been dominated by researchers from the USA, where the area emerged from efforts to promote intercultural competence in the US Peace Corps in the 1960s and 1970s (Spitzberg & Changnon, 2009). Since then, researchers have been wrestling with definitions and developing a wide range of models without much testing and without reaching consensus on what intercultural competence is, what the most important components are, how the components are related, and how to best promote and assess these components (Spitzberg & Changnon, 2009). "As a consequence, a leading theory of intercultural competence is missing. We are still in this stage of conceptual development in which overlapping, complementary, and incompatible models coexist" (Van de Vijver & Leung, 2009, p. 406). This situation does not seem to have changed considerably over the past few years.

### 2.2.1 Definitions of Competence, Culture, and Intercultural Competence

Intercultural competence, as the term suggests, is a type of competence required in intercultural encounters; that is, when individuals from different cultural backgrounds come together. *Competence* is a widely used but often poorly defined term. As Trompenaars & Woolliams (2009) point out, "Even without the complexity of the cultural context, confusion

begins over the use of the term *competence*" (p. 440, italics in original). The term competence has been used in the USA since the 1970s to describe characteristics of managers showing superior performance; since then it has also been used to describe personal characteristics, such as motives, traits, skills, aspects of self-image, or social role and knowledge, as well as sets of behavior patterns (Trompenaars & Woolliams, 2009). Competence is a polyvalent term, which can refer to authority and responsibility as well as capability, ability, or skill (Moosmüller & Schönhut, 2009). The terms *skills* and *competence* are also sometimes used interchangeably (Trompenaars & Woolliams, 2009), which highlights the importance of skills for the concept of competence.

Adding to the confusion about competence is the term *competency,* which is mainly used in the USA to describe skills and knowledge employees must have in performing a particular job and must invest in order to achieve high levels of performance. It is an input-oriented perspective compared to the more output-oriented definition of *competence* that dominates in Europe. According to Trompenaars & Woolliams (2009), competence refers to a "system of minimum standards and effective behaviors demonstrated by performance and outputs" (p. 440). Again, these terms are sometimes used interchangeably without consideration of the aforementioned differences.

Competence has been defined in various ways, for example "under the label of personal agency beliefs (Ford, 1985), self-efficacy expectations (Bandura, 1982), locus of control (Rotter, 1966), or personal causation (deCharms, 1968)" (Swanson, 2010, p. 109). It has been equated with understanding, relationship development, satisfaction, effectiveness, appropriateness, and adaptation (Spitzberg & Changnon, 2009). Spitzberg & Changnon (2009) criticize the liberal use of the term and the lack of attention that has been given to its semantic and conceptual meaning. The Latin origin of the term competence, *competere*, comprises the meanings of *petere,* meaning striving for or trying to accomplish something, and *competere,* which translates into striving for something together, but also the coming together of particular things (Straub, et al., 2007). Competence can therefore be seen as a combination of characteristics an individual needs in order to achieve something.

Many definitions of competence include "a person's capacity to handle environmental demand and opportunities in an active and effective way" (van Aken, 1992, pp. 267-268, cited in Swanson, 2010, p. 109). However, competence is not the same as performance. Instead, it is a characteristic or capability of an individual that in interaction with situational factors in a specific context can lead to a particular behavior or performance (Herzog, 2003). Competence is often reduced to a set of abilities and skills, which is problematic as it ignores the context in which these abilities and skills are applied (Spitzberg & Changnon, 2009). As Spitzberg &

Changnon (2009) point out, “The same behavior or skill may be perceived as competent in one context but not another or one perceiver but not another, and thus no particular skill or ability is likely to ever be universally ‘competent’” (p. 6, cf. Spitzberg, 2000b; Spitzberg, 2007; Spitzberg & Cupach, 1984, 2002). Some abilities and skills, however, might be regarded as competent in a wider range of contexts and could therefore be considered more desirable than others that are more context-specific. While researchers have been demanding greater consideration of the context and an expansion of the meaning of competence, Spitzberg & Changnon (2009) found competence to be “largely viewed as an individual and trait concept” (p. 44; cf. Spitzberg & Cupach, 1984; Spitzberg & Cupach, 1989). This focus on individual traits still appears to prevail in 2011.

*Culture*

The second concept included in intercultural competence, and arguably the most important, is *culture*. Again, one can find a plethora of definitions, and many academic disciplines have approached the concept in different ways. Lustig & Koester (2003) state that a book by Kroeber & Kluckhohn published in 1952 already comprised more than 200 pages of definitions of culture, and since then many more have been suggested. For the purpose of this study, culture is considered from an intercultural communication perspective. In the area of intercultural communication, culture is often defined as “shared interpretations about beliefs, values, and norms which affect the behaviors of people” (Davis & Cho, 2005, pp. 3-4) or “a pattern of knowledge, attitudes, values, mind-sets, perceptions, and behaviors that permeate all life activities” (Y. Y. Kim, 1995, p. 176). Culture is regarded as a comprehensive and powerful concept that influences individuals’ thoughts as well as behavior (Trimble, Pedersen, & Rodela, 2009). According to Pusch (2009), research has shown that “culture matters in all forms of human endeavor” (p. 73). This does not imply that all members of a culture share exactly the same interpretations and patterns, nor does it mean that they always behave accordingly. Instead, culture is “a set of guidelines [both explicit and implicit] which individuals inherit as members of a particular society” (Helman, 1990, pp. 2-3, cited in Witte & Morrison, 1995, p. 218).

Contrary to earlier theories of culture, whereby culture of origin was considered deterministic and static and similarities between cultures were often ignored as much as the differences within one culture (Moosmüller & Schönhut, 2009), culture has more recently been described as “neither static nor universal” (Gallois, Giles, Jones, Cargile, & Ota, 1995, p. 121). Culture is flexible, and when someone enters a new cultural environment, his or her cultural patterns can change. When individuals live in a particular cultural environment for

some time, they might take on the beliefs, values, and norms of this environment; this process is called acculturation (Y. Y. Kim, 2005). Globalization trends, such as increased travel and migration, have facilitated the development of hybrid forms of cultures and identities (Pieterse, 1994) and global ethnoscapes (Appadurai, 1996), which are characterized by combinations of beliefs, values and, norms from different cultural backgrounds.

Beliefs, values, and norms play a crucial role in the definition of culture from an intercultural communication perspective. A belief is "an idea that people assume to be true about the world", "a set of learned interpretations that form the basis for cultural members to decide what is and what is not logical and correct" (Lustig & Koester, 1999, p. 80). Values are judgments expressing what someone likes and dislikes. They refer to "what a culture regards as good or bad, right or wrong, fair or unfair, just or unjust, beautiful or ugly, clean or dirty, valuable or worthless, appropriate or inappropriate, and kind or cruel" (Lustig & Koester, 1999, p. 81). The outward manifestations of beliefs and values are called norms, the "socially shared expectations of appropriate behaviors" (Lustig & Koester, 1999, p. 83).

"Throughout the socialization process, children become adapted to the fellow members of their cultural group, which, in turn, gives them their status and assigns to them their role in the life of the community" (Y. Y. Kim, 1995, p. 176). Parents in particular pass on many of their beliefs, values, and norms to their children, either explicitly through words, or implicitly through their behavior. Ting-Toomey (2005) points out that from an early age, children "internalize what to value and devalue, what to appreciate and reject, and what goals are important in their culture though the influence of their family system" (p. 212). She also mentions that media messages can have an influence on one's values and beliefs, particularly during adolescence and early adulthood. Through interaction with other members of a particular culture, individuals integrate cultural patterns into their lives, enabling them to live in a particular culture. This continuous process of learning cultural beliefs, values, and norms is called "enculturation" (Y. Y. Kim, 2005, p. 382).

During the process of enculturation, an individual also develops a cultural identity, which is the emotional significance of the sense of belonging to a cultural group (Ting-Toomey, 2005). According to Y. Y. Kim (2009), two aspects of cultural identity are particularly relevant with regard to the development of intercultural competence: identity inclusivity and identity security. Based on Tajfel's (1974) and Tajfel & Turner's (1986) theories of social identity and self-categorization, identity inclusivity is the "tendency of individuals to categorize themselves and others as "in-group" and "out-group" members respectively (Y. Y. Kim, 2009, p. 55). While it is necessary for human beings to identify with a group in order to maintain a positive individual identity, and to see others in terms of social

categories and as members of particular groups instead of individuals to reduce complexity, the accentuation of differences and a strong in-group identification can hinder intercultural communication (Y. Y. Kim, 2009). “Empirical studies have shown that the psychological tendencies identified in social identity theory and self-categorization theory lead to dissociative behaviors in intercultural contexts” (Y. Y. Kim, 2009, p. 55). Other outcomes of a strong in-group identification can be prejudice, stereotyping, ethnocentrism, and psychological and communicative distance between interactants (Y. Y. Kim, 2009). For intercultural competence, less rigid forms of inclusive identity as described in Langer’s (1989) concept of mindfulness, for example, are desirable, as these involve less stereotypical and more personalized ways of individuals to perceive themselves as well as others (Kim, 2009).

Identity security is “the degree to which individuals feel secure in their identity” (Y. Y. Kim, 2009, p. 57). This includes self-confidence and self-esteem, self-efficacy, hardiness, and the readiness to take risks (Y. Y. Kim, 2009). Individuals who feel secure in their identity do not worry about their status or being inferior, do not perceive threat, experience marginality, or act defensively (Y. Y. Kim, 2009). A stable, secure identity enables an individual to be flexible and empathize with others without being afraid of jeopardizing their own identity (Y. Y. Kim, 2009). An individual with a stable identity can thus be more creative and effective in handling situations and problems (Y. Y. Kim, 2009). The more secure and inclusive an individual’s identity, “the greater his or her capacity to engage in intercultural relationships” (Y. Y. Kim, 2009, p. 59). Identity can therefore be regarded as an underlying factor of intercultural competence, deeper than the cognitive, affective, and behavioral components mentioned later in this chapter.

Y. Y. Kim (2009) believes that extensive intercultural communication can lead to the development of an intercultural identity, an “*achieved* self-other orientation that an *individual* develops over time” (p. 56, italics in original) which is not part of one culture. An intercultural identity emphasizes individuation; that is, self-definition and perceiving others as individuals rather than group members, as well as universalization, which means seeing the universal aspects of human nature (Y. Y. Kim, 2009). Similarly, Deardorff (2009b) is convinced that “transcending boundaries in regard to one’s identity is crucial in developing intercultural competence” (p. 267).

Lustig & Koester (2003) emphasize that cultures “exist in the minds of people, not in external or tangible objects or behaviors” (pp. 29-30) and are therefore difficult to grasp. They reside in people’s heads as a kind of “mental programming” (Lustig & Koester, 1999, p. 78), which causes individuals to perceive and understand the world in particular ways.

Nevertheless, culture is reflected in objects and behaviors and can be accessed through them. One needs to be careful, however, when inferring from an individual's behavior on his or her cultural background, since cultural norms are only the "*desired* characteristics or goals of a culture" (Lustig & Koester, 1999, p. 81, italics in original) and not all members of a particular cultural group adhere to them at all times.

Witte & Morison (1995) believe that the closer individuals' cultural backgrounds are, "the better the chances for effective communication, and, hence, mutual understanding" (p. 220). At the same time this means the greater the differences, the greater the risk of miscommunication and misunderstandings. In a time characterized by increasing cultural diversity, miscommunication and misunderstandings might become more common. Knowing and understanding cultural patterns of others is thus an important prerequisite for correctly interpreting symbols and achieving effective communication (Lustig & Koester, 1999). As Davis & Cho (2005) state, "in order to survive today's complex world, people need to understand different cultures" (p. 4).

While culture influences an individual's attitudes, values, beliefs, and behavior, it is itself influenced by a number of factors. History, for example, has an impact on culture due to the unique experiences and events members of a particular cultural group share. Ecology, particularly the climate and the distribution of land, water, food, and raw materials, also influences culture. As Lustig & Koester (2003) note, there is "a considerable amount of evidence to demonstrate that ecological conditions affect a culture's formation and functioning in many important and often subtle ways" (p. 36). Other external influences on culture are technology (e.g., inventions and media), institutional networks (e.g., schools and governmental offices), and biology; that is, genetic composition, for example (Lustig & Koester, 2003). It is important to be aware of these influences, but not sufficient. In order to truly understand "the intricacies" of different cultures, an individual must develop a depth of knowledge "beyond the conventional surface-level knowledge of foods, greetings, customs, facts and so on" (Deardorff, 2009a, p. 480). Such deep understanding is believed to only be achievable through experiencing a culture "in all of its moods and settings" (Trimble, et al., 2009, p. 501), which is why study and work abroad programs have been developed.

As mentioned earlier, many cultures and combinations of cultures exist in the world and even within one single country, several cultures can coexist. Cultures are not attached to political boundaries, although individuals living in one country often have a lot in common. This is why national cultures are still frequently studied and used as explanatory factors in the area of intercultural communication and beyond (e.g., Chao & Tian, 2011; Minkov & Hofstede, 2010; Smith, 2011). In the past, some of the most influential studies on cultural

differences focused on national cultures (e.g., Hall, 1976, 1983; Hofstede, 1991). Hall's work resulted in the discovery of differences between low-context and high-context cultures. Whereas individuals from low-context cultures put most or all of the information necessary for understanding it into a message, much of the message is implicit in high-context cultures. Hofstede's (1991) frequently cited study on cultural differences among IBM employees in 71 countries identified several cultural dimensions that can contribute to explaining differences in the behavior of individuals from different cultures. These dimensions are individualism vs. collectivism, power distance, uncertainty avoidance, masculinity vs. femininity, and long-term vs. short-term orientation to time (Hofstede, 1991).[3]

Again, it is important to note that these dimensions are general tendencies, not fixed concepts that hold true for everyone in a culture in all situations. In order to avoid overgeneralizations and stereotypes, the individual identity of a person, including his or her cultural identity, must be taken into account. According to Hecht et al. (1993, p. 164, cited in Gallois, et al., 1995, p. 122), identity "is 'stored' within individuals, relationships, and groups, and is communicated within and between relational partners and group members". Individuals combine various social, cultural, and professional roles and identities and switch from one to another depending on the context. Interculturally competent individuals can move easily between cultures; they combine various self-concepts and are able to select the role that is most appropriate in a given situation (M.-S. Kim, 1995).

*Intercultural competence*

Like competence and culture, the term *intercultural competence* has been defined in numerous ways by researchers and practitioners from a wide range of disciplines and areas, including foreign language teaching, business, health care, and intercultural communication (Spitzberg & Changnon, 2009). As Deardorff (2006a) notes, "Scholars throughout the past 30 years have defined intercultural competence in its various iterations but there has not been agreement on how intercultural competence should be defined" (p. 233). The wide variety of areas and perspectives makes it difficult to select the most appropriate definition, particularly as it is unclear whether or not a general definition of intercultural competence would be useful at all. Straub et al. (2007) suggest that it might be better to accept several definitions of intercultural competence that take into account specific professions as well as the tasks and contexts they are employed in. Even within the field of intercultural communication, where intercultural competence plays a crucial role, there is no absolute agreement on what

[3] For a detailed explanation of these dimensions and Hofstede's classification of national cultures on the basis of these dimensions see Hofstede (1991).

intercultural competence is. Confusion is created by the many similar concepts and terms that exist, such as global competence (e.g., Hunter, White, & Godbey, 2006), cultural competence (e.g., Suh, 2004), cultural intelligence (e.g., D. C. Thomas et al., 2008), cultural awareness (e.g., Tomalin & Stempleski, 1993), intercultural effectiveness (e.g., Stone, 2006), intercultural sensitivity (e.g., Bennett, 1993), and intercultural communicative competence (e.g., Byram, 1997), which are difficult to distinguish from intercultural competence and are sometimes used interchangeably. In 2000, Fantini stated, "Although the term intercultural competence is now widely used in the field of intercultural communication; it is still not widely understood, nor do interculturalists agree upon a common definition"(p. 26).

In an attempt to clarify the definition of intercultural competence, Deardorff (2004, 2006b) used the Delphi method to investigate how leading experts in the field of intercultural communication and higher education institution administrators, mainly in the USA, define intercultural competence. The study showed that most experts agreed with a definition suggested by Byram (1997), according to which intercultural competence is "the ability to communicate effectively and appropriately in intercultural situations based on one's intercultural knowledge, skills, and attitudes" (Deardorff, 2004, p. 194, cited in Deardorff, 2006b, pp. 247-248). However, the experts did not agree on the particular types of knowledge and the skills and attitudes required.

As postulated by Spitzberg (1988, 2000a), effectiveness refers to the degree to which one achieves "desired personal outcomes" (Lustig & Koester, 2003, p. 64), for example, goals that individuals seek to achieve in communication. Appropriate means that "the actions of the communicators fit the expectations and demands of the situation. (…) that people use the symbols they are expected to use in the given context" (Lustig & Koester, 2003, p. 64). It is important to keep in mind that communicators can have conflicting expectations, goals, or demands, particularly when coming from different cultural backgrounds, and that behavior that is effective for one individual or appropriate in one context might not be effective or appropriate for someone else in another context.

From a psychological perspective, A. Thomas (2003) defines intercultural competence as the ability to identify, respect, and appreciate cultural conditions and influences in perception, judgment, sensation, and behavior. Here, intercultural competence means to actively make use of these differences in the sense of mutual adjustment, to be tolerant to incompatibilities, and to achieve synergies in working and living together, in the interpretation and formation of the environment (A. Thomas, 2003, cited in Straub, et al., 2007). This definition highlights positive attitudes toward culturally distinct others, including respect, tolerance, and appreciation. Intercultural competence is seen as a way to avoid

misunderstandings and to create opportunities for individuals from different cultural backgrounds to fruitfully live and work together and solve problems (Rathje, 2007). Orlandi (1992, cited in Trimble, et al., 2009) incorporates willingness in the definition of intercultural competence. Without willingness; that is, conscious intent and desire to think and act in an interculturally competent way, intercultural competence is unlikely to be developed (Trimble, et al., 2009).

One aspect not explicitly mentioned in these definitions on intercultural competence is language. Linguists and language educators, who stress the importance of foreign language competence for effective and appropriate intercultural communication, have criticized this. Fantini (2009) bemoans the fact that intercultural educators have largely neglected foreign language proficiency while language teachers have not been paying sufficient attention to intercultural issues. His definition of intercultural competence comprises both cultural and linguistic aspects, namely the "complex abilities that are required to perform *effectively* and *appropriately* when interacting with others who are linguistically and culturally different from oneself" (Fantini, 2009, p. 458, italics in original). Some researchers distinguish between intercultural competence and intercultural communicative competence while others, including Fantini, use the terms interchangeably. According to Byram (1997), another leading figure in foreign language teaching and intercultural communication, there is a difference between the two. Intercultural competence means that,

> *individuals have the ability to interact in their own language with individuals from another country and culture, drawing upon their knowledge about intercultural communication, their attitudes of interest in otherness and their skills in interpreting, relating and discovering, i.e. of overcoming cultural difference and enjoying intercultural contact. (Byram, 1997, p. 70)*

Intercultural communicative competence refers to intercultural communication in a foreign language, which additionally requires foreign language competence. Thus, intercultural communicative competence allows individuals to cope with situations where not only intercultural, but also linguistic competence in a foreign language is necessary (Byram, 1997). It is important to note that intercultural communication can also occur between speakers of the same language who have different cultural backgrounds. It therefore does not necessarily involve foreign language competence. In this study, the question whether or not foreign language competence needs to be included in the definition of intercultural competence did not play a role as it focused on intercultural awareness and sensitivity, not on knowledge and skills (see section 2.2.3).

The above-mentioned definitions show that in intercultural communication, intercultural competence is often considered a complex set of attitudes, abilities, and skills

that can lead to effective and appropriate interaction in intercultural contexts. Intercultural competence is usually seen as an individual disposition and part of an individual's ability to act (Straub, et al., 2007). Moosmüller & Schönhut (2009) are critical in saying:

> *The widely used definition of intercultural competence as the ability of an individual to effectively and appropriately communicate with people of other cultures stresses the importance of an actor's dispositions and abilities, thereby disregarding the importance of situational and contextual factors. (p. 224)*

Some researchers have, however, emphasized that intercultural competence is important for the communication between two or more individuals from different cultural backgrounds and therefore needs to include a relational aspect (cf. Spitzberg & Changnon, 2009). Accordingly, Y. Y. Kim (2009) defines intercultural competence as the "overall capacity of an individual to enact behaviors and activities that foster cooperative relationships with culturally (or ethnically) dissimilar others" (p. 54).

Definitions that limit intercultural competence to a set of abilities and skills also neglect the developmental aspect of intercultural competence. Developing intercultural competence is a complex, daunting, and sometimes overwhelming process that can last a lifetime (Trimble, et al., 2009). Thus, researchers such as Taylor (1994, cited in Davis & Cho, 2005) define intercultural competence as an ongoing mental process of changing attitudes that leads to deeper knowledge and better understanding of cultures, and to the development of adaptive capacity, flexibility, and openness toward other cultures. Change and development are also highlighted by Davis & Cho (2005), who define intercultural competence as the "capacity to change one's knowledge, attitudes, and behaviors so as to be open and flexible to other cultures" (p. 4). This capacity helps individuals communicate, interpret others' behavior and adjust to unfamiliar environments (Davis & Cho, 2005). Intercultural competence development is considered "a transformation of learning into desired attitudes, and a growth process where an individual's existing knowledge about culture is evolving to intercultural knowledge, attitude and behavior" (Davis & Cho, 2005, pp. 4-5).

For the purpose of this study, intercultural competence is defined as a complex combination of intercultural awareness, deep cultural knowledge, understanding, positive attitudes toward diverse cultures, and skills, which are developed over time and can assist individuals in interacting effectively and appropriately with culturally-distinct others. Interaction hereby includes communication as well as creating and maintaining relationships.

### 2.2.2 Models of Intercultural Competence

A wide range of models of intercultural competence have been developed over the past decades, ranging from simple lists of desirable knowledge, attitudes, and skills, to more complex interaction- or process-oriented models.[4] Straub et al. (2007) criticize that many of these models are based on intuitive criteria or assumptions. In many cases, the components (e.g., attitudes, skills) are not defined clearly, which means that the whole concept of intercultural competence remains vague (Straub, et al., 2007). Since many models have been based on previous ones, a number of similar models exist, which adds to the confusion about intercultural competence.

As Spitzberg & Changnon (2009) note, most models since the 1950s have included three core components: knowledge (cognitive component), motivation/emotion (affective component), and skills (behavioral component). These three components have been expanded to five by researchers such as Spitzberg & Cupach (1984), who also emphasize the context and the actual outcomes of the intercultural interaction. A comprehensive list of all the cognitive, affective, and behavioral components, as well as contextual and relational aspects mentioned in models of intercultural competence is provided by Spitzberg & Changnon (2009, pp. 36-43). This list shows the impressive scope of the concept of intercultural competence, albeit without identifying the most important aspects, indicating connections between the components or specifying the level of proficiency required for each aspect in order to achieve intercultural competence (Spitzberg & Changnon, 2009).

Most models of intercultural competence have focused on the individual; that is, on the knowledge, attitudes, and skills a person needs to develop in order to become interculturally competent. Which of these aspects are emphasized largely depends on the discipline and perspective from which intercultural competence is examined. In order to become interculturally competent, all three domains — cognitive, affective, and behavioral — must be developed. As Davis & Cho (2005) state, “an interculturally competent person shows affective, behavioral, and cognitive abilities, such as openness, empathy, adaptive motivation, perspective taking, behavioral flexibility, and person-centered communication” (pp. 4-5).

Several more recent models, such as the Intercultural Competence Model for Strategic Human Resource Management by Kupka (2008) and the Coherence-Cohesion Model of Intercultural Competence by Rathje (2007), have acknowledged the importance of the context and the actual interaction processes in intercultural interactions for the development of intercultural competence (Spitzberg & Changnon, 2009). Nevertheless, knowledge and skills are still usually regarded as possessed by individuals and considered the main aspects of

[4] For a comprehensive overview of models see Spitzberg & Changnon (2009) and Straub et al. (2007).

intercultural competence. Spitzberg & Changnon (2009) bemoan that “there is virtually no attention paid to physiological and emotional aspects of interactants”, who are seen as “largely cognitive, rational beings”, “too conceptual, too rational, too conscious, and too intentional” (p. 35).

One aspect that is surprisingly absent from most theoretical discussions and models of intercultural competence is the influence of the media. While intercultural competence literature usually mentions the changes globalization has caused in terms of increased travel, migration, and international cooperation, the fact that new technology and media have likewise brought individuals from different countries and cultures closer is widely ignored. The same holds true for the potential of new media to promote intercultural competence. Intercultural communication and competence still seem to be considered face-to-face phenomena, although there now exists more mediated contact between individuals from diverse cultural backgrounds than ever before. While intercultural trainers have worked with non-digital games and simulations for decades (Fowler & Pusch, 2010; The Thiagi Group, 2011), digital games and simulations have not been integrated into intercultural training widely. An exception is the United States Military, where digital simulations, such as the *Tactical Language and Culture Training System* (by Alelo, Inc.) and *America’s Army Adaptive Thinking & Leadership* simulation, have been used to prepare Army personnel for overseas deployment. By examining the potential of the simulation *RealLives* for the promotion of intercultural awareness and sensitivity, this study takes a step in the direction of a greater recognition of the role of (digital) media in intercultural communication in general and intercultural competence development in particular.

This study was based on two models of intercultural competence that portray intercultural competence development as an interplay of cognitive, affective, and behavioral components and as a process of development over time: Fantini’s (2000) A+ASK model and Deardorff’s (2006b) Process Model of Intercultural Competence.

Fantini’s model (Figure 2.1) comprises four dimensions — awareness, attitudes, skills, and knowledge (A+ASK) — with intercultural awareness being at the center of the model, influencing all other dimensions while at the same time being influenced by them. Intercultural awareness refers to an individual being aware of the existence of numerous cultures in the world with different characteristics (norms, values, and beliefs), which need to be understood in order to be able to interact effectively and appropriately in intercultural contexts (Chen & Starosta, 2000b). For Fantini (2000), it is “the keystone on which effective and appropriate interactions depend” (p. 28).

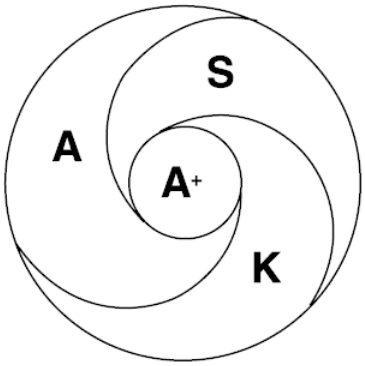



*Figure 2.1.* The A+ASK Model of Intercultural Competence

*Note.* From Fantini (2000). A Central Concern: Developing Intercultural Competence. *School forInternational Training Occasional Papers Series, 1*, p. 28. Reprinted with permission.

The attitude component of the A+ASK model includes the willingness to interact, learn, take perspectives, deal with emotions and frustration, have an interest in other cultures, adapt one's behavior, and to reflect on the impact and outcomes of one's choices and decisions (Fantini, 2000). It also comprises flexibility, empathy, the willingness to engage in dialogues and to suspend judgment, to develop tolerance, understanding, and respect toward as well as appreciation of other cultures (Fantini, 2000).[5] The application and transformation of these attitudes into appropriate and effective behavior is reflected in the skill component, which includes the skills to interact flexibly, to adapt to new situations, and to develop and employ effective interaction and learning strategies (Fantini, 2000). According to Fantini's model, developing all four dimensions, whereby awareness is the key component, continuously develops intercultural competence over time.

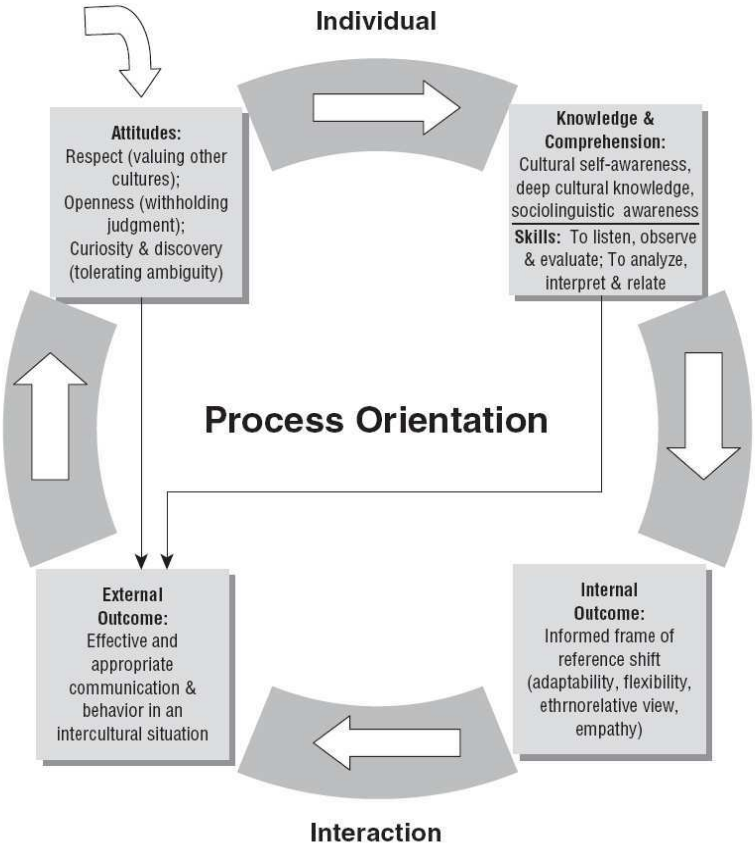
Deardorff's (2006b) Process Model of Intercultural Competence is based on the results of the aforementioned Delphi study. It integrates the components of intercultural competence identified by the experts in this study in a cyclical model resembling Kolb's (1984) Experiential Learning Cycle.

As Figure 2.2 shows, in this model, the process of developing intercultural competence starts with fundamental attitudes (respect, openness, curiosity, and discovery), which encourage the development of knowledge, comprehension, and skills within the individual by promoting cultural self-awareness, deep cultural knowledge, and sociolinguistic awareness, as well as the skills of listening, observing, evaluating, analyzing, interpreting, and relating. These developments lead to internal (i.e., personal) outcomes by creating a more informed frame of reference and allowing for greater adaptability, flexibility, empathy, and a more ethnorelative view. Together with the fundamental attitudes, knowledge, and skills, the

[5] These attitudes are explained in section 2.2.3 as part of the affective component of intercultural competence.

internal outcomes impact on the external (i.e., observable) outcomes; that is, on the behavior in intercultural interactions. The experiences made in these situations in turn influence the fundamental attitudes and keep the cycle going.

Deardorff's model emphasizes the importance of the attitudes respect, openness, curiosity, and discovery, which are considered "a fundamental starting point" (Deardorff, 2006b, p. 255). These attitudes encourage the development of knowledge and skills that can lead to interculturally competent behavior. Learning and the development of intercultural competence take place during all phases of the cycle. The more components are acquired and the further they are developed, the greater the chances that an individual reaches a higher level of intercultural competence (Deardorff, 2006b).




Note: Begin with attitudes; move from individual level (attitudes) to interaction level (outcomes). Degree of intercultural competence depends on degree of attitudes, knowledge/comprehension, and skills achieved.

*Figure 2.2.* The Process Model of Intercultural Competence

*Note.* From Deardorff (2006). Identification and Assessment of Intercultural Competence as a Student Outcome of Internationalization. *Journal of Studies in International Education, 10*(3), p. 256. Reprinted with permission.

As is true for most models of intercultural competence, the model does not state **how** the various cognitive, affective, and behavioral aspects can or should be developed, and to what degree each element is needed for an individual to be considered interculturally competent.

While Deardorff follows a the-more-the-better approach, arguing that a higher degree of curiosity and discovery, openness, respect, empathy, and ethnorelativism, together with more knowledge and skills leads to more interculturally competent behavior, she does not specify how a greater level of these components can be achieved.

### 2.2.3 Components of Intercultural Competence

The theoretical approaches and models of intercultural competence mentioned in the previous sections show that researchers have identified three main components of intercultural competence: cognitive, affective, and behavioral. While most empirical work has addressed cognitive and behavioral components (mainly knowledge and skills), less attention has been devoted to intercultural awareness and particularly to the affective component; that is, intercultural sensitivity. Looking at the above-mentioned models by Fantini (2000) and Deardorff (2006b), however, these components can be considered fundamental aspects of intercultural competence, which is why this study focused on intercultural awareness and sensitivity. Accordingly, these components constitute the focus of this section as well as of the findings and discussion chapters.

*Cognitive Components*

Intercultural awareness is part of the cognitive component of intercultural competence, which also comprises knowledge about one's own culture as well as others. According to Fantini (2000), awareness is often perceived as "the keystone on which effective and appropriate interactions depend" (p. 28). Intercultural awareness means that an individual is aware of the existence of various cultures in the world, which have different characteristics (norms, values, and beliefs) that need to be understood in order to allow for effective and appropriate intercultural interaction (Chen & Starosta, 2000b). Moreover, intercultural awareness comprises reflection and seeing oneself and one's own culture in relation to others. This can lead to deeper knowledge, better skills, and the development of desirable attitudes (Fantini, 2000).

Pusch (2009) states that "one of the first steps in becoming an interculturally competent leader is to achieve awareness not only of one's home culture but of its influence on one's behavior, values, and ways of looking at the world" (p. 71). Similarly, Chen & Starosta (2000b) suggest that "to be successful in intercultural interactions, we must first demonstrate intercultural awareness by learning the similarities and differences of each other's culture" (p. 407). These authors consider intercultural awareness "the foundation of intercultural sensitivity (affect) that in turn leads to intercultural competence (behavior)"

(Chen & Starosta, 2000b, p. 408). Intercultural awareness can therefore be considered a fundamental component of intercultural competence.

A digital simulation like *RealLives* that allows players to play out lives in diverse countries and cultural environments and provides a wealth of information on these countries and cultures can be expected to increase intercultural awareness in players by making them aware of different cultures and encouraging them to see themselves and their own culture in relation to others.

In addition to intercultural awareness, knowledge is also part of the cognitive component. Knowledge facilitates a "process of an in-depth understanding of certain phenomena via a range of information gained through conscious learning and personal experiences and observations" (Ting-Toomey, 2005, p. 226). Byram (1997) states,

> *Whatever a person's linguistic competence in a foreign language, when they interact socially with someone from another country, they bring to the situation their knowledge of the world which includes in some cases a substantial knowledge of the country in question and in others a minimal knowledge, of its geographical position or its current political climate, for example. (pp. 31-32)*

According to Byram et al. (2001), two types of knowledge are particularly important for the development of intercultural competence, namely knowledge of social processes and "knowledge of illustrations of those processes and products" (p. 6), which includes knowledge about others and how one is seen by others.

The knowledge dimension comprises both culture-specific and culture-general knowledge. Culture-specific knowledge refers to knowledge about one's own culture as well as others. It includes knowledge about norms, values, beliefs, interaction patterns and processes, social identities, groups and structures, and linguistic knowledge. Culture-general knowledge refers to different cultural dimensions and different value systems, for example (Lustig & Koester, 2003). It is important to keep in mind that greater knowledge does not necessarily foster more positive attitudes and opinions about other cultures (Byram, 1997), nor does it automatically lead to interculturally competent behavior. However, together with skills and positive attitudes toward culturally distinct others, knowledge can contribute to the development of intercultural competence.

Bolten (2000) defines the cognitive component of intercultural competence as an understanding of a cultural phenomenon in terms of perception, thinking, attitudes, and behavior, an understanding of correlated actions and behavior in one's own and other cultures, an understanding of cultural differences in the interacting partners, as well as an understanding of the specifics of intercultural communication processes. This includes meta-communication, reflecting on one's own communication critically, and looking at it from a

distance. In addition to awareness and knowledge, the cognitive component therefore also comprises meta-communicative and meta-cognitive skills.

The above-mentioned definitions of intercultural awareness, knowledge, and understanding show that the distinction between cognitive, affective, and behavioral components of intercultural competence is a theoretical one. In practice, it is difficult to separate them. As proposed in these definitions as well as in Fantini's (2000) and Deardorff's (2006b) models, the three components are mutually dependent and develop in relation to one another. Nevertheless, this distinction can be considered useful from a theoretical point of view as it structures and groups the numerous elements of intercultural competence and facilitates understanding of the concept.

*Affective Components*

The affective component of intercultural competence comprises a wide range of attitudes and emotions. Definitions and models of intercultural competence have been criticized for being nothing but definitions and models of social competence or social and emotional intelligence applied in a specific context (Straub, et al., 2007). Indeed, a number of the attitudes mentioned in them, such as respect, openness, and empathy, are desirable in many, if not all, kinds of social interaction. The intercultural context with its diverse cultural norms, values, beliefs, and practices can, however, add a considerable degree of complexity and difficulty to the interaction and is not to be underestimated. As studies have shown, managers who are normally considered socially competent are not necessarily competent when it comes to working in intercultural contexts (A. Thomas, 2003).

According to researchers like Byram (1997) and Deardorff (2006b), attitudes are the most important and fundamental aspects of intercultural competence. In her Process Model of Intercultural Competence, Deardorff (2006b) identifies the attitudes of respect, openness, curiosity, and discovery as the most basic attitudes required for the development of intercultural competence. Attitudes such as empathy and ethnorelativism are located on a higher level and developed later through internal processes. Byram (1997) expects an interculturally competent individual to show a positive, open-minded, and curious attitude without prejudice or stereotypes. The person should be willing to suspend disbelief and judgment and analyze his or her personal values and beliefs. An interculturally competent individual should question and revise, take others' perspectives, and develop "*critical* cultural awareness" (pp. 34-35, italics in original).

Bolten (2000) believes that the affective dimension of intercultural competence comprises tolerance of ambiguity[6] and frustration tolerance, the ability to cope with stress and to reduce complexity, self-confidence, flexibility, empathy, and role-distance, being unprejudiced, showing openness, a low level of ethnocentrism, tolerance and respect toward other cultures, and the willingness to engage in intercultural learning. Thus, in addition to positive attitudes toward other cultures, Bolten (2000) includes attitudes that allow individuals to deal with ambiguity, complexity, frustration, and stress, which can occur in all social interactions, but might be particularly common in intercultural contexts due to different communication styles and language barriers, for example.

A number of terms have been used to combine several positive attitudes that are desirable or even essential for the development of intercultural competence; first and foremost, the term *intercultural sensitivity*. Whereas Y. Y. Kim (1995) regards open-mindedness, tolerance for ambiguity, empathy, and intercultural sensitivity, as components of openness, Bennett (1984) as well as Chen & Starosta (2000b) consider intercultural sensitivity a broader concept that includes self-esteem, self-monitoring, open-mindedness, empathy, interaction involvement, and suspending judgment. Chen & Starosta (2000b) define intercultural sensitivity as *"an individual's ability to develop a positive emotion towards understanding and appreciating cultural differences in order to promote appropriate and effective behavior in intercultural communication"* (p. 408, italics in original). It seems clear that one has to be open-minded and receptive to new and unfamiliar ideas and cultures and able to tolerate ambiguity before one can develop empathy and appreciation for them.

In this study, the term intercultural sensitivity was used as an umbrella term covering all the positive attitudes that are desirable with regard to the development of intercultural competence, most importantly those mentioned in Deardorff's (2006b) Process Model of Intercultural Competence — curiosity and discovery, openness, respect, empathy, and ethnorelativism. These attitudes seem particularly important to initiate and advance intercultural competence development, which is why they are explained in more detail hereafter.

Curiosity and discovery are crucial attitudes as they create interest and motivate an individual to learn more and to further develop attitudes and skills. With regard to intercultural competence, Arasaratnam (2006) defines motivation as "the desire to engage in intercultural interactions for the purpose of understanding and learning about other cultures"

[6] Tolerance of ambiguity "refers to the way an individual (or group) perceives and processes information about ambiguous situations or stimuli when confronted by an array of unfamiliar, complex, or incongruent clues" (Furnham & Ribchester, 1995, p. 179).

(p. 94). Without such motivation, it seems unlikely that an individual can develop attitudes such as empathy and ethnorelativism and achieve higher levels of intercultural competence as portrayed in Deardorff's (2006b) model.

One way to increase student curiosity and discovery could be the use of digital games and simulations. Since these new media are often used in education because of their motivational qualities (Wastiau, Kearney, & Van den Berghe, 2009), they can be expected to increase curiosity and discovery in intercultural issues as well.

Openness is another attitude frequently regarded as fundamental for the development of intercultural competence. "Openness minimizes resistance and maximizes a willingness to attend to new and changed circumstances. Openness also enables strangers to perceive and interpret various events and situations in the new environment as they occur with less rigid, ethnocentric judgments" (Y. Y. Kim, 1995, p. 186). Although sometimes used interchangeably, openness is not the same as open-mindedness, but comprises it. Open-mindedness is to be open and receptive to new arguments and ideas, including those that seem strange or unusual or are contrary to one's own thoughts (Davis & Cho, 2005). Open-minded individuals attempt to better understand unfamiliar ideas and welcome strangers (Davis & Cho, 2005). According to Baldwin & Hecht (1995), an individual who welcomes difference and sees it in a positive way can combine the best parts of several cultures and thus become a "better intercultural person" (p. 65).

Davis & Cho (2005) consider openness the key to flexibility, that is accepting and respecting new and different attitudes and behaviors. Flexibility includes the willingness to change, accept, and adapt to new ideas, as well as tolerance and the ability to deal with unfamiliar situations. To be flexible means to "adapt to diverse social and cultural situations" (2005, p. 6) and to avoid quick and stereotypical judgments. A flexible individual asks questions, tries to use his or her experiences, and is willing to modify images of others. From a linguistic point of view, flexibility also includes the willingness to learn foreign languages and understand the true meanings of foreign words that are culturally specific and meaningful. Flexibility assists individuals in managing cultural differences and unfamiliar situations. It can also reduce culture shock, which has been defined as "a set of emotional reactions to the loss of perceptual reinforcements from one's own culture, to new cultural stimuli which have little or no meaning, and to the misunderstanding of new and diverse experiences" (Adler, 1975, p. 13, cited in Zapf, 1991, p. 107). Observing other individuals' behavior, reacting to it, and learning various ways of behavior can improve flexibility. Since openness and flexibility are so closely related, they were examined together in this study under the heading of openness and flexibility.

Respect is “a basic moral principle and human right that is accountable to the values of human dignity, worthiness, uniqueness of persons, and self-determination” (Trompenaars & Woolliams, 2009, p. 446). It has also been defined as the “willingness to show appreciation or regard” (Foronda, 2008, p. 209). Someone who is respectful acknowledges and accepts the values and rights of others as well as their uniqueness, dignity, worthiness, and self-determination (Trompenaars & Woolliams, 2009). Having respect for someone means to consider another individual worthy of attention and esteem and to be willing to show deference (Trompenaars & Woolliams, 2009). In her models of intercultural competence, Deardorff (2006b) equates respect with the valuing of diverse cultures and the diversity of cultures. She also draws attention to the fact that the various aspects of respect mentioned above can be expressed differently from one culture to another and that respect therefore needs to be examined within a particular cultural context (Deardorff, 2009a).

According to Deardorff’s (2006b) model, the fundamental attitudes of curiosity and discovery, openness and respect, together with knowledge and skills can lead to internal outcomes, including empathy and a more ethnorelative view. Empathy is defined as the “awareness of another person’s thoughts, feelings, and experience” (Lustig & Koester, 2003, p. 73) and the “capacity to *behave as if one understands the world as others do*” (p. 74, italics in original). Thus, empathy refers to the awareness of other individuals’ thoughts and emotions as well as the ability to think and feel as if one were someone else. As Bruneau (2000) explains, empathy “literally means ‘feeling into’ another’s feelings with one’s own, vicariously, and attempting to achieve some I-though congruence” (p. 458). This means that one engages in role-taking, on a cognitive as well as an emotional level (Arasaratnam, 2006, cf. Spitzberg & Cupach, 1984). Empathy is a complex concept, which involves not only affective, but also cognitive and behavioral aspects, which do not necessarily need to be in accordance with each other (Bruneau, 2000). Since the affective side of empathy is often the most prominent one, empathy is usually classified as an affective aspect of intercultural competence.

Bruneau (2000) identifies five empathic processes: objectification, imitation, role taking, alternating perceptions, and empathy as a psychological mode. These processes range from a rather superficial recognition of structures and appearances (i.e., objectification) to the “identification with and replication of another’s nonverbal, linguistic, and psycholinguistic patterns” (Bruneau, 2000, pp. 458-459). Imitation is based on “the ability to replicate what one person perceives” (Howell, 1979, cited in Bruneau, 2000, p. 459). It creates a common ground and a basis for comparisons of one’s own standpoint with that of someone else. Role taking refers to a mental projection into the roles of others, including obligations, expectations,

discrepancies, and behaviors. This encourages learning about the self and others, about similarities and differences. Role taking can involve taking on a variety of life roles (e.g., mother, father), as well as professional and social roles (Bruneau, 2000). The concept of empathy also includes changing viewpoints and perspectives, switching codes, and "gliding in and out of another person" (Bruneau, 2000, p. 459). It is important to note that empathy does not only occur during an experience (i.e., interactive empathy), but also before and after in the form of projective (or predictive) and reflective empathy (Bruneau, 2000). Due to the complex nature of empathy, Bruneau (2000) claims that one "can never do enough to practice and develop empathic abilities" (p. 461).

Another important aspect of intercultural sensitivity is the development of an ethnorelative point of view. The concepts of ethnocentrism and ethnorelativism have been discussed extensively in the field of intercultural communication, most notably by Bennett (1993), who also developed a corresponding model called the Developmental Model of Intercultural Sensitivity (DMIS). In this model, Bennett describes the process of development from an ethnocentric position — which has been described as the "default position" (Pusch, 2009, p. 74) — to an ethnorelative position in six stages, three ethnocentric and three ethnorelative ones. The process starts with a state of denial of other cultures and cultural differences and leads to the integration of different cultures into one's own cultural identity. In the denial stage, which is the most ethnocentric, individuals believe that their own culture is the only legitimate culture and other cultures are seen as largely irrelevant (Spitzberg & Changnon, 2009). The second stage, the defense stage, is characterized by an "us" versus "them" attitude and an attempt to protect one's own worldview (Bennett, 1993). It is followed by the minimization stage, in which differences between cultures are played down while similarities are emphasized (Bennett, 1993). These three ethnocentric stages are followed by the ethnorelative stages of acceptance, adaptation, and integration. In the acceptance stage, individuals accept cultural differences; in the adaptation stage they also develop empathy, adapt to the respective cultural context, and become bi-cultural or multi-cultural (Bennett, 1993). The integration stage is the most ethnorelative stage, in which cultural difference is regarded as positive and enriching (Bennett (1984), cited in Chen & Starosta, 2000b). It should be noted that not everybody can or should necessarily reach this last stage. In order to become interculturally sensitive, however, an individual needs to take on an ethnorelative point of view.

The developmental process from ethnocentrism to ethnorelativism can be triggered by intercultural communication and/or encounters, for example through travel abroad, work in multicultural teams, training, and overseas assignments (Pusch, 2009, cf. Gregersen, Morrison,

& Black, 1998). It can be assumed that it could also be activated by mediated intercultural communication and by engaging with culturally-diverse characters in digital games and simulations like *RealLives*, which allow players to experience and learn about diverse cultures, their similarities and differences.

As the digital simulation *RealLives* enables users to play out lives of various characters in different countries and cultures and provides a wealth of information on cultural and other issues, it was believed to potentially promote intercultural sensitivity in players in several ways. The use of *RealLives* was thought to create interest and curiosity in intercultural issues in players, which could make them want to discover and learn more about other countries and cultures. On *RealLives*, players are constantly confronted with new information and unfamiliar situations, they are required to adjust and change their perspectives and strategies of use. This could promote openness and flexibility, both in game play and with regard to intercultural issues. By providing cultural information and allowing players to experience the lives of others in a virtual environment, including the difficulties and hardships they face, *RealLives* could contribute to the promotion of respect. Leading the lives of diverse characters could also show players the similarities of people across countries, ethnicities, and cultural groups, and encourage them to treat all human beings equally and respectfully. Through their characters, players can take on a wide variety of roles, including gender, professional, and cultural roles. Players have to make decisions for their characters and are encouraged to think and act as if they were those characters, which could promote empathy. By becoming aware of cultural similarities and differences, players might also develop a more ethnorelative view. They could come to accept, maybe even appreciate, cultural differences and learn to respect individuals from other cultures with their particular values, beliefs, and norms.

*Behavioral Components*

The behavioral component of intercultural competence comprises the skills; that is, the "actual operational abilities to perform those behaviors that are considered appropriate and effective in a given cultural situation" (Ting-Toomey, 2005, p. 227). These skills include interaction management skills, social skills, and (meta)cognitive skills. Interaction management skills are, for example, the skills to observe, interpret, analyze, evaluate, and relate (Deardorff, 2006b) and verbal, non-verbal, and paraverbal communication skills (Humphrey, 2007). Social skills are skills required to establish fruitful relationships, to act respectfully, and to remain calm even in difficult situations (Humphrey, 2007). Cognitive and

meta-cognitive skills comprise skills such as finding, acquiring, and operating information and knowledge, and guiding one's own thinking and learning processes (Byram, 1997).

As this study focused on intercultural awareness and sensitivity, only a very brief overview of the behavioral component of intercultural competence is provided here for reasons of completeness. A thorough discussion of this component is beyond the scope of this thesis.

*Recapitulation*

This chapter included a review of theoretical approaches and empirical studies on the use of traditional and digital games and simulations in education as well as on the development of intercultural competence; that is, a combination of cognitive, affective, and behavioral components that allow individuals to interact effectively and appropriately with culturally-distinct others. The literature review showed that traditional offline games and simulations have been used for educational purposes, including intercultural trainings, for a long time, and that even computers have already been employed in education for approximately half a century. Thus, using such activities and media in education is not a new idea, although the use of digital computer games and simulations for teaching and learning in schools and for the promotion of intercultural competence are still quite recent phenomena.

While computer-assisted instruction and later on digital games and simulations were expected to fundamentally change education and produce significantly greater learning outcomes, results of empirical studies have shown mixed results or only somewhat better learning outcomes compared with traditional teaching strategies or other media. Not the medium alone, but the whole educational context (institution, teacher, integration into curriculum etc.) is important. Many educators, researchers, and game designers continue to believe that digital games and simulations have an educational potential that can be exploited under the right conditions and can be useful particularly for the young generations of people who have grown up with digital media and use them frequently in their daily lives. The conditions under which digital games and simulations can best be used for specific educational purposes as well as the question how playing and learning can be intertwined so as to facilitate an engaging and entertaining playing experience while at the same time enabling the player to learn the educational content need to be examined further.

Due to their characteristics, particularly interactivity, narrative, multimodality, social/ multiplayer use, and play frame, digital games and simulations allow learners to be active and in control, to explore and to learn through concrete experiences in specific situations and thus align with contemporary learning theories, such as Vygotsky's (1978) Social Learning Theory,

Lave & Wenger's (1991) Theory of Situated Learning, Kolb's (1984) Experiential Learning Theory and Bruner's (1967) Discovery Learning. Since the use of these media is usually perceived positively by students, it could lead to increased interest in the subject matter, longer exposure, better retention and greater learning outcomes.

Although digital media have been playing an increasingly important role in intercultural communication, they have largely been neglected in theories of intercultural communication and models of intercultural competence development. The few empirical studies conducted in this area indicate that digital games and simulations might be able to foster the development of intercultural awareness, knowledge, attitudes, and skills, but more research is necessary to determine how, to what extent, and under which conditions these media can support intercultural competence development.

This thesis was based mainly on Fantini's (2000) A+ASK model and Deardorff's (2006b) Process Model of Intercultural Competence, which emphasize intercultural awareness and sensitivity — fundamental components of intercultural competence that are, however, often neglected in favor of intercultural knowledge and skills. Both models depict intercultural competence development as an ongoing process and interplay of cognitive, affective, and behavioral components, but neither states how these components can or should be developed.

As the digital simulation *RealLives* used in this study enables users to play out lives of various characters in different countries and cultures and provides a wealth of cultural and other information, it was believed to potentially promote intercultural awareness and sensitivity by confronting players with new cultural information and unfamiliar situations, enabling them to take on a wide variety of roles (including gender, professional, and cultural roles), and encouraging them to adjust and change their perspectives, decision-making and playing strategies. The digital simulation *RealLives* will be discussed in more detail in the following chapter (3.2.1), which also explains the methodological underpinnings of this thesis and the research methods employed in the empirical study.

# CHAPTER THREE

## METHODOLOGY AND EMPIRICAL RESEARCH METHODS

Based on the theoretical foundations presented in Chapter 2, an empirical study was conducted to investigate the potential of the digital simulation *RealLives* to promote intercultural awareness and sensitivity in middle school students in Australia, Switzerland, and the USA. Though studies have demonstrated success in using digital games and simulations for learning in after-school and out-of-school contexts (e.g., Squire, 2004; Tsikalas, 2008b), this study focused on school contexts due to the growing importance of intercultural learning as well as digital games and simulations in such formal educational environments (see Chapter 1). This does not mean that examining the use of *RealLives* for the promotion of intercultural competence in after-school or out-of-school contexts would not be a worthwhile undertaking. On the contrary, future studies in this area could provide interesting comparative data.

This chapter introduces the methodological considerations and the main research questions of the empirical study conducted for this thesis (3.1). It presents the research design (3.2) and the empirical research methods employed (3.3), describes the data analysis (3.4), and discusses ethical aspects of the study (3.5). The last part of the chapter (3.6) consists of detailed profiles of the three cases included in the study. These case profiles, which combine methodology and methodologically relevant findings, provide the backdrop against which the findings presented in Chapters 4 to 6 are to be seen.

### 3.1 Methodological Considerations and Research Questions

This study, which investigated the use of the digital simulation *RealLives* in different school contexts and its potential for the development of intercultural awareness and sensitivity in middle school students, followed a pragmatist approach; that is, "a perspective that emphasize(s) human agency, consciousness, meaning, and process" (Musolf, 2003, p. 96). It combined media-sociological analysis with a study of educational technology by exploring the relationships between the simulation and its users on a micro (individual) and meso (group) level, the use of the simulation *RealLives* by different individuals and groups, and its educational potential in terms of promoting intercultural awareness and sensitivity. The main research questions guiding this project were:

(1) How do students and teachers use and interact with the digital simulation *RealLives* in different school and socio-cultural contexts?

(2) What connections can be found between students' use of *RealLives* in different school and socio-cultural contexts and their intercultural awareness and sensitivity?

(3) What is the potential of the digital simulation *RealLives* to promote intercultural awareness and sensitivity in middle school students, and how can it best be exploited?

Given the lack of research on the potential of digital games and simulations to promote intercultural competence in adolescents (see Chapter 2.1), this study adopted a mainly qualitative interpretivist approach. The interpretivist approach focuses on "understanding human nature, including the diversity of societies and cultures" (della Porta & Keating, 2008, p. 26). Accordingly, the aim of the study was not to test the effectiveness of the medium compared with other educational strategies or to quantitatively assess learning outcomes. Instead, it was to closely examine the use of, and interaction with, the digital simulation *RealLives* in different school settings to develop an understanding of the diverse playing and learning processes and to investigate the simulation's potential for the promotion of intercultural awareness and sensitivity in middle school students. The interpretivist approach also acknowledges that human beings are "dynamic, constantly changing and evolving" (Herman-Kinney & Verschaeve, 2003, p. 217) and therefore often includes research across time and space. To account for these dynamics, this study was conducted in two waves and three locations (see section 3.2).

In an interpretivist approach, objective and subjective meanings are "deeply intertwined" and "scholars must aim at discovering the meanings that motivate (…) actions rather than relying on universal laws external to the actors" (della Porta & Keating, 2008, p. 24). This requires researchers to communicate with their participants to elicit individual meanings and motivational factors and to interpret participants' interpretations in order to unveil and better understand the meanings and motivations behind their actions. In doing so, researchers bring their personal background, meanings, and ideas into the interpretation, which needs to be kept in mind when looking at interpretivist research findings. This study included qualitative in-depth interviews, in which participants provided information on their interpretations, individual meanings, and motivations while using *RealLives* (see 3.3).

The study was also based on the theoretical and methodological assumptions of Symbolic Interactionism, according to which human interaction is symbolic and framed by a socially constructed and individually interpreted reality (Mead, 1934, cited in Reynolds, 2003). Symbolic Interactionism postulates that both the self and the mind of an individual are largely derived from society, which is characterized by role taking and cooperation on the basis of shared meanings, expectations, and understanding of gestures (Mead, 1934, cited in Reynolds, 2003). Human beings live in a symbolic world constructed through communication via symbolic systems, such as language, for example (Krotz, 2005), and they act on the basis

of meanings that particular objects, people, and situations have for them (Mead, 1969). Thus, the actions of individuals cannot be understood from an outside perspective, but only through communicative research (Weber, 1949). The situational context plays a central role as it is the basis and framework of all (inter)actions (Mead, 1934, cited in Reynolds, 2003). Consequently, studies of human interaction, including interaction with technology, need to take into account the context as well as the perspectives of participants.

This study aligned with the ideas of Symbolic Interactionism by combining observations with in-depth interviews — two of the main research methods used by Symbolic Interactionists (Herman-Kinney & Verschaeve, 2003) — in order to capture the context and gain in-depth information on the meanings and perceptions of participants. These two research methods were complemented by questionnaire surveys, which delivered additional background information on the socio-demography and media use of the participants and their general perceptions of the simulation *RealLives.* This triangulation of research methods allowed for a deeper understanding of the context and the situation as well as the participants, their meanings, and perceptions. Since adopting such a qualitative approach can make it difficult to abstract from the data obtained, this study combined and compared data from three different case studies to facilitate the identification of common themes and trans-contextual phenomena.

Although different types of data were collected from different perspectives and from students as well as teachers in order to better understand the playing and learning processes with the simulation *RealLives*, the main focus during data analysis was on the student participants and their ways of using the simulation, communicating with it, with each other, and the teacher, and their intercultural awareness and sensitivity. There is no doubt that a stronger focus on the teachers, institutions, and/or the simulation *RealLives* could have also resulted in interesting data that could be used to enhance the quality of teaching, the preconditions, or the software itself. However, not all of these aspects could be analyzed to the same extent within the scope of this thesis, and preference was given to the learners.

## 3.2. Research Design

This section explains the research design chosen to answer the aforementioned research questions from an interpretivist and Social Interactionist perspective. It provides a rationale for choosing the simulation *RealLives* (3.2.1) and the case-study approach (3.2.2), describes the selection of cases and participants (3.2.3), and gives an overview of the data collection procedures and the timeline of the project (3.2.4).

### 3.2.1 The Digital Simulation *RealLives*

The digital simulation *RealLives* is a largely text-based single-player life simulation in the English language commercially available on CD-ROM. It has been produced by Educational Simulations, a small Californian company, since 2002. Updates were released in 2004, 2007, and 2009, the latest being the version used in this study, *RealLives 2010*[7]. On the Educational Simulations website, *RealLives* is described as a "life simulation software that allows students to live simulated lives in any country in the world" (Educational Simulations, 2010). The website also claims that "based on thousands of statistics collected from dozens of sources, RealLives offers a realistic look at life in every country" (Educational Simulations, 2010). Despite its text-based nature and relatively simple graphics, which can be compared to strategy and adventure games such as *Civilization*, *RealLives* seemed to appeal to adolescents (cf. Tsikalas, 2008b) and was therefore considered suitable for this study.

On *RealLives*, players can play out the lives of characters anywhere in the world from birth to death. Characters can be randomly assigned by the simulation or selected by the player using the so-called Character Designer. In the case of random selection, the likelihood of a character being born in one place or another, as girl or boy *et cetera* is also determined by official statistics. When using the Character Designer, players can choose their characters' name, sex, country, and place of birth, as well as their level of happiness, intelligence, artistic talent, musicality, athleticism, strength, and endurance on scales from 0 to 100. The other character attributes (health, resistance, conscience, and wisdom) are determined by the simulation. There are no avatars on *RealLives;* players can only see their characters' faces at the age of 15 and the faces of family members. There is also no interaction between characters on *RealLives*, which limits the simulation's potential for the promotion of intercultural skills.

Although players cannot see their avatars act in a virtual world, they can influence and control their characters' lives to a certain extent and make decisions regarding their education, career, finances, leisure activities, place of residence, family, and relationships, for instance. Throughout a character's life, players have to make choices, including where to live, which job to choose, whether or not to start smoking or drinking, to get married, or to commit a crime. Players need to respond to events and challenges, including natural disasters, diseases, financial losses, and difficulties in finding a job or a partner, for example. The occurrence of such events is based on official statistics provided by institutions such as UNESCO, WHO, and the US Census Bureau. In addition, players can select options (e.g., quit job, seek a romance, have a child, emigrate, invest) from the menu on the Actions page and thus actively

[7] A number of screenshots of the simulation *RealLives 2010* can be found in Appendix H. For more information, including a virtual tour and an option to download a trial version, please consult the Educational Simulations website at http://www.educationalsimulations.com.

influence their characters' lives. The choices players make affect their characters' lives, which allows players to experience the consequences of their actions and to learn from them. Players advance their characters' lives by clicking the button Age a Year. Without a time limit, players can explore the simulation at their own pace. Lives can be saved and continued later.

There are five different pages (tabs) on *RealLives*: Self, Family, Actions, Country, and Stats. On the Self page (Figure 3.1) — the default page — players can see their character's face at the age of 15, name, sex, location (also shown on a world map), attributes (e.g., health, happiness, wisdom), religion, and language as well as a diary page listing the most important events in the character's life.[8]


*Figure 3.1. RealLives 2010* Self page

The Family page provides information on family members (e.g., their age, health, occupation), income, and living conditions, such as the diet, type of home, safe water, public sanitation, medical care, and the number of TVs, radios, and cars.

On the Actions Page, players can select various actions related to education (quit school, enroll in college/vocational school/graduate school), career (quit job, ask for a job, work overtime, ask for a raise, start a business), finances (monthly expenses, invest), love and relationships (seek a new romance, end romance, propose marriage, leave marriage, try to

[8] Screenshots of the other pages are included in Appendix H.

have a child, adopt a child), residence (move out, change city, change dwelling, emigrate), and leisure activities (art, music, reading, play, fashion, TV, sports, training, outdoor, volunteering, religious activities, social or political activism).

The Country page provides information on the political, societal, and health situation in the character's country, including population, currency, political and civil rights, corruption, birth rate, literacy rate, persons per TV, radio and car, wealth, urbanization, life expectancy, infant mortality, and available health services. At the center of the page, a Google map invites players to explore the area they "live" in. In order for this map to be displayed, the computer needs to be connected to the Internet.

The Stats page presents the character's points (0 to 100) for health, happiness, intelligence, artistic and musical abilities, athleticism, strength, endurance, and conscience, as well as the development of wealth and income throughout the life in the form of graphs. Different colors show players whether their character's levels are low, medium, or high.

In addition to these pages, *RealLives* provides information through pop-up boxes, which also feature a Learn More option with more comprehensive information and links to Internet pages where further information can be found. Thus, the simulation offers a wide range of factual information, and it also confronts players with many potentially unfamiliar situations where they can make experiences *in lieu* of their characters. The lives contain a wide range of issues, ranging from natural disasters and diseases to moral dilemmas, discrimination, and crime. By default, all the issues on the Configure Issues page (Figure 3.2) in the File menu are included in the lives. They can be excluded by unticking boxes, which allows, for example, teachers to adjust the simulation to students' age and level of maturity when using the simulation in school.


*Figure 3.2. RealLives 2010* Configure Issues page

*RealLives* was selected for this study for a number of reasons: Firstly, the choice of digital games and simulations addressing intercultural issues is fairly limited. Secondly, available software often focuses on very specific issues, for example *Aiti – The Cost of Life* on rural life in Haiti and *Global Conflicts – Palestine* on the conflict between Israelis and Palestinians. Such games might be difficult to integrate into teaching at different schools during a particular time, as they might not fit the curriculum. Due to their narrow focus, their potential for the promotion of intercultural awareness and sensitivity might also be limited. In contrast, *RealLives* provides a wide range of cultural information and experiences in numerous countries. By simulating the lives of people around the world, it gives an insight into people's daily lives, their living circumstances, the opportunities they have, the challenges they face, and the decisions they must make. It also offers background information, such as demographic figures and explanations of customs, as well as links to official websites for further information. The use of *RealLives* could therefore influence the development of intercultural competence in a variety of ways. Other digital games and simulations with a similar potential are those used by the United States Military, which are, however, neither accessible to, nor appropriate for middle school students.

Another reason for the selection of *RealLives* was that the simulation had been on the market since 2002 and had already been used with middle and high school students in the USA and Canada and in a few English-speaking schools in Europe. In these schools,

*RealLives* had supplemented lessons in Social Studies, Geography, Peace Studies, and other subjects, and — according to the Educational Simulations website — students and teachers had enjoyed using the simulation in the classroom and had made positive educational experiences with it.

There are, however, also limitations to *RealLives*. Like any simulation, *RealLives* is a simplified model of a section of reality, which means that it cannot capture the complexity of life or culture. Player influence is limited to the options provided on the Actions page so that, for instance, it is not possible to convert to another religion, or to choose a job that is not included in the list. While the fact that *RealLives* is based on statistics on the one hand allows for comparable experiences when different users play out lives in the same place, it on the other hand does not reflect the diversity of people, cultures, and ways of life in any location and could lead to overgeneralizations and stereotyping. Also, *RealLives* was not developed as a "deep serious game" (Gee, 2009, p. 68) for the promotion of intercultural competence, which means that players are not required to develop intercultural awareness and sensitivity in order to be able to progress in the simulation. Moreover, since *RealLives* does not graphically display the living environment and cultural artifacts, it requires imagination and creativity and might appeal less to visually oriented learners. Its text-based nature could also be a challenge for players who have difficulty reading or understanding more complex texts. Despite these limitations, *RealLives* was considered a suitable digital simulation for the purpose of this study for the aforementioned reasons.

### 3.2.2 The Case Study Approach

In order to investigate the use of and interaction with the simulation *RealLives* and its potential for the promotion of intercultural awareness and sensitivity, a case-study approach was chosen. A case study is "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 1994, p. 13, cited in Baur & Lamnek, 2005, p. 241). In line with the methodological underpinnings of this study, case studies allow researchers to examine phenomena in depth and in consideration of the context. According to della Porta (2008),

> *recent debates on case studies and small-N comparison have challenged the idea that – as Dietrich Rueschemeyer (2003:305) put it – exploring the impact of a large number of relevant factors and conditions in only a few cases does not help in learning anything that is theoretically relevant. (p. 211)*

Case studies are nowadays widely-accepted, “praised for their detailed knowledge of processes” and regarded as “particularly useful for the discovery of social mechanisms” (della Porta, 2008, p. 211).

When using case studies, a minimal level of theory is necessary to enable the researcher to determine what the case should be and how to examine it (Baur & Lamnek, 2005). A case is “a phenomenon, or an event, chosen, conceptualised and analysed empirically as a manifestation of a broader class of phenomena or events” (Vennesson, 2008, p. 226); it can denote an individual or a group of individuals (Baur & Lamnek, 2005). Cases can be fuzzy and may change during the research (e.g., because of group members leaving or new people joining), but they can never be completely detached from their context (Baur & Lamnek, 2005). Each case needs to be described in detail in order to capture its complexity (Baur & Lamnek, 2005).

Case studies examine similarities and differences within and between cases by paying attention to the particularities of each case (Baur & Lamnek, 2005). Due to the importance of the context, the often desired research design of an experiment cannot be used for case studies as it does not capture the complexity of reality (Baur & Lamnek, 2005). Thus, other empirical research methods need to be used, which should attempt to influence the context as little as possible (Baur & Lamnek, 2005). Although examining particular cases, case studies often attempt to make more general statements and can contribute to the development of theories and hypotheses (Baur & Lamnek, 2005). In contrast to the results of quantitative studies, case study findings cannot be transferred to a population as a whole with a certain probability; however, they can be transferred to similar cases in similar contexts to a certain extent, as the case study approach considers the specific case and the whole as complementary, not contrary (Baur & Lamnek, 2005).

The research process in case studies usually starts with the extraction of contrasting theories about the phenomenon to be researched (Baur & Lamnek, 2005). The researcher then develops specific research questions and a matching research design, which is typically characterized by openness, adaptability, and flexibility (Baur & Lamnek, 2005). Data obtained are integrated into the research process, which can then be adapted, if necessary (Baur & Lamnek, 2005). Openness is also important for the researcher, who needs to remain unbiased and unprejudiced throughout the research in order to capture the case in all its complexity (Baur & Lamnek, 2005). A triangulation of research methods and data can detect and minimize errors and provide a comprehensive as well as detailed picture (Baur & Lamnek, 2005). Once the data have been collected, they are interpreted and analyzed by the researcher, who also takes his or her interaction with the case and context into account (Baur & Lamnek,

2005). After the data analysis, the importance and implications of the findings for this particular case and for other cases are discussed, whereby theories and hypotheses can be developed that can then be tested in further case studies or more general studies (Baur & Lamnek, 2005).

This study followed the above-mentioned guidelines. Three similar yet different cases of seventh-grade middle school students and their teachers were selected to examine the use of the digital simulation *RealLives* and its potential to promote intercultural awareness and sensitivity (see 3.2.3 and 3.6). This allowed for an exploration of similarities and differences within and across cases. A triangulation of research methods — observations, in-depth interviews, and questionnaire surveys — was employed to capture the context and participant's individual meanings, perceptions, and ways of using the simulation from different perspectives. It was also used to minimize distortions due to cognitive bias or misinterpretation on the researcher's side and selective memory and social desirability on the participant's side. The researcher attempted to influence the context and the participants as little as possible. Due to the use of reactive research methods, however, such influence could not be avoided completely. In line with the principles of openness, flexibility, and adaptability, questionnaires and interview guidelines were revised during the research process in order to better match the particular cases and contexts.

### 3.2.3 Case and Participant Selection

As explained in Chapter 2, intercultural competence can be considered a key competence in the globalized world of the 21st century. This is especially true in immigration countries where the population is becoming increasingly diverse. Since children nowadays come into contact with culturally-distinct others early in their lives, intercultural competence is best developed at an early age to facilitate intercultural communication and prevent the formation of prejudice and stereotypes. Based on these considerations, a combination of case studies with adolescent middle school students and their teachers in three different immigration countries — Australia, the USA, and Switzerland — was chosen for this study.

All three countries selected have dominant Western cultures but also an increasingly diverse immigrant population (United Nations Department of Economic and Social Affairs Population Division, 2009).[9] In all three countries, digital games and simulations are popular entertainment media among children and adolescents (Australian Government, 2009;

[9] According to the 2009 United Nations International Migration Chart, the USA was the country with the largest number of migrants worldwide (42.8 million) while in Australia and Switzerland migrants constituted 21.9% and 23.2% of the total population respectively (United Nations Department of Economic and Social Affairs Population Division, 2009).

Entertainment Software Association, 2010; Interactive Software Federation of Europe, 2010). The countries are, however, located in different regions of the world, which allowed for a comparison of findings across continents and cultures and facilitated the identification of common themes and phenomena as well as context-specific differences.

Other reasons for the selection of these countries were that the United States was the country where *RealLives* was produced and used most widely. Switzerland was one of the few European countries where *RealLives* was already used in schools and where the preconditions for an empirical study of the use of *RealLives* in a school context were given. Since *RealLives* was not used in schools outside North America and Europe at the time the study was planned, Australia was chosen as a third location as it was a similar country in terms of ethnic diversity and popularity of digital games and simulations, but in a different part of the world. It was also the location of the researcher at the time, which allowed for personal visits to schools, and facilitated the introduction of *RealLives* to a school and the preparation of the data collection.

In all three countries, private International Baccalaureate (IB) schools were selected as locations for the empirical studies. IB schools emphasize intercultural cooperation and competence and encourage the use of new media for teaching and learning. They therefore matched the theoretical foundations of this study. In order to find participants, IB schools that were using *RealLives* in the USA and Switzerland[10] were contacted by e-mail, as were all IB schools in Australia. To enable schools to participate in the research and as a reward, the producer offered all participating schools a free *RealLives* site license. After one IB school in each country had expressed their interest in the study, approval was obtained from the Human Ethics Committee of the researcher's university, followed by active consent from school officials, teachers, parents, and students.

In the USA, a private Quaker IB school in the state of Delaware expressed interest in participating in the study. *RealLives* had been used in a Peace Studies course with sophomore students there, and the researcher had visited the school before to see how *RealLives* was used in this course. Thus, the researcher was familiar with the facilities, albeit not with the participating teacher and students.

Only International Schools were eligible to participate in the study in Switzerland as *RealLives* is only available in English and the language of instruction therefore had to be English. A teacher at an International IB School in the German-speaking part of Switzerland, who had already used *RealLives* with high school students in Model United Nations courses, decided to participate in the study with his Social Studies students. The researcher had visited

[10] A list of schools that had recently ordered *RealLives* was provided by Educational Simulations.

the school and teacher in 2007 to see how the simulation was used there, but as the school moved to a new location in 2008, she was neither familiar with the facilities nor with the students.

In Australia, an interdenominational Christian IB school in the state of New South Wales expressed its interest in the research project. After the researcher visited the school in person to explain the project to school officials and examine the facilities, the Principal and Head of Middle School agreed to participate in the study and recommended a teacher, who was the Head of E-learning and agreed to take part in the research with one group of students.

As the description of the selection process shows, the schools were not chosen as representatives of their countries and should therefore not be treated as such. Although certainly influenced by the cultures and educational systems of their countries and states, they were also quite special since they were private schools as well as IB schools. Moreover, the American and Australian schools had a religious affiliation, while the Swiss school was an International School. Throughout this thesis, the terms *Australian school*, *American school*, and *Swiss school* are used to acknowledge the cultural imprint and the influence of the national educational systems and to make it easier to distinguish between the cases (compared to school A, B and C), but not because they are typical Australian, American, and Swiss schools.

To allow for a context as natural as possible, the selection of student participants and the integration of *RealLives* into teaching were left to the teachers. The only criterion specified by the researcher was that all students be in seventh grade, as this was the first year students in all three countries were attending secondary school. Seventh grade was also considered appropriate as it is a transitional phase between primary and high school without any major exams and a time of transformation during which children naturally explore their identity (Swanson, et al., 2010). Furthermore, this age group was believed to be capable of playing and understanding *RealLives*, which contains some confronting issues (e.g., homosexuality, rape) and rather complex investment options, which might be difficult to understand for younger children. A detailed description of the participating schools, students, and teachers, and the different contexts is provided in the case profiles in section 3.6.

### 3.2.4 Project Overview and Timeline

As this study was conducted in the context of a PhD program, it had to be completed within four years. After reviewing existing literature and research in the first year, the empirical

study was planned, approval obtained from the Human Ethics Committee[11], and the participants recruited in the second year. Two waves of data collection were conducted during the third year, following the launch of *RealLives 2010* in July 2009. All interviews were transcribed, the video material coded, the data analyzed and this thesis produced in the fourth year.

The data were collected in two rounds with an interval of two to three months, which allowed participants to use the simulation for some time. This also enabled the researcher to detect potential changes in the use of *RealLives* and its potential for the development of intercultural awareness and sensitivity over time. The data collection period was confined by the launch of *RealLives 2010* at the end of July 2009 and the start of the Christmas school break on December 18, 2009. As the teachers believed that it was easier to integrate research activities at the beginning and end of a school year or term than in the middle, data collection took place at the beginning of terms 3 and 4 at the Australian school, and at the beginning of the school year and right before the Christmas break at the American and Swiss schools. All data collection activities were coordinated with the schools and teachers to minimize clashes with school breaks, excursions, and other activities.

Although all three schools were expected to use *RealLives* throughout the whole period from August/September to December 2009, this only happened at the Australian school. The other teachers were unable to integrate *RealLives* into their teaching during the interval due to a lack of time and laptops with the software (American school), and because *RealLives* did not fit into the lesson plans during that time (Swiss school). At these two schools, *RealLives* was (almost) exclusively used during the data collection periods (see below).

The researcher had planned to visit all three schools for exactly two weeks (10 school days) each time in the same order and with the same interval in between the two rounds of data collection. Due to examinations at the Australian school (which made the computer room unavailable), an excursion by the Swiss students, and the Thanksgiving holiday in the USA, the schedule had to be adjusted. With the researcher trying to influence the context and procedures at the schools as little as possible, research activities were adapted to the circumstances when necessary.

As Figure 3.3 shows, data were eventually collected at the Australian school on five school days between August 10 and 18 (round 1), and on five school days between November 9 and 16, 2009 (round 2). At the Swiss school, data were collected on nine school days between September 7 and 18 (round 1) and on five school days between December 14 and 18,

[11] The final ethics approval letter can be found in Appendix G.

2009 (round 2). At the American school, data were collected on 10 school days between September 21 and October 2, 2009 (round 1) and on eight school days between November 19 and December 3, 2009 (round 2).

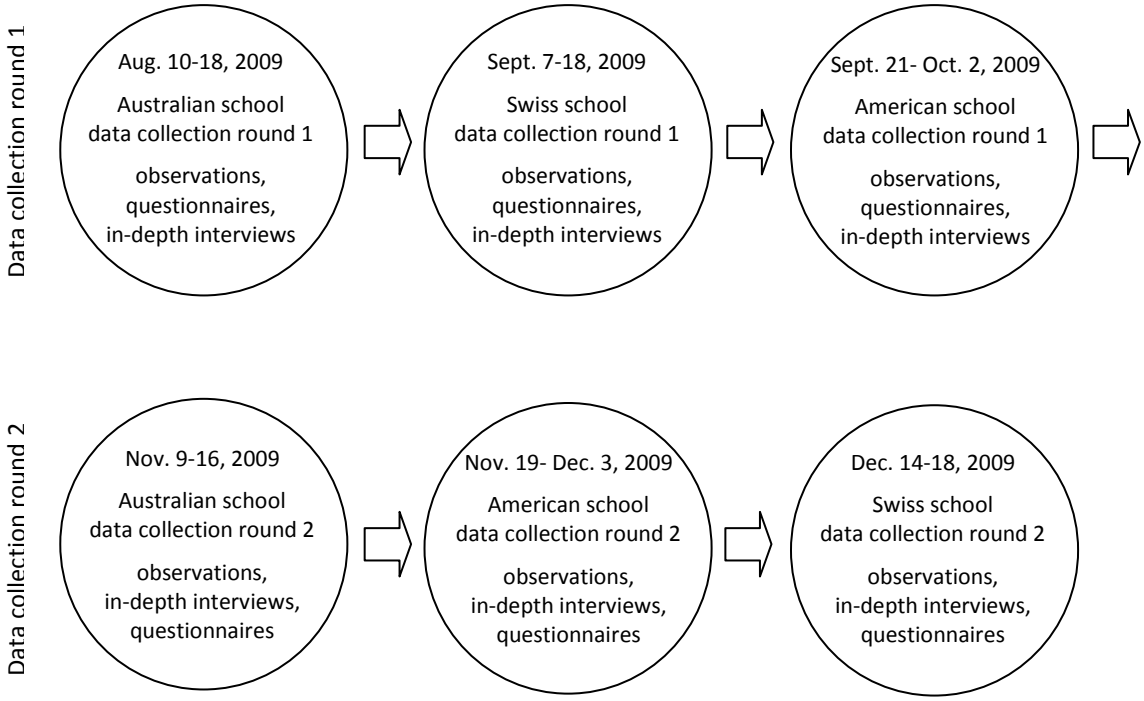



*Figure 3.3* Overview Data Collection

## 3.3 Empirical Research Methods

In each case study, participant observation was used to capture the context in its complexity and to closely examine the use of *RealLives* and the interaction between participants and the simulation. Since personal meanings, thoughts, and perceptions cannot be identified and thoroughly understood from an outsider's perspective, the observations were complemented by in-depth interviews with students and teachers. In the interviews, participants were encouraged to talk about their perceptions of *RealLives*, their playing and learning experiences, and their opinions on the use of digital games and simulations in school. To give participants sufficient time to talk about these topics during the interviews, information on participants' socio-demographic background, media use, general opinions about *RealLives*, and their intercultural experience were collected through questionnaire surveys. As more students completed the questionnaires than could be interviewed during the data collection period, the larger amount of data also provided a more general picture and a backdrop against which the interview data could be seen.

The combination of observations, in-depth interviews, and questionnaire surveys supplied complementary data from different perspectives and allowed for an interpretation of

findings from one method with the help of the findings from another. Such triangulation can reduce the risk of distortion and misinterpretation (Treumann, 2005). The three research methods and their application in this study are explained in more detail in the following sections.

### 3.3.1 Participant Observation

Participant observation is a research method taken from daily life, but employed in a more systematic way for social science research. Observation provides access to individuals' actions, either with or without the intervention of the researcher (Mikos, 2005). In the case of participant observation — the method used in this study — participants are aware of the fact that they are being observed and know that a researcher is present (Mikos, 2005). Some researchers prefer participant observation over non-participant observation for ethical reasons as participants know that they are being observed and are not deliberately withheld information or misled about the purpose of the activity (Mikos, 2005). However, being aware of the researcher can influence participant behavior, which needs to be considered when analyzing and interpreting participant observation data (Mikos, 2005).

The aim of participant observation is to gain access to everyday practices, which are difficult to describe or reproduce in group discussions or interviews (Mikos, 2005). Through participation in the situation, the researcher can achieve a better understanding of the practice and the roles and cultural patterns of the participants (Mikos, 2005). Despite the presence of a researcher, the situation should be as natural as possible; the researcher needs to keep a distance and reflect on what is happening in the situation (Mikos, 2005). As Mikos (2005) notes, even as a participant, the researcher always remains an outsider who has the power to influence the situation so as to find out what s/he wants to know. The researcher must be open and prepared for surprises; s/he needs to act ethically and responsibly throughout the observation and must decide how far to go (Mikos, 2005). Since every researcher observes in a selective manner, observations are best carried out with more than one researcher from different perspectives (Mikos, 2005). Alternatively, technology (e.g., photo and video cameras) can help provide data from different angles (Mikos, 2005). One way to find out if the researcher's interpretations match the participant's meanings and experiences is to show the recordings to the participants, discuss them with them, and thus integrate them into the research process (Mikos, 2005). As not all phenomena can be observed and observation can be insufficient to fully understand a phenomenon, particularly the subjective meanings of objects or practices (Mikos, 2005), observations are best combined with communicative research methods, such as interviews, group discussions, or role play (Mikos, 2005).

In this study, participant observation was used to gain a better understanding of the different contexts and situations *RealLives* was used in and to capture the use of the simulation and the interactions between participants and with the simulation. All participants were aware of the purpose of the study and provided active consent to being observed and video-recorded during their use of *RealLives* (consent forms see Appendix A). Since the budget of the project did not permit the employment of a second researcher, two video cameras were used to record the situations from different angles. The researcher took field notes and tried to remain in the background as much as possible so as not to influence the situation. As students and teachers considered the researcher a *RealLives* expert, however, they sometimes asked questions, for example when they encountered problems with the software (e.g., installation problems, computers freezing, bugs), had difficulty understanding certain words, or did not know how to do something on *RealLives*. The researcher tried to contain herself as much as possible and only helped when absolutely necessary; that is, when a students were struggling considerably and becoming frustrated because they were not getting any help from peers or the teacher.

The two video cameras were positioned in an unobtrusive way in opposite corners of the room to discreetly capture as much of the situation as possible from different angles. Although students sometimes waved at the cameras when entering or leaving the room, they often forgot about them while using the simulation and only remembered that they were being filmed when reminded by peers (e.g., when using inappropriate language), or when the researcher had to change a tape. Students and teachers generally did not mind being filmed and seemed to act as if the cameras were not there, except for some students who were waving at a camera or came up to it to record a personal statement. A few students were shy and turned away from the camera when they realized they were being filmed, but none of them withdrew from the study.[12]

Although helpful in obtaining data from different perspectives, the video cameras also caused some problems. Apart from influencing the setting to a certain – albeit small – extent, limited battery life and tape length meant that recordings were repeatedly disrupted by battery and tape changes, and cameras sometimes had to be positioned near power outlets when recording several lessons in a row. One video camera had to be exchanged after the first round of data collection as it frequently turned itself off during recordings.

At the Australian and Swiss schools, where 12 or more students were playing at the same time, not every single student could be recorded — even with two cameras. Since it

[12] As stated in the consent forms (Appendix A), all participants had the opportunity to withdraw from participation in the study at any time without having to provide a reason.

sometimes became very noisy in the classroom, it was impossible to allocate utterances to particular students. Thus, the observations gave a general impression of the use and interaction with *RealLives* in diverse contexts rather than providing detailed data on individual students' playing and learning experiences. Due to time limitations, it was not possible to look at the recordings together with the participants. The observation data was, however, triangulated with interview and survey data from students and teachers.

### 3.3.2 In-depth Interview

The second empirical research method employed in this study was the qualitative in-depth interview. A qualitative in-depth interview is a planned method with a scientific aim in which a researcher tries to a make a study participant utter verbal information with the help of specific questions (Scheuch, 1973, cited in Diekmann, 2001). Interviews can be conducted in different forms, as face-to-face or telephone interviews, for example. In this study, all interviews were individual face-to-face interviews, which is one of the most common research methods in the social sciences (Diekmann, 2001). Qualitative in-depth interviews are less structured and therefore also allow for answers outside existing schemata or theories. Nevertheless, they are usually based on guidelines, which guide the researcher and make sure important aspects are mentioned throughout the interview (Keuneke, 2005).

Qualitative interviews are characterized by the principles of openness, research as communication, research and subject matter as processes, reflexivity of the subject matter and the analysis, explication, and flexibility (Lamnek, 1995, cited in Keuneke, 2005). The research process is open to new ideas and findings and the development of new hypotheses or theories, which requires open-ended questions and an open-minded attitude of the researcher (Keuneke, 2005). The principle of research as communication underlines the importance of communication between researcher and participants in the research process. When using interviews, the researcher is actively involved in the data collection and success depends in part on the his/her ability to communicate (Keuneke, 2005). Throughout the interview as well as during transcription and data analysis, the researcher needs to reflect on his/her own role in the research process. Due to the strong involvement of the researcher, qualitative interviews are a highly reactive research method and therefore best combined with other — less reactive — methods to avoid distortions (Diekmann, 2001).

Ideally, an interview closely resembles a natural communication situation; it is relaxed and trusting while at the same time following the rules of social science research (Keuneke, 2005). At the beginning of the interview, the researcher explains the purpose of the study to the interviewee, highlights the importance of the interviewee's personal opinion and the fact

that there are no wrong answers (Keuneke, 2005). The interviewee takes on the role of an expert, explains his/her patterns of thought, meanings, and actions to the researcher and thus enables the researcher to develop a deeper understanding (Keuneke, 2005). During the interview, the researcher provides neutral feedback, asks questions, and expresses interest in order to keep the interview going (Keuneke, 2005). The researcher needs to be open and flexible so that new ideas can emerge and changes can be made to the interview process, if necessary. Any recording requires the participant's consent and should be done in an unobtrusive manner (Keuneke, 2005). This study followed these rules wherever possible.

In this study, a particular type of qualitative in-depth interview was used: the problem-centered interview (Witzel, 1982, 1989, 2000). Problem-centered interviews are partly standardized and guided interviews that combine inductive and deductive research and can be used to create, extend, or test existing theories. They are based on existing theories or hypotheses to some extent, but open to new ideas. Since problem-centered interviews are partly structured, they are easier to use with children and adolescents than unstructured narrative interviews. Interviewees for problem-centered interviews are usually selected by Theoretical Sampling; that is, the researcher selects interviewees who, due to their characteristics, promise to contribute to answering the research questions (Glaser & Strauss, 1998, cited in Witzel, 2000). In this study, only students who had used the simulation *RealLives* several times were selected as interviewees.

Problem-centered interviews follow interview guidelines that are based on theoretical foundations and observation results (where applicable). The guidelines usually include an icebreaker question to start the interview, key questions, and possible additional questions; questions that reactivate experiences and memories are preferred as they can support the interviewee (Witzel, 2000). In this study, the guidelines for student interviews (see Appendix B) included questions about their *RealLives* experiences, intercultural competence development, perceptions of the simulation as a learning tool (also compared to other learning methods), interactions with peers and teachers, the classroom atmosphere, and general opinions about the use of digital games and simulations for learning in school. As students were usually interviewed during class time, interview time was limited to approximately 15 to 20 minutes so that students did not miss too much of their lessons. Thus, not all questions could be raised with all interviewees. The questions asked depended on each student's individual responses and particular *RealLives* experiences, which aligns with the procedures proposed for problem-centered interviews (Witzel, 2000).

For the teacher interviews, the guidelines comprised questions about teacher perceptions of and experiences with *RealLives* and other electronic media in the classroom,

perceived educational outcomes in students, the influence of digital media on classroom atmosphere, and the role of the teacher, as well as obstacles for implementing such media in schools (see Appendix B). All three teachers were interviewed twice, once during each round of data collection.

At the Australian school, where *RealLives* was used continuously from August to November 2009, all 13 participating students were interviewed during both rounds of the data collection, which allowed for an investigation of possible changes in playing and learning processes and perceptions of the simulation. This was not possible at the American and Swiss schools, where over 50 students participated in the study respectively.

At the American school, 17 students were interviewed during the first round of data collection and 15 in the second; five students participated in both rounds. Some interviewees were selected by the teacher based on their interest, playing experience, and the amount of schoolwork they had to do; others were chosen by the researcher as they seemed to have had particularly interesting *RealLives* experiences during the lessons observed. Since the students at the American school did not use the simulation between the two rounds of data collection, there was no need for a follow-up interview. Only students who had either played at home or had not had sufficient time to talk about their experiences in the first interview participated in a second interview.

At the Swiss school, 13 students were interviewed in the first round of data collection and 10 in the second. All of these students were selected by the researcher based on the observations and so as to cover a wide range of students with seemingly different attitudes, experiences, and ways of playing. Since most students at the Swiss school had already used *RealLives* before the study and played only once in between the two rounds of data collection, again there was no need for a follow-up interview.

To ensure participant anonymity, all students were asked to provide a code for their interviews. To this code, which consisted of first two letters of their mother's and father's first names and the last four digits of their phone number, three letters were added to signify the country, a letter for the group (where applicable), a *g* for a girl or *b* for a boy, and the round of data collection (1 or 2). As an example, the participant code USA_CAPE8706Bb_1 refers to a male American student in group B interviewed during round 1 of the data collection. The teachers' codes consisted of the three letters for the country, the word *Teacher* and the round of data collection (e.g., AUS_Teacher_1). An overview of all interviewees can be found in Appendix C.

All interviews were conducted in environments the participants were familiar with; that is, in comfortable and easily accessible interview rooms at the Australian and American

schools, and in the cafeteria and unoccupied classrooms at the Swiss school. The researcher attempted to make the interviews resemble a normal conversation as much as possible by listening and responding to the interviewees, trying to use their language, and allowing them to talk about their experiences freely. All interviewees were aware of the purpose of the conversation and provided active consent for audio recording. The interviews were audio-recorded using both an analogue and a digital recorder.

Most participants had little to no reservations and enjoyed sharing their experiences with the researcher. Students seemed to appreciate being taken seriously and being able to voice their opinion. As this was the first time they had taken part in such a research project, some students and one teacher were somewhat nervous in the beginning, but they generally became accustomed to the situation quickly. Very few students, mainly boys at the Australian school, did not seem to be in the mood to do an interview and gave rather short and unenthusiastic answers. Other interviewees might have responded too positively in order to make a good impression or to please the researcher. Such issues cannot be ruled out when using interviews as a research method.

One important interview effect was that the interviews encouraged participants to reflect on their *RealLives* experiences, which made them aware of issues they had not thought about before.[13] In doing so, the interviews might have also encouraged the development of intercultural awareness and sensitivity in students, particularly at the Australian and American schools, where students had little to no classroom discussions and debriefings. While this reactivity might be considered a methodological flaw, it showed how talking about experiences can encourage reflection and learning. It is therefore also an important outcome of the study.

Overall, few problems occurred during the interviews. Sometimes rooms were not available for interviews, which reduced the number of participants that could be interviewed. Despite using two audio-recorders and regular testing, recharging, and changing of tapes, some interviews turned out to have recording errors and were of suboptimal quality. Two of the interviews conducted at the Swiss school in round 2 of the data collection were replaced by other interviews on the digital recorder and not recorded on the audio-recorder due to a technical error, which meant that they could not be transcribed and analyzed. Nevertheless, a large body of data was obtained, which was subsequently transcribed and analyzed as described in section 3.4.

[13] During their interviews, students said, for example, “I never thought of that” (USA_CAPE8706Bb_2) or “I feel like, now that you mention it” (USA_AMMI5519Ab_2). The teachers also mentioned on several occasions that they had not thought about some of the issues raised and needed to think about them first.

### 3.3.3 Questionnaire Survey

Although this study took a qualitative approach with observations and problem-centered interviews, questionnaire surveys were used to gather background information and more general data from a larger group of participants compared with those observed and/or interviewed. With limited time for interviews, the use of questionnaire surveys allowed the researcher to collect easy-to-provide information, such as socio-demographic data, media use, and perceptions of *RealLives* in a short time and to focus on the harder-to-explain reasons, meanings, and experiences participants had during the in-depth interviews.

Questionnaire surveys are a time-saving method to obtain a greater amount of information from a number of participants at the same time (Diekmann, 2001). They require at least some theoretical knowledge in order to enable the researcher to develop questions and answer categories, although in cases where little theory exists, open-ended questions without answer choices can be used (Diekmann, 2001). A questionnaire typically starts with a warm-up question, which is followed by the research-relevant questions grouped by themes (Diekmann, 2001). As socio-demographic questions are usually not very interesting for the participants but easy to complete even when concentration is low, they tend to be positioned at the end of the questionnaire (Diekmann, 2001). The most important questions are normally positioned in the second half of the questionnaire, since participant's alertness first takes some time to increase before it reaches its maximum and then decreases again towards the end (Diekmann, 2001). Questions need to be short, easy to understand and precise; double negations, overlapping answer categories, value-laden, multi-dimensional, indirect, and leading questions should be avoided (Diekmann, 2001). Changing the direction and order of questions can prevent automatic answer patterns (Diekmann, 2001). To ensure a high completion rate, questions should not be too difficult and questionnaires not too long.

The most important criteria for questionnaires are objectivity, reliability, and validity (Diekmann, 2001). Objectivity refers to the result being independent of the person using the research instrument, reliability means that the results can be reproduced, while validity stands for the instrument measuring what it claims to measure (Diekmann, 2001). The main problems when using questionnaires are answer-related problems (e.g., when participants do not understand the questions and/or answer choices) and social desirability effects, in which case participants provide answers that are socially desirable but do not reflect their personal opinion (Diekmann, 2001). Before using a questionnaire, it is advisable to do a pre-test to see how long it takes to complete it, if the questions are easy to understand, and if anything is missing (Diekmann, 2001). If necessary, the questionnaire can then be modified before the main study.

This study included two questionnaire surveys with student participants — one during each round of data collection — and one with the teachers at the end of the second round of data collection (see Appendix D). At the Australian school, all 13 students completed the questionnaire in the first round of data collection and 12 in the second. One student was absent on the day the follow-up questionnaires were distributed. At the American school, 52 students completed a questionnaire in round 1 and 2 of the data collection. At the Swiss school 60 students completed a questionnaire in round 1 and 65 students in round 2.

The first student questionnaire was administered during the first round of data collection after students had used *RealLives* a few times. It included questions about students' use of different media, particularly digital games and simulations. Students were asked to indicate their media use on a 5-point Likert scale ranging from *never* to *very often,* to specify how many hours per week they played digital games and simulations, how long they had been using these media for, which titles they preferred, and if they considered themselves beginners, advanced users, or experts in using them. The questionnaire also contained 15 questions about *RealLives*, which were largely based on existing theory on the educational potential and use of digital games and simulations. On a 5-point Likert scale ranging from *strongly disagree* to *strongly agree* students were asked to indicate their agreement with statements such as "Playing *RealLives* motivates me" and "I have learnt something by playing *RealLives*". The third part of the questionnaire comprised 24 statements based on Chen & Starosta's (2000a) Intercultural Sensitivity Scale, which was aimed at assessing students' intercultural sensitivity. Students were asked to specify on a 5-point Likert scale from *strongly disagree* to *strongly agree* to what extent they agreed with statements like "I enjoy interacting with people from different cultures" and "I would not accept the opinions of people from different cultures". The last part of the questionnaire contained socio-demographic information and information on students intercultural experience (e.g., countries lived in and visited, the number of friends from other cultures).

Before using the questionnaire in the study, a pretest was conducted with a convenience sample of six female Australian students of the same age as the participants, who voluntarily completed the questionnaire (consent forms see Appendix A). During this pretest, students needed approximately 15 minutes to complete the questionnaire, which was considered appropriate. The pretest showed that the questions included in Chen & Starosta's (2000a) Intercultural Sensitivity Scale were too difficult for the students, who complained about too many "big words". Together with the pretest participants, the questions were simplified without changing their meaning. Despite these modifications, the scale still proved to be quite difficult for many participants in the main study, which resulted in students asking

questions and in illogical answer patterns. The scale was therefore later excluded from the analysis.

The second questionnaire was distributed at the end of the second round of data collection. It was a follow-up version of the first one and contained the same item batteries about *RealLives* and students' intercultural sensitivity, albeit in a different order to avoid memory effects. In addition, students were asked to specify their use of digital games and simulations in a more detailed manner; that is, separately for computer games, video games, handheld games, and simulations. This distinction was made after students had specified handheld games as other media in the first survey. As some students had indicated the use of an earlier version of *RealLives* and the use of *RealLives* at home, additional questions on the use of *RealLives* in and out of school before and during the research project were added. The last part of the follow-up questionnaire provided space for students to comment on their *RealLives* experiences. The questions regarding students' socio-demography, media use, and (inter)cultural background were not included in this questionnaire as completing them again was considered unnecessary.

All student questionnaires were administered as paper-and-pencil questionnaires and students were asked to provide the same participant code as for the interviews so that the questionnaires could be analyzed anonymously and matched. Except for the students at the Australian school, who completed their first questionnaires individually before their in-depth interviews, all students filled out their questionnaires at the same time in class, which was preferred by the teachers. Students who were not participating in the study were given other tasks. Completing the questionnaires in class might have reduced the influence of the researcher and therefore also social desirability distortion. On the other hand, students might not have read the questions as closely and thought about their answers as thoroughly as when completing the questionnaires individually. When filling out the questionnaires individually, there was no distraction by other students, not as much time pressure, and students were able to ask questions in private. As research time at the schools was limited and the teachers wanted the students to complete the questionnaires in class, the questionnaires were administered this way.

The teachers were sent an e-mail questionnaire survey and given the Intercultural Sensitivity Scale to complete on paper during the second round of data collection (see Appendix D). As the e-mail questionnaire contained questions about the teacher's use of *RealLives* during the study, it could only be administered at the end of the data collection. The first part of the questionnaire consisted of questions about teachers' experiences with digital games and simulations (in their free time as well as in school), the second part dealt with the

use and perceptions of *RealLives* in particular. Teachers were asked how long they had been using *RealLives*, in which subjects, with which age groups, and for what purpose. The questionnaire also comprised a battery of 14 items investigating teachers' opinions about teaching with digital games and simulations. These items were based on theoretical approaches toward teaching and learning with digital games and simulations in school and the outcomes of previous studies in this area. Teachers were asked to agree on a 5-point Likert scale ranging from *strongly disagree* to *strongly agree* with statements such as "I believe using computer games and simulations in regular classroom work supports peer learning" and "I believe using computer games and simulations in regular classroom work requires special training for the teachers." They were also asked about the topics and age groups they believed such media to be useful learning tools for, and about the barriers they believed existed for the use of digital games and simulations in school. The fourth part of the teacher questionnaire contained questions about the local school and government philosophy regarding the use of digital games and simulations for learning and teaching and the promotion of intercultural competence. Socio-demographic questions constituted the last part of the questionnaire.

To allow the busy teachers to complete the questionnaires electronically on their computer and return them by e-mail, they were administered as an electronic version. Despite attempting to make the completion of the questionnaire as convenient as possible for the teachers and sending out frequent reminders by e-mail, it took the teachers at the Swiss and Australian schools several months to complete them. The last questionnaire was received three months upon completion of the second round of data collection. Since memories fade and opinions can change over time, the answers in these two teacher questionnaires might not accurately reflect the teachers' opinions during the data collection.

### 3.4 Data Analysis

After the data were collected through observations, in-depth interviews, and questionnaire surveys, they were copied onto a computer and saved electronically. All interviews were transcribed in full in an anonymous manner using the aforementioned participant codes; all video recordings were coded in an MS Excel spreadsheet (for an example transcript page and coding sheet see Appendices E and F). The questionnaire data was also entered in spreadsheets and then imported into SPSS statistical software. All interview transcripts were imported into NVivo qualitative data analysis software.

*Qualitative Content Analysis*

All qualitative data was analyzed using the method of qualitative content analysis, more precisely the so-called "directed approach" (Hsieh & Shannon, 2005, p. 1281). Qualitative content analysis "goes beyond merely counting words to examining language intensely for the purpose of classifying large amounts of text into an efficient number of categories that represent similar meanings" (Weber, 1990, cited in Hsieh & Shannon, 2005, p. 1278). Instead, its aim is to develop a deeper understanding of the phenomenon that is being studied (Hsieh & Shannon, 2005). All approaches to qualitative content analysis

> *require a similar analytical process of seven classic steps, including formulating the research questions to be answered, selecting the sample to be analyzed, defining the categories to be applied, outlining the coding process and the coder training, implementing the coding process, determining trustworthiness, and analyzing the results of the coding process. (Kaid, 1989, cited in Hsieh & Shannon, 2005, p. 1285)*

According to Hsieh & Shannon (2005), three forms of qualitative content analysis exist: the conventional approach, the directed approach, and the summative approach. In this study, the directed approach was used, which is partly guided by existing theory, but at the same time open to new ideas, and therefore aligns with the problem-centered interviews. When using the directed approach, the researcher initially creates categories based on known key concepts and existing theoretical foundations (deductive category development); data that does not fit these categories are then used to create new categories or sub-categories (inductive category development) (Hsieh & Shannon, 2005). "Newly identified categories either offer a contradictory view of the phenomenon or might further refine, extend, and enrich the theory" (Hsieh & Shannon, 2005, p. 1283). Directed qualitative content analysis is therefore particularly valuable when existing theory is incomplete, contradictory, or needs to be refined further.

While the observation data was analyzed manually using spreadsheets, word search, coloring, and copy and paste, the large amount of data obtained through the 85 in-depth interviews was analyzed with the help of NVivo software (NVivo 8). Qualitative data analysis software is believed to be "more accurate, reliable, more transparent (and) easier than other methods of data analysis" (Gibbs, 2002). It allows researchers to save and manage large amounts of data, and it facilitates data exploration, by enabling researchers to search for specific words or phrases quickly, use automatic coding, and create hyperlinks within and across documents, for instance. In addition, it supports category-based data analysis, the analysis of topics and the combination of text passages, management of analytical memos and associated documents, and selective and complex retrieval of text passages. Computer-

assisted qualitative content analysis uses mainly cut-and-paste and code-and-retrieve techniques. The researcher defines categories and sub-categories and codes the text according to a coding scheme, either inductively or deductively. Once the text is coded, it can be analyzed, recoded, combined, searched, and dealt with in a variety of different ways.

In this study, broad categories were developed first based on the research questions regarding the use of and interaction with *RealLives* and intercultural awareness and sensitivity. These categories were divided into sub-categories according to existing theory and empirical data (e.g., intercultural sensitivity was divided into curiosity and discovery, openness and flexibility, and so on). Other categories and sub-categories were added while coding the material. The interviews were coded and categories refined until all passages relevant to the research questions were accounted for and no new categories emerged. In addition, text searches (queries) were performed for important terms to ensure all relevant passages were coded. In addition, questionnaire responses were also imported into NVivo as casebooks, and sets were created to enable data filtering.

*Statistical Analysis with SPSS*

The questionnaire data were analyzed with SPSS (version 17), statistical software commonly used in the social sciences. SPSS allows researchers to compute descriptive statistics and complicated analyses, such as correlations, regressions, or multivariate analyses. As the focus of this study was qualitative, the number of participants relatively small, and participant group sizes different (13 to 65), only descriptive statistical analyses were performed. After cleaning the data set and determining missing values, descriptive statistical analyses, including frequencies, means, modes, minimum and maximum values, and standard deviations, were computed. When analyzing item batteries, missing values were excluded list wise, so that only participants answering all of the questions belonging to the item battery were included in the analysis.

The results of these analyses were compared within each case, across cases, and by comparing the results of round 1 of the data collection with those of round 2 (where applicable), whereby questionnaires were matched based on the participant codes provided. However, as some students specified a different participant code in round 2 (mainly by using a different telephone number and changing the order of mother’s and father’s letters), not all questionnaires could be matched. Comparative analyses of round 1 and 2 responses were therefore based on a smaller number of participants.

*Comparative Analysis*

The results of the data analysis were first analyzed in the form of within-case comparisons (Chapters 4 to 6) and then discussed across cases in consideration of existing theory and earlier research (Chapter 7).[14] Comparative analysis "holds a central place in social science research" (della Porta, 2008, p. 198). It can be done with small and large numbers of participants, using a variable- or case-oriented approach (della Porta, 2008). In accordance with the case-study approach, this study took a case-oriented approach. "The case-oriented strategy focuses upon a relatively small number of cases, analyzed with attention to each case as an interpretable whole (Ragin 2000: 22), seeking to understand a complex unity rather than establish relationships between variables" (della Porta, 2008, p. 204). Findings obtained from such case-oriented comparative analyses provide detailed descriptions of each case and facilitate understanding of a phenomenon.

According to della Porta (2008), "in-depth knowledge of a small number of cases provides the basis for generalizations that are temporarily limited to the cases studied and whose wider relevance should be controlled through further research" (della Porta, 2008, p. 206). Thus, the findings and results obtained through the analysis of the data collected for this study cannot simply be generalized to the population as a whole or applied to different contexts. Further research would be necessary to do so. Suggestions for further research are provided in Chapter 8.

## 3.5 Ethical Considerations

The design of this study in the form of case studies with seventh-grade students and their teachers in IB schools in Australia, Switzerland, and the USA, and the empirical research methods used entailed a number of ethics issues that had to be considered.

First of all, approval had to be obtained from the Human Ethics Committee of the researcher's university, which required active consent from all participating schools, teachers, students, and their parents. Information and consent forms were therefore sent to and signed by all of these parties. These forms provided information on the purpose of the study, the research activities, and the time frame, and explicitly highlighted that participation was completely voluntary and that participants were free to withdraw from the study at any time without having to provide a reason (see Appendix A). Participants were also informed that no video or audio recordings would be shown publicly and that all data would be handled confidentially and anonymously.

[14] Although also analyzed and discussed by way of within- and across-case comparisons, the quantitative questionnaire data eventually had to be largely excluded from this thesis due to word limitations. Some of the quantitative data can be found in Struppert (2010).

The school principals were the first to provide their consent by fax and/or mail. They then recommended a seventh-grade teacher who was subsequently contacted by the researcher and sent a teacher information and consent form. After the teachers had signed and returned their consent forms by fax/mail, the teachers at the American and Swiss schools were sent information and consent forms to distribute to parents; the students received their forms on the first day of the data collection. The researcher also forwarded a short description of the study and her CV to the principals and teachers to provide them with information that could be shared with parents and students. At the American school, the Principal sent out a newsletter to all parents of seventh-grade students to inform them of the study, while at the Australian school the teacher talked about the study to the parents during parent-teacher interviews. At the Australian school, the researcher distributed both the student and parent information and consent forms on the day before the first round of data collection to be discussed and signed overnight.

All three teachers informed the students they had selected for participation about the study and asked them to consider and discuss the issue with their parents before the data collection commenced. On the first day at each school, the researcher again explained the study, answered questions, and distributed the student information and consent forms. Most students were happy to take part in the study and returned their consent forms either on the same day or the next day. They were excited to use a “computer game” in school and interested in participating in an empirical study, which they had never done before. A few students lost or forgot their forms and were given new ones the next day; some students decided not to participate. To ensure students did not feel compelled to participate or fear negative consequences as the study was conducted in school, the researcher and the teachers repeatedly stressed that participation was completely voluntary and that students had the right to withdraw from the study any time without having to provide a reason.

With the student participants being 12 and 13 years old, the research methods and instruments used in this study had to be adjusted to this age group. Some of the topics on *RealLives* (e.g., rape and homosexuality) were considered too confronting for seventh-grade students at the American school, which is why the teacher excluded them by unticking them in the configuration menu. The two other teachers decided not to exclude any issues to enable their students to experience lives as authentic as possible. They did, however, talk to the parents to prepare them for potential questions and assure them that all questions and problems arising in the classroom would be dealt with appropriately. Having used *RealLives* and been approached by parents before, the teacher at the Swiss school explicitly asked his students to look at the configuration screen and to ask questions, if there was something they

did not understand. He also discussed rape with the students and told them it was a very serious crime and nothing they should giggle or laugh about.

As children and adolescents undergo many changes, including socialization and identity development, researchers need to be particularly careful when conducting research with young people (Paus-Hasebrink, 2005). To ensure participants are not afraid, research is best carried out in a familiar environment (Paus-Hasebrink, 2005). In this study, all observations, interviews, and questionnaire surveys were conducted in familiar environments, such as classrooms, interview rooms, and the cafeteria. The researcher aimed at establishing friendly and trusting relationships with the participants and at creating a relaxed atmosphere to reduce timidity and nervousness and encourage participants to act normally and talk freely. Overall, students quickly grew accustomed to the presence of the researcher and the recording devices, they did not hesitate to talk to the researcher and to ask questions. Students who did not really like being filmed usually sat with their back toward the cameras while others took a closer look at them as they were interested in the technology or enjoyed acting front of a camera. At the Swiss school, a group of male students made and held up a little drawing in front of the camera to surprise the researcher during data analysis. Most of the time, however, students did not seem to notice the cameras; some students asked the researcher later whether or not they had been recorded because they had not noticed any cameras.

After a few days, when the students had become used to the researcher and the cameras and had gathered some experience with *RealLives*, the in-depth interviews commenced. According to Pause-Hasebrink (2005), guided face-to-face interviews are a suitable research method even for young children, and most of the students in this study had no reservations talking to the researcher. Many students enjoyed telling the researcher about their characters and about their personal experiences with other countries and cultures. Students even shared very personal information, such as the fact that they were suffering from asthma or arthritis and that a family member had died of lung cancer, for example, without being asked to do so. They did not seem to be stressed to encounter these issues on *RealLives* again either. On the contrary, discovering such connections between their personal and their character's life made the simulation seem more authentic to them and may have even helped some students cope (cf. Tsikalas, 2008b).

Since students' verbal skills varied considerably, the researcher had to adjust her language to each student, trying not to overwhelm them with complicated words. Considering that the words and actions of children and adolescents can have meanings that differ from those of adults and can change quickly (particularly during play), it can be difficult for an adult to understand them thoroughly, and misinterpretations cannot be ruled out (Paus-

Hasebrink, 2005). Paus-Hasebrink (2005) recommends that researchers take on the child's perspective when collecting data, which the researcher in this study attempted by closely observing and listening to students and by thinking back to her own school years. The researcher also rephrased sentences during the interview to make sure she had understood correctly. Although students were treated as experts and told that their personal opinion was important and that there were no right or wrong answers, it is nonetheless possible that some student answers were distorted due to social desirability or represented parents' opinions instead.

As mentioned earlier, the questionnaire surveys were a challenge for many participants. Despite a pretest with students of the same age and subsequent adjustment and simplifying of the language, many students asked what words like *culture, motivate,* and *identify* meant. Inconsistent answer patterns also showed that some students had difficulty indicating their agreement with negative statements. Completing the questionnaires was particularly problematic for students who had difficulty reading and spelling or were unable to calculate their hours of media use. Paus-Hasebrink (2005) acknowledges that children and adolescents may have difficulty completing questionnaire surveys and articulating their ideas and opinions. She therefore suggests combining them with interviews with adults, such as teachers or parents, and to use a triangulation of methods to assist the researcher in making accurate judgments. Both of these suggestions were considered in this study.

## 3.6 Case Profiles

To facilitate understanding of the findings in Chapters 4 to 6, the remainder of this chapter presents detailed case profiles for each of the three case studies. The case profiles provide detailed pictures of the three cases included in this study: the Australian school (3.6.1), the Swiss school (3.6.2), and the American school (3.6.3). Each case profile describes the school and the setting in which the simulation *RealLives* was used, outlines the *RealLives* activities and portrays the participants (students and teacher). At the end of the chapter, a table summarizes the main characteristics of all three cases.

### 3.6.1 Case 1 – The Australian School

The Australian school participating in the study was the Middle School of a private interdenominational Christian International Baccalaureate School in the state of New South Wales with approximately 1,350 students (Pre-K to 12).

*Participants*

The participating teacher was a male core teacher, aged between 41 and 45, who was also the Head of E-learning at the school (see Table 3.1). He had no experience with *RealLives*, but had used other digital games and simulations in his teaching before and considered himself an experienced user. The teacher had made largely positive experiences teaching with digital games and simulations and believed these media could be used for teaching children of any age, particularly from five years onwards. His opinions about the use of digital games and simulations in school were positive: He believed them to be motivating and effective, to enhance children's learning, to be able to teach students things other teaching methods cannot, to create a creative learning atmosphere, support peer learning, and to be effective in teaching intercultural competence. However, he was unsure if they could support autonomous learning and be effective in teaching social competencies. The teacher believed that using digital games and simulations in schools should be encouraged, but acknowledged that this changed the role of the teacher, required special teacher training, and was not necessarily easy for students. The biggest barriers he saw for the integration of digital games and simulations in school were a lack of age-appropriate titles, of competence and interest from teachers, and of technological resources in schools.

Table 3.1

*Teacher Characteristics — Australian School*

| Category | Teacher Characteristics |
|---|---|
| Sex | Male |
| Age | 41 to 45 |
| Intercultural Sensitivity Scale | 106 out of 120 points |
| Subject(s) | Core (Mathematics, English, Science, Geography, History, Christian Living) |
| Highest degree | MA in Education |
| Use of digital games and simulations in free time | No |
| Experience teaching with digital games and simulations | No experience with *RealLives*,<br>Used *Game Maker* and *SimCity*<br>Largely positive experiences |
| Level of expertise (self-evaluation) | 7 out of 10 |
| Opinion about teaching with digital games and simulations | Positive<br>Would recommend using digital games and simulations to colleagues |

The teacher at the Australian school wanted to use *RealLives* to spark students' creativity and support them in the construction of characters for storytelling and novel writing in English. He decided to use the simulation with one group of fifteen students, the 7.5 class[15], who he described as "students who have trouble thinking" (AUS_Teacher_1). The teacher explained that "their inquiry skills are fairly limited, they (…) don't ask big questions, (…) take a lot of information at face value (…), they're chatty and (…) like their (uh) bit of a social setting for them" (AUS_Teacher_2). According to the teacher, these students "have a tendency not to be bothered reading things" and "some of them actually have difficulty reading" (AUS_Teacher_2).

Thirteen of the students (nine boys, four girls) decided to participate in the study. As Table 3.2 shows, apart from one boy who was born in England and had lived there for some time, all students were born in Australia. Twelve of the students specified *Australian* as their nationality — two of them were Australian and Italian and one Australian and English — and one boy described his nationality as Indian (Table 3.3).

Table 3.2

*Countries of Birth — Australian School*

| Country of Birth | Number of Students (N = 13) |
|---|---|
| Australia | 12 |
| UK | 1 |

Table 3.3

*Nationalities — Australian School*

| Nationality | Number of Students (N = 13) |
|---|---|
| Australian | 12 (3)* |
| Italian | 2 (2) |
| English | 1 (1) |
| Indian | 1 |

*Note.* *(number of students who specified one or more additional nationalities)

Most students had limited travel experience, primarily within the Asia-Pacific region. Three students had been to New Zealand, two each to Vanuatu and Thailand, and one each to Malaysia, Indonesia, and Papua New Guinea. Four students had visited Europe (mainly Germany, France, and Italy); one had been to the USA and one to Ghana. Three boys and one girl had visited at least three countries on two continents and could therefore be considered

[15] At this school, students were streamed by intellectual ability with 7.1 being the top students and 7.5 the weakest group.

well traveled. Two boys had not traveled abroad at all. Most students said they had a few friends from other countries and cultures, one boy and one girl said they had none, and one boy had many.

Apart from one boy, all students were learning French as a foreign language. Four students also learnt Chinese, one Spanish, and one Swedish and Lebanese. One boy had grown up bilingually (Greek and English) and another one spoke English as a second language, Punjabi being his mother tongue. All other students specified English as their only mother tongue.

The students at the Australian school indicated that they used the Internet, computers, mp3 players, and TV often or very often. Newspapers and magazines were used seldom to never. Apart from one boy, all students used digital games and simulations (see Table 3.4). Video games (played on game consoles) were particularly popular among boys while girls preferred computer games and electronic simulations. Three boys and one girl were also using handheld games (*Nintendo DS, Game Boy, PSP*). Most students were using digital games and simulations three to eight hours per week. One boy and one girl were playing more than 10 hours per week whereas three boys and one girl were playing half an hour or less[16].

Table 3.4

*Student Use of Digital Games and Simulations — Australian School*

| | Computer Games | | Video Games | | Electronic Simulations | |
|---|---|---|---|---|---|---|
| | Male (N = 9) | Female (N = 4) | Male (N = 9) | Female (N = 4) | Male (N = 9) | Female (N = 4) |
| Very often | 2 | 0 | 1 | 0 | 1 | 1 |
| Often | 1 | 2 | 5 | 1 | 1 | 1 |
| Sometimes | 1 | 1 | 2 | 1 | 2 | 1 |
| Seldom | 3 | 1 | 0 | 1 | 3 | 1 |
| Never | 2 | 0 | 1 | 1 | 2 | 0 |

On average, boys used digital games and simulations slightly longer per week than girls, and they had a longer history of using these media (Table 3.5). All students except for two

[16] The numbers used here and in the other case profiles were those provided by students in their first questionnaires. Some students provided different numbers when asked to indicate their use separately for computer games, video games, simulations, and handheld games in the follow-up questionnaire. As participation in the study might have influenced students' playing, the figures provided in the first round of data collection are used here. Since some students also considered instant messaging, e-mail, and *Facebook* as "computer games" and some included their *RealLives* playing at school while others did not, these figures need to be treated with caution.

classified themselves as advanced users. One girl considered herself a beginner; one boy felt that he was an expert user.

Table 3.5

*Student Playing Habits and Experience — Australian School*

| | Hours per Week | | Years of Playing | | Level of Experience* | |
|---|---|---|---|---|---|---|
| | Male (N = 9) | Female (N = 4) | Male (N = 9) | Female (N = 4) | Male (N = 9) | Female (N = 4) |
| Min | 0 | 0 | 3 | 1 | 2 | 1 |
| Max | 14 | 12 | 8 | 7 | 3 | 2 |
| Mean | 4.9 | 4.78 | 5.33 | 3.5 | 2.11 | 1.75 |
| SD | 4.433 | 5.085 | 1.414 | 2.517 | .333 | .500 |

*Note.* * 1 = beginner, 2 = advanced user, 3 = expert (self-reported)

As their preferred genres and titles, girls listed traditional arcade-type games, such as *Pinball* and *Pacman*, online games, and *The Sims*, while boys preferred sports and racing games (*FIFA 2009, Rugby, Wii Sport, Mario Kart, Grand Theft Auto*), shooting, adventure, strategy, and jump 'n' run games (*Dawn of War, Age of Empires, Jurassic Park, Golden Eye, Quantum of Solace, Bang Bang, Mario Bros., and Super Smash Bros.)*. None of the students had heard about *RealLives* before.

*RealLives Activities*

At the Australian school, the students were using *RealLives* in a computer room with 24 personal computers (PCs) during both rounds of the data collection and regularly once or twice per week in between. While the teacher had installed and tested *RealLives* on his own computer, the software had only been installed, but not registered or tested, in the computer room.

In the first lesson with *RealLives*, the teacher handed out the registration code received from the producer and asked the students to register individually on their computers. Since the code did not work, the students were unable to register and had to use the trial version, which did not support the Character Designer and only included three lives. Neither the teacher nor the students were aware of this, but it soon became a problem as some students used up their trial lives quickly. When the teacher realized this, he told the students to play "seriously" and not to waste any lives. Students who had used up their trial lives were instructed to use other computers or play with someone else. Despite a new code, the students were still unable to

register on the second day and could only make full use of *RealLives* from the third day, when the producer had made a new installation file available.

During the first round of data collection, the teacher had the students use *RealLives* on four of 10 school days. The simulation was used frequently in order to provide the researcher with sufficient observation opportunities. Students were usually playing individually on the PCs, creating their own characters and doing with them what they wanted. They received few instructions from the teacher and were not aware of the fact that using *RealLives* was supposed to help them with character creation and storytelling. The teacher told the students to familiarize themselves with the software, make "good decisions" for their characters, and to consider the consequences of their actions, but he did not ask them to choose any particular actions or look for specific information. He suggested the students play in countries other than Australia (which most, but not all, students did), and asked them to take notes on what happened in their character's lives and to create a timeline. Some students, however, simply used the simulation's diary page, as this quote shows: "We just used it and copied it and then put it in a Word document and then 'Here you are. We're done'" (AUS_CHCH5287b_2).

During the first few lessons with *RealLives*, the teacher was walking around the computer room checking students' screens to see what they were doing. He also answered questions, such as "What is a peptic ulcer?" or "Should I invest money?", and explained some difficult words and diseases. When one student was thinking aloud about his character getting a girlfriend at the age of 13, the teacher told him not to do that and reminded all students to make "good choices"; that is, choices they would make in their own life. Later on, the teacher was mostly sitting at his desk in the front, working on his own laptop, only looking at the students occasionally, making a few comments, and answering a few questions. Overall, the students at the Australian school were using *RealLives* largely independently.

The teacher felt that the students were on task and that he did not have to do anything as *RealLives* kept them engaged. In his interview, he said,

> *I think the biggest (…) pro for me is the fact that the students are so heavily engaged with it. (…) at no point have we actually had to say to any of the kids (…), 'Can you get back on.' (…) they're just engaged in this, this whole process (….) So without doubt (…) the biggest plus (...) is, it engages kids. (AUS_Teacher_1)*

After the first round of the data collection, the teacher summarized the *RealLives* activities as follows:

> *We actually did stuff in English 'cause (…) we're doing [uh] character construction [uh] for the creation of novels (…) how do we actually create characters and (…) where do we get information about characters to make sure that it's accurate. So we've actually been tying the characters they've*

> *been coming up with while they're playing RealLives, we've been actually then taking those characters and using them in English [uh] to construct characters. (AUS_Teacher_1)*

According to the teacher, using *RealLives* allowed students to create characters "based on their research and not just based on their imagination" (AUS_Teacher_1). The teacher also recalled playing a life together with the students and thereby discussing topics such as when to move out or when to get married. He said,

> *The using of it in class actually was (…) not planned. (…) I was (…) on my laptop looking at something and the kids walked in. (…) so we actually started beating through it (…) It was middle class London [um] but the connection was some of the decisions that person had to make and (…) they got to 21 and they (…) had to decide whether they were gonna move out of home and so the kids were actually giving opinions and I said, 'Yeah, but hang on. Who thinks I should move out of home?', and everyone put their hand up, and I said, 'How are they gonna afford it?' And we looked at the money side of things, and suddenly kids started going 'Oh, actually.' Yeah. So we actually selected to move out of home. Happiness went down, the finances went down. So there was a whole lot of stuff (…) that they didn't consider. (AUS_Teacher_1)*

According to the teacher, students' *RealLives* experiences had also sparked discussions and conversations in other subjects, such as Christian Living and PE/Health. Overall, the teacher believed that *RealLives* had "been useful in that it's given us (…) platforms in which to actually launch in a conversation about (…) a whole range of issues" (AUS_Teacher_1).

However, none of the activities mentioned by the teacher took place during the lessons observed and the students remembered little about them in their interviews. When asked what they had been doing with *RealLives*, a typical answer was, "He's just been saying 'Go on *RealLives*.' [Uh] and we've basically just been going on doing whatever we can do on it" (AUS_CHCH5287b_2). Asked about debriefings, one student recalled, "We did it in, in the computer room a few times. (…) And then he made us write down in some cases, and then we had to reflect on that" (AUS_AIPE4017b_2). He also added, "We brung *(sic)* up other diseases (…) like whooping cough. Some people didn't know meningococcal amo, pneumonia (…), stuff like that" (AUS_AIPE4017b_2). Another student said, "We told the teacher how many kids (…) we've had and stuff and what's happened. (…) And that's it" (AUS_THGE2222b_2). The only other activity students remembered was doing the timeline.

After the first round of data collection, the students continued to use *RealLives* on a regular basis once or twice a week in the computer room with the same teacher. They were still playing largely independently and were unaware of the reason for using the simulation. In their interviews, students explained, "It was just 'Okay. We're gonna go play *RealLives*' (AUS_AIPE4017b_2) and "We went on it and we chose our person and chose what country

we wanted to be in and (…) if we wanted to be female and, or male, and (…) where they came from, we [um] just kept ageing (…) until we died, so" (AUS_THGE2222b_2). By the time the second round of data collection began, all students had used *RealLives* approximately 20 to 30 times, usually for one period (45 to 50 minutes) at a time.

During the second round of data collection, *RealLives* was used on two out of 10 days: in period 2, 3 and 5 on the first day and in period 3 on the fourth day. As the core teacher had to act as Deputy Head of Middle School during that time, he was extremely busy, and most of his lessons were taught by substitute teachers, including all three *RealLives* lessons on the first day. On the third day, he taught the lesson himself. Since the other teachers were not familiar with *RealLives*, the core teacher had given the first substitute teacher written instructions for the students (the only written instructions students received during the study). The students were to have a classroom discussion about which country and community to play in, then to all create characters of their own sex in this community and age together while taking notes of the events happening in their lives. During the last 10 minutes of the lesson, the students were to discuss their experiences and save their lives, so that they could continue them later.

Following these instructions, the students first discussed several countries they wanted to go to, including Egypt, Indonesia, and Vietnam. The substitute teacher told them to choose a country that was a challenge, socially and economically. Eventually, the students chose Fiji. When the teacher wanted to specify an age group, the students told him that their characters would age on *RealLives*. The students randomly selected the town of Levuka, but when they tried to create characters there, *RealLives* froze or shut down on most computers. The teacher was walking around, looking at screens, and trying to solve the problem. He told the students to log off and on again, create all characters at the same time, and to try different computers, but only three students managed to create a character in Levuka. These students were told to follow the instructions. The other students kept trying to create characters and were becoming increasingly frustrated as their computers continued to freeze or shut down. After 35 minutes the teacher stopped the activity, telling the students he would consult with the core teacher and try to find a solution. He then did a short debriefing, in which he asked the students about interesting things in their character's lives. One male student said that his character's girlfriend fell pregnant at the age of nine and asked if that was possible. Another student said, "Yes", whereupon the teacher agreed and asked him to explain, which he did correctly. During the break following this period, the researcher tried to solve the problem together with the school's IT staff, but was unsuccessful.

In the next lesson, the second substitute teacher did not know what to do with the students. She had received no instructions and asked the researcher what to do. Eventually, she decided to let the students do whatever they wanted on *RealLives*. Throughout the lesson, she was walking around the room, looking at students' screens and trying to understand how *RealLives* worked. She answered questions and offered support. When one student had difficulty with his spending and investment, she sat down with him and tried to help, but as she did not know *RealLives*, she could not find a solution and had to ask the researcher. This being the second *RealLives* period in a row, three boys became bored and started surfing the Internet after about 35 minutes. One of the students, who had a Vietnamese character, showed the others websites about the Vietnam War and the weapons used in this war and told his friends what he had learnt about them when visiting Vietnam.

In the third *RealLives* period that day, the third substitute teacher did not know what to do with the students either, and he hardly interacted with them. His only instructions were for students to turn off the music and be quieter. Apart from one time when he walked over to a student to reprimand him, he was sitting at his desk at the front of the classroom working on his laptop. The students were doing whatever they wanted to on the computers and asked their peers or the researcher whenever they had a question or problem. The three boys who had started surfing the Internet the lesson before continued to do so, but this time they were looking at auction, car, and boat sales websites and listening to music. Knowing that they were not supposed to do this, the students reminded each other that they were being filmed and turned their screens away from the camera.

Three days later, the core teacher was back to teach the last of the *RealLives* lessons in the second round of data collection. He talked about the failed Fiji activity and jokingly blamed all problems on the researcher. He then divided the students into groups of two and three and asked them to play a character together by discussing their decisions and considering the consequences of their actions. The students were to lead lives as closely to their own lives as possible, and to make decisions they would make for themselves (e.g., not have 23 children). One boy told the teacher that he had found a cheat in the game that allowed him to get more money, whereupon the teacher replied that this was "awesome", but "defeats the purpose of the game" (AUS_Teacher). The teacher asked the students to choose a different country this time; he suggested Portugal. Initially, the students did not understand the instructions and started creating their own characters, so that the teacher had to explain once more that they were to share one character on one computer.

While the students were playing, the teacher was sitting at his desk at the front working on his laptop. He was, however, listening to the conversations, periodically

reminding students of their task, telling them that there "could be disagreement or debate as you discuss what the options could be" (AUS_Teacher), and asking them not to make any decisions until such disagreement was resolved. He also answered questions regarding relationships, investments and diseases, interfered when one boy gave an incorrect explanation of prostate cancer, and told another student to use Learn More instead of making uninformed decisions. Every 10 minutes, he asked the students about their progress.

While half of the teams were working together well, the other half were not, with some students only watching and one group splitting up and continuing on separate computers. Ten minutes before the end of the lesson, the teacher summarized his observations, saying that he had noticed "some fairly considered discussion" in one group, two "very compliant" groups with "similar minds", one group in which "hardly a word has been said" and one group that "has been married for 15 years (…), arguing about money" (AUS_Teacher). He told the students to go over to other groups and explain to them what had happened in their lives and which choices they had made. However, the students walked over to their friends and continued playing with them, instead of discussing their lives and choices. Now that they were playing with their friends, the students seemed to have no problems working in groups.

Overall, the use of *RealLives* was neither well prepared, nor thoroughly integrated into teaching at the Australian school. The teachers were not really familiar with the software and used it mainly to keep students occupied, particularly the substitute teachers.[17] Although the core teacher had good intentions and ideas how to use *RealLives* for storytelling in English and other subjects, the students were unaware of the reasons for using the simulation and were simply doing what they wanted most of the time.

### 3.6.2 Case 2 — The Swiss School

The Swiss school participating in this study was the Middle School of an International IB School in the German-speaking part of Switzerland with a total of approximately 1,370 students (Pre-K to 12). As characteristic for International Schools, the working language at the school was English, which was a prerequisite for participation in the study, since *RealLives* is exclusively available in English.

[17] One male student recalled another episode with a substitute teacher. He said, "We had a teacher in that room that didn't really know what to do. He's just like '[uh] What do you usually do in this room?' (…) someone was like 'We go and play games.' And someone said 'We do *RealLives*.' And then he said, 'Do that. Go, go to *RealLives*.' (…) And he didn't even know what for it was (*sic*), so some of us had to explain it to him. I'd go '*RealLives* is like a simulation sort of game where you live, where you pick a country and you live in that country.' (…) 'And you experience that culture and all that.' And then that's basically, we just kept doing that on. (…) He was just watching us all. He was going around, seeing the comments" (AUS_CHCH5287b_2).

*Participants*

The teacher at the Swiss school was a male American-born Social Studies teacher aged 46 to 50 (Table 3.6). He had used online games on history and geography in Social Studies and *RealLives 2007* in his Model United Nations course, but had never used *RealLives 2010* for teaching seventh-grade Social Studies. Despite this experience, he considered himself a novice in using digital games and simulations and felt that he was too old to use these media in his free time.

Table 3.6

*Teacher Characteristics — Swiss School*

| Category | Teacher Characteristics |
|---|---|
| Sex | Male |
| Age | 46 to 50 |
| Intercultural Sensitivity Scale | 98 out of 120 points |
| Subject(s) | Social Studies |
| Highest Degree | MA Education |
| Use of digital games and simulations in free time | No (too old) |
| Experience teaching with digital games and simulations | Used *RealLives 2007* in Model United Nations course and online games for teaching Geography and History<br>Mixed experiences |
| Level of Expertise (self-evaluation) | 2 out of 10 |
| Opinion about teaching with digital games and simulations | Ambivalent; would not recommend using digital games and simulations to colleagues as students have too much screen time already |

The teacher at the Swiss school integrated *RealLives* in his Social Studies lessons for all seventh-grade students and therefore also invited all of his students to take part in the study. Altogether, 63 students from five groups (7 A, C, D, E and G) decided to participate in the first round of data collection; two more joined in the second round. Sixty students completed a questionnaire in round one, 36 of them were female, 22 male, and the rest unidentified. The teacher described the student participants as a "good group of kids" and added that "kids at this school are good and easy. (…) they're okay with everything I do, no matter what" (SWI_Teacher_2).

The school being an International School, students came from all five continents and diverse cultural backgrounds, and most of them had extensive experience traveling and living

abroad. An overview of the most common countries of birth is presented in Table 3.7. Other students were born in other European countries, South America, the Middle East, and Asia.

Table 3.7

*Most Common Countries of Birth — Swiss School*

| Country of Birth | Number of Students (N = 60) |
|---|---|
| USA | 18 |
| UK | 7 |
| Switzerland | 6 |
| Germany | 6 |
| Canada | 4 |
| The Netherlands | 4 |
| Australia | 2 |
| South Africa | 2 |

The students also specified a wide range of nationalities in their questionnaires with most students mentioning more than one. The most common nationalities are displayed in Table 3.8. Other nationalities represented in this group were Dutch, Swedish, Australian, Italian, Brazilian, Russian, Greek, Finish, Indian, Korean, Kuwaiti, Polish, Portuguese, South African, Spanish, and Thai.

Table 3.8

*Most Common Nationalities — Swiss School*

| Nationality | Number of Students (N = 60) |
|---|---|
| US American | 19 (7)* |
| German | 11 (5) |
| British | 10 (5) |
| Swiss | 10 (6) |
| Canadian | 6 (5) |

*Note.* *(number of students who specified one or more additional nationalities)

While five of the students had exclusively lived in Switzerland and 13 in the USA and Switzerland, 22 had already lived in three countries or more. Almost all students had traveled to several countries in Europe, and most students had also been to North America. Twenty-four students had been to Africa (mainly Egypt, Morocco and South Africa), 18 to Asia (mainly Thailand, Singapore and the UAE), 11 to Latin America (mainly Mexico and the Caribbean), and six to Australia. Only one student had only visited France. Forty students

indicated that they had many friends from other countries and cultures, 19 said they had a few such friends. One student did not answer the question.

Thirty-five students specified English as their mother tongue; seven of them mentioned an additional native language. Eleven students indicated that German was their mother tongue and three Swiss German. Other mother tongues represented were Dutch, Spanish, Russian, Italian, Welsh, Arabic, Brazilian, Portuguese, Gujarati, and Korean. Fifty-five students spoke at least one additional language, most of them German (39 students), English (23 students), French, and Spanish (18 students each). Other additional languages spoken were Swiss German, Croatian, Italian, Basque, Swedish, Greek, Russian, Czech, Polish, Latin, Mandarin, and Thai.

With regard to media use, the students at the Swiss school mainly used the Internet, computers, books, mp3 players, and mobile telephones. Newspapers and radio were used least often. The teacher described the students as "a tech generation" and said,

> ***Most*** *of them, to whatever level, want to play the game and enjoy getting on the machine. There are still a lot of those kids that come into class and if they ask, 'Are we using the tablet today?', as soon as you say 'Yes', they're like '****Yes!****', even if they don't know what we're (…) using it for. They just prefer to get in on there. (SWI_Teacher_1)*

Most students indicated that they used computer games, video games, and electronic simulations seldom to sometimes. An overview of student use of digital games and simulations is presented in Table 3.9. Seven students (six girls, one boy) used the *Nintendo DS* handheld gaming device.

Table 3.9

*Student Use of Digital Games and Simulations — Swiss School*

| | Computer Games | | Video Games | | Electronic Simulations | |
|---|---|---|---|---|---|---|
| | Male (N = 21) | Female (N = 36) | Male (N = 22) | Female (N = 35) | Male (N = 22) | Female (N = 36) |
| Very often | 1 | 2 | 2 | 2 | 1 | 3 |
| Often | 6 | 4 | 9 | 4 | 3 | 5 |
| Sometimes | 8 | 15 | 7 | 11 | 9 | 10 |
| Seldom | 5 | 10 | 3 | 13 | 7 | 13 |
| Never | 1 | 5 | 1 | 5 | 2 | 5 |

On average, male students had a longer history of playing digital games and simulations and played more hours per week than female students (Table 3.10). Five girls and five boys played more than 10 hours a week while half of the girls played two hours per week

or less and half of the boys three hours per week or less. Thus, most students used digital games and simulations for a few hours per week.

Table 3.10

*Student Playing Habits and Experience — Swiss School*

| | Hours per Week | | Years of Playing | | Level of Experience* | |
|---|---|---|---|---|---|---|
| | Male (N = 22) | Female (N = 36) | Male (N = 22) | Female (N = 30) | Male (N = 22) | Female (N = 33) |
| Min | 1 | 0 | 2 | 1 | 1 | 1 |
| Max | 48 | 24 | 10 | 10 | 3 | 3 |
| Mean | 7.59 | 3.96 | 5.05 | 4.62 | 2.36 | 1.94 |
| SD | 10.550 | 5.159 | 1.889 | 2.525 | .581 | .496 |

*Note.* * 1 = beginner, 2 = advanced user, 3 = expert (self-reported)

Most students (25 girls, 12 boys, two unidentified) considered themselves advanced users of electronic games and simulations; six (five girls, one boy) classified themselves as beginners, and 12 (three girls, nine boys) as experts. As *RealLives 2007* was installed on all student tablets, many students had experience with *RealLives*, albeit not with the 2010 version.

As preferred titles, girls listed mainly simulations (*The Sims* series, *RealLives, Zoo Tycoon,* and flight simulator), the *Mario* series, (*Mario Bros., Mario Kart, Mario Party*) and online games (e.g., addictinggames.com, spel.nl, spele.nl, webkinz.com, Y8.com, Club Penguin, Neopets), but also some sports games (particularly *Wii Sports, Wii Fit,* and racing games), music games (*SingStar, Guitar Hero, Rockband*), puzzles and strategy games, (*Jewels, Chess, Mahjong*) and adventures (*Tomb of Doom, Zelda*). Video consoles were also popular among the girls, above all the *Nintendo Wii* and the *Xbox 360*.

The boys preferred war and shooting games (the *Star Wars* series, *Call of Duty 4/5, Halo 2, Counter Strike, Warfare 1917, Dawn of War, Red Faction: Guerilla, Rainbow 6, Total War, Resistance, Medal of Honor, Lord of the Rings: Conquest*), and simulations and role-playing games (*RealLives*, *The Sims* series, flight simulator, *Deep Sea Tycoon, Zoo Tycoon, Oblivion, Monster Hunter Freedom Unite, AQ Worlds, Yoville*). They also listed a number of sports and racing games (the *FIFA* and *NHL* series, *Golf Tour 2009, Wii Sports, Need 4 Speed, MotorStorm, Crazy Taxi, Free Rider*), some puzzles and jump 'n'run games (*Bloons, Ice Climber, Super Mario Bros., Super Smash Bros.*), *Guitar Hero*, *Die Siedler* (strategy game) and the *Pokémon* series.

*RealLives Activities*

Since the school's IT staff could not install the 2010 version of *RealLives* on the student tablets before data collection, students were asked to download the installation file from the school's intranet and install the software themselves during the first lesson in round 1 of the data collection. A member of the school's IT staff and the teacher were guiding the students through the download and installation processes, and all students managed to install the program easily. Due to problems with the *RealLives* server, however, only three students were able to register and turn their software into a fully functioning version at a time. Some students managed to register later or during the second Social Studies lesson that week, others had to use the trial version and *RealLives 2007* until, after three days, the producer provided a new installation file, which allowed all students to use the full version. In order for *RealLives* to be displayed properly, students also had to change their Windows theme as advised by IT staff.

Once *RealLives* was installed, the students were using it extensively throughout both rounds of data collection. In his interview, the teacher described the simulation as "a supplement to what I try to do with geography, which is introducing them to (...) the world and other countries in the world" and "a vehicle for getting them to write sentences and paragraphs and organizing their thoughts" (SWI_Teacher_1). He included *RealLives* in his lessons so that "students have a greater awareness of what it might be like to live somewhere else in the world [um] from where they live and then also perhaps even where they may travel as a tourist" (SWI_Teacher_1). According to the teacher, using *RealLives* allowed students to see "that a (…) life lived there may involve things that they haven't thought of before. (…) that in these other places in the world [uh] people are facing things that perhaps they're not facing here" (SWI_Teacher_1).

During the first round of data collection, *RealLives* was used in the classroom during all six Social Studies lessons (55 to 65 minutes each) for at least half of the period. As the students were studying European and South American geography during that time, the first week was dedicated to Europe, the second week to South America. Both weeks, students first read a passage about the respective region in their geography book and used an online geography game to get to know the different countries. Using the Character Designer, they then set up *RealLives* characters in various European and South American countries in order to find out more about life in these countries. The teacher asked the students to write down their geography game scores and summaries of their *RealLives* observations. At the end of the two-week period, students had to answer the question "How is living in Europe similar and different from living in Latin America?" by writing approximately two pages on an

assessment sheet and including as many support details from their *RealLives* experiences as possible. The teacher encouraged students to play outside of class (e.g., during recess or lunch) to get more information. Small groups of three to six mainly female students were playing in the library during lunch a few times during the first round of data collection, although they seemed to be playing purely for fun. In his interview, the teacher explained his use of integration of *RealLives* as follows:

> *I've done an introduction to geography and countries for a couple of years (…) I found [uh] some computer-oriented sites (…) that I've been using for that. So I guess its initial use was to connect it (…) to that, so they do them sort of side by side, as they're learning countries in the world, then they can deviate into RealLives. [Um] This year, I've then introduced the use of this geography text to give them a, a written thing, and next class, (…) I think I will encourage that again for this writing assignment. They can also pull some information out of the reading that they did in class the other day. But I played around with the other day. 'Should I have them do some note-taking right then and there?' But since I wanted to have them have more of the playing time, (…) 'cause what we were doing, I had them just read as an introduction and some background, but [uh] I think I can play with that some more, because there's also other information in those books, other than the four, the pages that I had them read, where they could really do some co-relating possibly to (…) this, so. (SWI_Teacher_1)*

While the first *RealLives* lesson was used mainly for installation and registration purposes, it also gave students the opportunity to familiarize themselves with the new version of *RealLives* and to experiment with it. The teacher asked the students to look at the Configure Issues page to see which potentially confronting issues they could encounter in their virtual lives. Due to an incident in the past, when a parent was shocked by a student's question about rape and contacted the teacher, he explicitly discussed rape with the students and told them it was a very serious crime and nothing to laugh about.

During the second lesson, the teacher introduced the comparison task and told students which information to look for and write down. Throughout this and the following lessons, he repeatedly reminded students of their task and gave instructions, such as reading the country facts and information provided on the Country and Family pages, clicking on Learn More, and taking notes. The teacher asked students which countries they were playing in, which information was provided for their country on particular pages, and he pointed out important observations made by individual students to the whole group. He was also walking around repeatedly looking at students' screens, answering questions, and assisting with minor technical problems. Students were using *RealLives* individually on their own tablets, except for a few times when two students had to share a tablet due to technical issues, such as a low battery.

In between the two rounds of data collection, the teacher only used *RealLives* once, right before the second round of data collection, to get back into the activity. Due to curriculum and time constraints, he was unable to integrate more *RealLives* activities into his teaching between the two rounds of data collection. However, since *RealLives* was installed on all student tablets, they were still able to use it in their free time at school.

During the second round of data collection, *RealLives* was used in two out of three Social Studies lessons. The third and last lesson included a classroom discussion about students' *RealLives* experiences, but no playing. As in the first round of data collection, the teacher instructed the students to play out virtual lives in Europe and South America, but this time they were asked to compare rural and urban living. This task was related to European and South American geography as well as medieval versus modern living, two topics that the students had studied throughout the semester. The teacher explained,

> *Because the Enlightenment is a little bit more about the development of cities and the medieval period is about more rural living, (…) the way I chose to get back into the RealLives again was to have them go to the same countries they did the first time we did RealLives, (…) but this time specifically do urban living and rural living within the same European country and the same South American country and to try to [uh] look for connections and observations and comparisons between urban and rural living and possibly be able to relate it to medieval ruralness and Enlightenment urbanness. (SWI_Teacher_2)*

Again, students were asked to take notes on their observations. Instead of completing a comparison assignment, however, the teacher encouraged the students to submit a QUOFFE (which stands for QUestions, Observations, Finding connections, Feelings, and Engagement) about their personal observations in their rural and urban lives. Again, the teacher supported the students, asked and answered questions, but he was not guiding the activity as much, since students already had experience with *RealLives* and their task gave them more freedom this time. In the first lesson of the second round of data collection, the teacher was also discussing homework with individual students while the others were using *RealLives*, during the second lesson he was walking around handing back homework. During the third and final lesson of the second round of data collection, the teacher conducted a 10 to 15-minute debriefing with each group (except for group G, which had its last lesson right before the Christmas break and engaged in other activities). He asked the students about their experiences and observations living in urban and rural environments, discussed these with them, and encouraged students to hand in QUOFFEs, if they had not done so.

Overall, at the Swiss school — where the teacher as well as many of the students already had experience with *RealLives* — the use of *RealLives* was integrated into Social Studies lessons. It was combined with other activities (e.g., reading a geography text from a

textbook and playing an online geography game) and students had to complete a task; that is, compare lives in Europe and South America, first in general and then in urban versus rural areas. The teacher guided students' playing and learning processes, particularly during the first round of data collection. He pointed out important information, asked questions, and discussed student experiences in the classroom. As *RealLives* was installed on all student tablets, students were also able to use the simulation outside the classroom during free time at school.

### 3.6.3 Case 3 – The American School

The American school participating in the study was the Middle School of a private Quaker IB school in the state of Delaware with approximately 850 students (Pre-K to 12).

*Participants*

The participating teacher at the American school was a male Social Studies teacher aged 41 to 45 (Table 3.11). He had not taught with *RealLives* before, but had heard of it through a colleague, who had used *RealLives 2007* in a sophomore Peace Studies course at the same school. Although having used historical simulations in his teaching, the teacher considered himself a novice in using digital games and simulations. With two young children, he said he did not have time to use these media at home. The teacher had mixed experiences using digital games and simulations in school, but said he would generally recommend using them to colleagues. He considered these media useful for teaching children aged four and older.

Table 3.11

*Teacher Characteristics — American School*

| Category | Teacher Characteristics |
|---|---|
| Sex | Male |
| Age | 41 to 45 |
| Intercultural Sensitivity Scale | 97 out of 120 |
| Subject(s) | Social Studies |
| Highest Degree | Master of Science |
| Use of digital games and simulations in free time | No (no time) |
| Experience teaching with digital games and simulations | No experience with *RealLives*<br>Used historical simulations in teaching<br>Mixed experiences |
| Level of Expertise (self-evaluation) | 2 out of 10 |
| Opinion about teaching with digital games and simulations | Mainly positive<br>Would recommend using digital games and simulations to colleagues |

The teacher's opinions about the educational use of digital games and simulations were largely positive: He believed them to be fun, to enhance children's learning, teach students things other teaching methods cannot, create a creative learning atmosphere, support autonomous learning, and to be effective in teaching social competences and intercultural competence. The teacher was unsure if digital games and simulations were motivating and could support peer learning. He disagreed with the statement that these media were easy to use for students, but nonetheless believed that their use should be encouraged. The teacher agreed that using digital games and simulations in the classroom changed the role of the teacher and required special teacher training. For him, a "lack of time to integrate new ideas and technology with other curriculum requirements" (USA_Teacher, comment in questionnaire), a lack of age-appropriate games and simulations, interest, and support by schools, and limited competence in teachers were the main barriers for using digital games and simulations in school.

The teacher at the American school invited all his seventh-grade Social Studies students to participate in the study and 54 students (24 girls, 28 boys, 2 unidentified) decided to do so. He declared that his students were "using technology today in all facets of their life" and believed that "talking at them is very limited (…) in particularly the age group I deal with" (USA_Teacher_1). The teacher said that some of the students had "reading issues" or "at this stage of their life they (had not) overcome some of those reading issues yet" (USA_Teacher_1). Compared to the boys, the teacher considered the girls in the group "a little bit, at this stage of their lives, more reflective" (USA_Teacher_1) and believed they were more interested in and willing to read information, whereas the boys would mainly want to play the "game". The teacher also mentioned that the students had been "interested in the process of being filmed and being interviewed" as "most of them — they are 12 and 13 — they had never gone through any experience like this" (USA_Teacher_1).

Of the 54 participants, 50 were born in the USA, one girl in South Africa, and one in India; two students did not provide their country of birth as they did not complete the first questionnaire (Table 3.12). The two girls born in South Africa and India also specified South African and Indian as their nationalities. Of the other students, 42 described themselves as exclusively American, two as African American, one as American, Ecuadorian and Italian, one as American and Irish, one as American, Irish and Scottish, one as American, Italian and Native American and one as Greek (Table 3.13). One student did not specify his nationality and two students did not complete the first questionnaire.

Table 3.12

*Countries of Birth — American School*

| Country of Birth | Number of Students (N = 54)* |
|---|---|
| USA | 50 |
| South Africa | 1 |
| India | 1 |

*Note.* *Rest missing values

Table 3.13

*Nationalities — American School*

| Nationality | Number of Students (N = 54)* |
|---|---|
| American | 46 (4)** |
| African American | 2 |
| Italian | 2 (2) |
| Irish | 2 (2) |
| South African | 1 |
| Indian | 1 |
| Greek | 1 |
| Native American | 1 (1) |
| Scottish | 1 (1) |
| Ecuadorian | 1 (1) |

*Note.* * Rest missing values,
** (number of students who specified one or more additional nationalities)

English was the only mother tongue for 47 students. One student specified both English and Japanese; three students had a mother tongue different from English (Greek, Hindi, and Xhosa respectively). All students were learning at least one foreign language, most of them Spanish (35 students) and French (14 students). Other foreign languages were Japanese (six students), Hebrew (four students), Italian (two students), German (two students), and Dutch (one student).

Forty-six students had only lived in the USA, two in England, one each in Canada and South Africa, one in Ecuador and Australia, and one in India and the Netherlands. Fifteen students had not visited any foreign countries and six had exclusively traveled within the region (Canada, Mexico, the Bahamas, Jamaica). Twenty-three students had been to Europe (mainly Italy, the UK, France, Germany, and Spain), 11 to Latin America, two to Australia, one each to South Africa, China, and Japan. Fourteen students (six girls, eight boys) had visited at least three foreign countries on two continents and could be considered well traveled. Most students had a few friends from other countries and cultures (16 girls, 21 boys), seven

students (five girls, two boys) had many such friends and seven (three girls, four boys) had none.

The media used most often by these students were the Internet, computers, books, mobile telephones, and television. Newspapers, electronic simulations, and computer games were used least often. An overview of student use of digital games and simulations is presented in Table 3.14. While male students mainly used video games, female students preferred computer games and electronic simulations. Five students also used handheld games (*Nintendo DS, GameBoy, PSP*).

Table 3.14

*Student Use of Digital Games and Simulations — American School*

| | Computer Games | | Video Games | | Electronic Simulations | |
|---|---|---|---|---|---|---|
| | Male (N = 26) | Female (N = 24) | Male (N = 27) | Female (N = 24) | Male (N = 28) | Female (N = 23) |
| Very often | 4 | 2 | 5 | 1 | 3 | 2 |
| Often | 4 | 2 | 10 | 0 | 3 | 2 |
| Sometimes | 6 | 4 | 8 | 4 | 6 | 5 |
| Seldom | 6 | 13 | 3 | 9 | 8 | 6 |
| Never | 6 | 3 | 1 | 10 | 8 | 8 |

On average, male and female students were playing approximately the same number of hours per week. Seven girls and 10 boys were playing 10 hours per week or more while half of the girls were playing two hours per week or less and half of the boys five hours per week or less. The boys had a longer history of using digital games and simulations and considered themselves more experienced (Table 3.15).

Table 3.15

*Student Playing Habits and Experience — American School*

| | Hours per Week | | Years of Playing | | Level of Experience* | |
|---|---|---|---|---|---|---|
| | Male (N = 28) | Female (N = 24) | Male (N = 28) | Female (N = 24) | Male (N = 27) | Female (N = 24) |
| Min | 1 | 0 | 1 | 2 | 1 | 1 |
| Max | 35 | 50 | 13 | 9 | 3 | 3 |
| Mean | 7.57 | 7.52 | 6.13 | 4.83 | 2.22 | 1.79 |
| SD | 8.287 | 11.444 | 3.219 | 2.104 | .641 | .658 |

*Note.* * 1 = beginner, 2 = advanced user, 3 = expert (self-reported)

As their favorite titles, the girls listed simulations and strategy games (*The Sims,* the *Tycoon* series, *Settlers*), jump 'n' run games (the *Mario* series, *Sly Cooper, Crash Bandicoot*) arcade games (*Monkey Ball, Pacman*), some online games (e.g., about pets or cooking), a racing game (*Need for Speed*), and an adventure (*Spore*).

The boys' favorites were shooting games (the *Call of Duty* series, *Halo 3, Left 4 Dead, Resident Evil, Gears of War*) and sports, action, and racing games (*Madden NFL, FIFA, NBA Live, MLB, Golf, Skate, MX vs. ATV, Star Wars* series, *Need for Speed*). They also specified some strategy games and simulations (*Age of Empires, Age of Mythology, Civilization, Rollercoaster/ Zoo Tycoon, The Sims,* flight simulators), music games (*Rock Band, Guitar Hero*), adventures (*Prototype, Legend of Zelda, Assassin's Creed*), and a few arcade and jump 'n' run games (*Frogger, Mario games, Super Smash Bros*.). A few boys also liked MMORPGs and virtual worlds (*RuneScape, World of Warcraft, Second Life).*

Most students had no experience with *RealLives,* but a handful had downloaded the trial version and tested the simulation at home after hearing about the study. One boy explained, "We had a *(sic)* announcement before about the game, so I played the demo before I actually used the game here" (USA_CAPE8706Bb_1). A girl said, "I got a free download from the internet" (USA_CHDE6775Dg_1). Other students would have liked to try *RealLives* at home, but were either unable to find the website or could not install the program as it does not run on Macintosh computers.

*RealLives Activities*

At the American school, the teacher wanted to use *RealLives* in his Social Studies course as an introduction to different regions of the world. However, he found himself unable to integrate the simulation into his teaching due to a lack of time and a limited number of laptops with *RealLives*. Since the school exclusively worked with Macintosh computers, on which *RealLives* does not normally run, special conversion software (*Parallels Desktop*) had to be installed. Due to budget limitations, only four *Parallels Desktop* licenses could be purchased, which allowed *RealLives* to run on four laptops. Given these circumstances, the teacher decided to have the students use *RealLives* in groups of four in the library during Social Studies, Social Studies labs, Computer classes, and study halls instead of in the classroom.

To protect the students and make it easier to obtain consent for the study, the teacher and the Principal decided to exclude particularly sensitive topics (physical abuse, rape, sexual abuse, homosexuality, and sexually-transmitted diseases) from *RealLives* on all four laptops.

These issues were only considered suitable for students in ninth-grade and older. Students and parents were aware of this modification.[18]

The four laptops were set up on two tables — two next to and two opposite each other — in a defined space in the Middle School library. They were available to the student participants all day (8 AM to 2.45 PM) on all school days except the first one during the first round of data collection and on all school days but the last one during the second round of data collection. During the aforementioned lessons, the teacher selected players based on their interest and workload, the number of times they had already used *RealLives*, and so as to balance male and female students, and sent groups of four to the library. Although the teacher sent the students to the library to use *RealLives*, the activity was almost like skipping class for some students. When asked if students wanted to use *RealLives* in the classroom together with the teacher, one student explained that that this "would be kind of a different experience, (…) 'cause it would be, instead of being able to (...) kind of skip class by doing it, (…) it would be class" (USA_JUWI2267Db_2).

On average three to four groups of students used *RealLives* each day, usually for one period (45 minutes), though students sometimes continued playing during break or into the next period (if it was a study hall) until the next group of students arrived. The teacher was normally in his classroom teaching while the students were using *RealLives* in the library. Occasionally, he came to check if everything was all right, but he did not interfere with students' *RealLives* activities. The teacher considered the researcher the obligatory adult supervisor and trusted the two librarians, whose office was next to the *RealLives* space, to provide help, if necessary.

The laptops were available to students during both rounds of data collection, but not in between, which the teacher explained as follows:

> *I had intended to (…) there were so many things going on. (…) there were literally four and five kids absent for that time period from school (…) due to illness. (…) I went away (…) for a week and I found trying to keep things in order with all these kids absent and then trying to bring RealLives into the picture (…) too much to juggle. [Um] I also found that with only four computers, I really need two adults, and [um] I think our librarians would be willing to help me, but given the situation with everybody out absent, it just seemed like everything was going in so many different directions. (USA_Teacher_2)*

[18] In their interviews, students said, for example, "Not all the things I know were turned (on) 'cause the school didn't allow them" (USA_AMST7765Ab_1) and "My Mom told me that you took out like some of the bad things, like you couldn't get beaten by your parents. I thought that was a good thing, so kids weren't like joking about that kind of stuff because (…) people always say what happens in their *RealLives*, and you don't want people going in the hallway just going 'Oh, I got beaten by my parents in my life'" (USA_TRJO1718Cb_1).

With the use of *RealLives* not integrated into classroom teaching, the students did not have any specific tasks to fulfill and were not told how to use the simulation. The teacher did not provide any instructions, but simply sent the students to the library to play. One girl explained, "He just said, 'We'll play this *RealLives* game. It's basically like a decision-making game that's just a lot of questions, not much of the graphic (….).' And that's all he would have said to us (USA_NIJA1124Dg_1). Without instructions and support from the teacher, the students were using *RealLives* the way they wanted to and relied on their fellow players for help, although the explanations students gave each other were not always correct. The teacher noted, "They have been having those conversations with their peers, and I can tell in the background that the answers given are not necessarily accurate. So it's an interesting dynamic" (USA_Teacher_1). In his follow-up interview, he said,

> *I would say about a third of them understood what happened and two thirds of them, really it was sort of almost that kind of incredulous or surprising sort of feeling like 'Why did I get kicked out of school?' or 'Why did this happen?' or 'How come my home was burnt down in this natural disaster?' (…) it was an interesting fact, and they didn't understand it per se. (USA_Teacher_2)*

The teacher said he would have liked to engage in classroom conversations and discussions, but was unable to find the time for it. When asked about such activities, he explained,

> *That was my goal, (…) and it never happened. And I think it didn't happen because (…) during that month-long time period, (…) so much of my time was spent, (…) 'How much time did you miss? You missed five days of school. Okay. You missed four days of school. You missed six.' and just trying to figure out who was where, so it, I didn't feel like we could get into the kind of the teeth of it. So it always happened on an individual level (…). I would say maybe twice (…) it happened. (…) and the way it happened is, someone would come in to class and describe something that happened to their life and then it would be a brief whole-class thing. (USA_Teacher_2)*

The teacher did talk to some students individually, as this quote shows:

> *They have approached me, I would say a number, and when I mean a number let's say 15, with really kind of interesting side conversations, in which they have reflected on who their character was, you know, (…) 'Wow! I died at 34!' or 'I had all kinds of siblings who died very early in life.' or [um] 'Wow! (…) My home was impacted by a natural disaster!', and it tended to be little snippets (…) Yes, they would tell me about what, what happened. (…) if I had time, I would engage them in conversation and say, 'Well, tell me a little bit more about that.' (USA_Teacher_2)*

All in all, the use of *RealLives* was not integrated in the Social Studies lessons at the American school. Instead, it was a separate activity for students, in which they engaged outside the classroom and without any instructions, guidance, or support from the teacher.

There were some conversations between the teacher and individual students about *RealLives* experiences, but virtually no classroom discussions or debriefings.

To conclude this chapter, the main characteristics of all three cases are summarized in Table 3.16.

Table 3.16

*Overview of Cases and Participants*

| | Australian School | Swiss School | American School |
|---|---|---|---|
| School type | Interdenominational Christian IB school | International IB School | Friends (Quaker) IB school |
| School size | ca. 1,350 students (Pre-K-12) | ca. 1,370 students (Pre-K-12) | ca. 850 students (Pre-K-12) |
| Student participants | 13 students (4 girls, 9 boys) 7.5 class; low average level of intercultural experience | 63 students (36 girls, 22 boys, 5 unidentified) 7A, C, D, E, G classes; high average level of intercultural experience | 54 students (24 girls, 28 boys, 2 unidentified), 7 A – D; medium average level of intercultural experience |
| Teacher | Core teacher, male, 41 to 45, Head of E-learning | Social Studies teacher, male, 46 to 50 | Social Studies teacher, male, 41 to 45 |
| *RealLives* experience | Students and teacher had no prior *RealLives* experience | Many students and the teacher had experience with *RealLives 2007* | School had used *RealLives* before, but teacher and students had virtually no experience |
| Use of *RealLives* during study | Played regularly once or twice a week from August to November 2009, more during data collection | Played during data collection, two weeks in September and one week in December 2009 and once in between | Played only during data collection in Social Studies, labs, Computer classes and study halls, two weeks each in September and November 2009 |
| Technical set-up | *RealLives* installed on 24 PCs in computer room | All students had *RealLives* installed on personal tablets, used in classroom | *RealLives* installed on four laptops (Macs) set up in the library |
| Teacher's intention to use *RealLives* | Support character construction for storytelling in English | Comparison of European and South American lives & urban and rural living in Social Studies | Extra activity in connection with Social Studies, but no integration in Social Studies teaching |

# CHAPTER FOUR

## FINDINGS CASE 1 — THE AUSTRALIAN SCHOOL

This chapter presents key findings from the Australian case study regarding students' use of the simulation *RealLives* and the interactions between students, teacher, and simulation (4.1). It also shows the connections between students' use of *RealLives* and their intercultural awareness and sensitivity (4.2). Due to the limitations of this thesis, only a few selected quotes can be presented to support each aspect.

### 4.1. Use of and Interaction with *RealLives*

This section comprises findings concerning the use of and interaction with *RealLives* at the Australian school. It demonstrates how students learnt to use the simulation (4.1.1), shows their strategies and patterns of use (4.1.2), and portrays their communication with each other and the teacher while using the simulation (4.1.3). This section also outlines difficulties and problems that occurred during the use of *RealLives* in school (4.1.4).

#### 4.1.1 Learning to Use *RealLives*

Although the students at the Australian school did not have prior experience with *RealLives*, learning how to use the simulation proved easy for them. Most students had been playing digital games and/or simulations for years and drew on these experiences. Students said about *RealLives*, "I found it quite easy to play. (…) Pretty straightforward" (AUS_BISH0811b_1) and described using the simulation as "all simple" (AUS_THGE2222b_1). One student mentioned that he had had difficulty finding out what to do in the beginning because he was so used to other digital games:

> *I didn't see the (…) Age a Year down the bottom, I'm just looking up the top. I'm like 'How do you age?' (…) I'm thinking 'Do I really have to wait like about a year to age?' (…) And Mr. X's just like 'Click the button!' I'm like 'What button?' 'Down.' And I'm like 'Oh! Look at that!' and (…) I just look at buttons at the top 'cause that's usually where they are. (AUS_CHCH5287b_1)*

This student asked the teacher for help, as he could not find the button to advance the simulation. Overall, however, students did not have problems learning how to use *RealLives.*

The teacher offered help to several students in the beginning. One girl remembered: "The teacher kind of explained it a bit, and like I clicked on the icons that said Family and like Actions and [um] Statistics (….) I asked the teacher a couple of times" (AUS_NOMI0551g_1). Another girl said, "I got help by my friends and I asked the teachers

and so like, and they're like help me (…). I knew when I clicked on Family it would have all my family members" (AUS_DEJE5130g_1).

Other students, particularly boys, used trial and error methods and clicked through all the pages to explore the simulation's options and boundaries. One boy explained, "I didn't know [um] really what to do. (…) I kept on playing it" (AUS_BRKA0000b_2). Another boy said,

> *When I opened it first [um] I went on all the things to see what was on. (…) just went 'Okay, I have no idea what I'm doing.' I just clicked on the top part then randomly. (…) I'm just thinking, 'Okay, first I'm gonna go Self', and I clicked on it and found the family. I'm like 'Oh!', I'm like, 'What does this down arrow do?' and I pressed it and it looked down and you saw it's the health and stuff like their stats. (…) And then I went to the (…) Actions and I saw all that, I'm like 'Oh!' (…) 'That could really come in handy for sometimes.' (AUS_CHCH5287b_1)*

In the beginning, many students wanted to age quickly to see what would happen to their characters. They did not consider their decisions too carefully and often did not read additional information provided by the Learn More option, for example. One boy explained that he "just kept ageing (…) and (…) just being stupid (…) just age, age, age, age (…) and just immigrate to (…) weird countries" (AUS_BISH0811b_2).

Later on, many students were thinking about their choices more carefully. During the second round of data collection, students said, "I think we take a bit more care in what we're looking at" (AUS_AIPE4017b_2) and "When I first got (…) I would, didn't really know much and I would just click randomly, but now I know what to do and I'm being careful about my choices" (AUS_JOMA6335b_2). Another boy felt that he had become "sort of more (…) responsible" and "lived as I would live" (AUS_BISH0811b_2). Students were not laughing about sensitive topics like rape anymore, which had been common in the beginning. Some students also became more interested in cultural information, as this quote shows:

> *I play a lot different. (…) when I first started, I just didn't really care about (…) my character. I'm just like 'Click [uh] click (…) click.' And now I'm like 'Hey, this is what happens to this culture' (…). Now I'm like really interested in (…) learning. (…) I pay more attention. (AUS_CHCH5287b_2)*

Moreover, some students started to use the Learn More option more often, like the boy who said: "That's what I've been using more now" (AUS_THGE2222b_2). Others were making different choices and playing characters in other countries. One girl said, "I choose like [uh] different answers and stuff like that than I did before" (AUS_DEJE5130g_2) and another girl explained:

> *I used to always pick like Australia and then now I like picked other countries that I didn't know sometimes. But, yeah, like to not age so much and like, and not have that many babies any more. (…) 'cause like it makes more sense to me and like what can happen and all of that. Like before I didn't know what like RealLives is about, but now I know what RealLives is about. (AUS_FRJO1239g_2)*

While most students were paying more attention to the information presented on *RealLives* and making choices more carefully during the second round of data collection, one boy felt he was "going too fast" (AUS_JAGU9837b_2). Knowing how the simulation worked, he was clicking through it more quickly and not paying attention as much. Another boy said he had interfered when his classmates were simply clicking through the simulation, as he did not want them to make mistakes. He explained,

> *Like some people just go 'Yes', 'Yes', 'Yes', 'Yes', 'Yes', and I, I was looking at someone and I told him to stop 'cause it, it had investing and I did that the first, I think I invested 50 odd grand and lost that. (AUS_AIPE4017b_2)*

Students generally appreciated their classmates' help, which allowed them to use more functions and to be more successful players. One boy said, for example,

> *I know what I'm doing now 'cause some people would open me up. (…)'cause I didn't know that you could start your own business. (…) Or you could look at, if [uh] you wanna start a relationship, what, how much money they make and stuff. I didn't know that you could do that. (AUS_THGE2222b_2)*

### 4.1.2 Strategies and Patterns of Use

Since the students at the Australian school received few instructions and were not aware of the reasons why they were using *RealLives*, they were using the simulation how they wanted and were developing individual goals and playing strategies.

Except for one boy who did not seem to enjoy using *RealLives* much, students were actively engaged and trying to influence their characters' lives. The one passive student said, "I pressed on the (…) Age a Year and it came up with some ques, some things that happened in that place (…) and just did that, kept on doing that" (AUS_BRKA0000b_1). The other students typically stayed on the Actions page, where they could choose from a variety of options to influence their characters lives. One boy explained:

> *I'm usually on the Actions page because you can like go move back in or move out or whatever (…) and you can change what you're doing, like leisure time (…) and all that. (…) Yeah, I usually stay on that page most of the time (…) if you don't have like you (sic) girlfriend or boyfriend, you can go to the Seek a New Romance button and you can click and see who's available. (…) that's what I usually do. And you can get a job there. (AUS_CHCH5287b_2)*

Students used practically all actions on the Actions page and usually selected one or two actions before advancing the simulation, as this quote shows: “I probably do like one or two and then like age, yeah” (AUS_DEJE5130g_2).

Despite spending most of their time on the Actions page, students also looked at the other pages occasionally, mainly to find information about their family and check the number of children (Family page) or to see their character’s points for health, happiness *et cetera* (Self page). Overall, the Actions, Family, and Self pages were used most often. Students sometimes used the Country page to look at the map and explore their area, but they hardly noticed the country information provided there. The Stats page was used least often. Some students mentioned that they were unable to understand the graphs on this page. A boy said, for example, “I spend a lot of times on Actions, but I do use it, except from the Stats one. I don’t really understand (…) It doesn’t make it clear” (AUS_JADA9653b_2).

*Creating Characters*

Once students had registered their copy of *RealLives*, they normally used the Character Designer to create their own characters, preferably in Australia or in countries their family originated from, such as Italy, Greece, and the UK. One boy explained,

> *Sometimes I’d go countries like that **I** wanted to go to, (…) PNG is one of them ’cause Mum grew up there. [Um] I think I went to England ’cause Dad lived there for a bit. (…) just countries that **I** have particular interest in. (…) I know other kids had particular interest in the countries so they went there and see (sic) how that went. (AUS_AIPE4017b_2)*

Other European countries and the USA were also popular as characters usually led successful, long lives there. As one male student explained, “I think it was more not Third World Countries (…) more the more populized (*sic*) countries, like Australia, USA, and all of that, ’cause you live a lot longer (…) and it is a lot better” (AUS_AIPE4017b_2). One boy said he had lived in Brisbane and the Gold Coast on *RealLives* because he wanted to live there in the future himself. Some students wanted to explore different regions of their home country, as this quote shows: “I didn’t want to just live in New South Wales because I wanted to try something different and see what [um] places around Australia were like” (AUS_JOMA6335b_1). Others liked living in their real-world place of residence for reasons of familiarity.

Some students also explored countries they were not familiar with at all. One girl recalled, “In the beginning, I went to like a whole lot of different countries just to like experiment, like, and learn, (…) but now I kind of just stay like the US and like France and

stuff" (AUS_WEHO2197g_2). A few students even picked their countries with their eyes closed or chose the one with the "weirdest" name. A boy said, "Well, Dubai, America and — Ah, yeah! — Vietnam, (…) I scrolled down, just clicked with my eyes shut" (AUS_BISH0811b_2). The teacher explicitly asked students not to choose characters in Australia and to try different countries, but not all students followed these instructions.

When using the Character Designer, most students manipulated their points for health, happiness *et cetera* and set them to the maximum of 100 to give their characters the best possible start and possibly a better and longer life. As one boy recalled, "In the Character (…) Designer, you could pick where your health was, and everyone would go 100, 100, 100, 100, 100, 100, 100, 100" (AUS_AIPE4017b_2).

*Decision-making*

Most students based the decisions for their characters on their own cultural beliefs, values, and norms and on their personal experiences, preferences, and desires. One boy explained: "I picked sport, music and art. (…) I like sport, I like music and, yeah, (…) art" (AUS_BRKA0000b_1). Another boy said that his grandfather's death had determined his decision about smoking: "If it says like 'Your group is smoking. Would you like to join them?' I always say no because my Pop died from smoking, so I'm never going to smoke" (AUS_JOMA6335b_1). Students also made their characters move to places they personally liked, such as the boy who moved to Thailand "'cause we went to Phuket and that's sort of why I moved there 'cause (…) I liked Phuket" (AUS_SBCB8808b_1).

After the initial exploration phase, many students tried to make what they considered good decisions — decisions they themselves would make in their lives — and not "dumb decisions" (AUS_THGE2222b_2). One boy explained,

> *Some of the choices on the game is actually like what you're really thinking. It's like (…) 'I ain't smoking.' It's like 'Alcohol? No!', all that. So basically everything I click on the game, 'Yes' or 'No', is what I'm going to do in real life. (AUS_CHCH5287b_2)*

Similarly, a girl said,

> *They wanna start smoking with like the friends and drinking, and I said 'No' (…) because like at that time I was pregnant and like I wouldn't do that anyway, if they knew that I was having a baby or something, (…) I wouldn't do it. (…) Like if you wanna like rob someone or something and like. Yeah, I said, 'No.' (AUS_FRJO1239g_2)*

Based on their own cultural beliefs, values, and norms, most students wanted their characters to go to university, get a good job, and earn as much money as possible. Money

was crucial in decision-making, as this quote shows: “I picked like the ones, like the kind of subjects I think will get you (…) more money and (…) like a good job trace and stuff” (AUS_NOMI0551g_1).

Some students took their characters’ attributes, such as health, happiness, musical talent, or athletic ability, into account to some extent. One boy explained, “I did sport because [um] he was really athletic and I did [um] reading because you can earn a lot (…) and math ’cause you can learn a lot and there’s some good jobs over there” (AUS_BISH0811b_1). A girl said she “thought that it would be good like to have privileges, to do sport and music, because like other countries don’t have privileges to do that” (AUS_FRJO1239g_1).

Students also adjusted their playing strategies to the events in their characters’ lives. For example, they chose to do more sports when their character’s health declined. A girl recalled, “Sometimes (…) I tried to like go into a better country and it did make my health better and all that” (AUS_FRJO1239_1). A boy said about his female character, “I thought of her and I was mainly basing it on my health (…) trying to make it better, and I do like volunteering and sports and physical education” (AUS_AIPE4017b_1). Another boy described his decision-making as follows:

> *With the one (…) I did today, (…) I took decisions that I would make (…) I went to college and university, (…) and then like I got pretty much through all the schools and I was [um] really (…) good in [um] intelligence, but then our guy started to get like [uh] less happy for some reason and [um] so I decided to [um] things that were better for him, make some better decisions. (AUS_JOMA6335b_1)*

Some students enjoyed varying their decisions to see different outcomes and find out which strategies work best. A girl explained, “I try to like change like my decisions (…) and my thinking. (…) A few of them I made the same decision and a few others I didn’t, if I wanted to see what happened” (AUS_WEHO2197g_2). Students learnt from their experiences and tried to avoid earlier mistakes. One boy said, “I did not immigrate — ’cause I died the last time I tried to immigrate” and “I did not invest any money (…) ’cause last time I lost a ton of money and it said ‘You’ve lost all your investment.’ (…) I’ve learnt my lesson last time” (AUS_AIPE4017b_1).

*Using the Learn More Option*

Since the teacher did not instruct students to use the Learn More option, many did not pay attention to it, but focused on advancing their characters’ lives. One girl explained, “I kind of (…) just skipped it ’cause I wanted to keep going. (…) I didn’t really wanna slow it down” (AUS_NOMI0551g_1). A boy said he would have used it, if he had had more time

(AUS_BISH0811b_1). Another boy found the information too complicated and confusing and therefore stopped using Learn More. He said,

> *When I click Learn More it just makes it way too confusing for me. (…) the simple one is easy for me to understand, so I pretty much get it. (…) I did a couple of times, but then I just found 'No, I don't understand it' (…) Too much. (AUS_JADA9653b_2)*

Another boy felt that he did not need Learn More because "sometimes you get enough information on what comes up to know what it's about" (AUS_SBCB8808b_2).

Some students did use the Learn More option and appreciated the information it provided. One boy said, "It was really amazing!" (AUS_AIPE4017b_1) and another one found it "more useful than the little bits that come up" (AUS_THGE2222b_2). A girl felt that Learn More was "really interesting because (…) they (…) tell you more about them and like why you had that disease and all that" (AUS_FRJO1239g_1). One boy had Learn More "on all the time" (AUS_BISH0811b_2) and claimed he always read it, although he found it quite comprehensive. Another boy considered Learn More particularly useful when searching for a partner. He said, "I click on Learn More. (…) say, if you're gonna meet a boyfriend or girlfriend, it comes up with their age, with their happiness, all those sorts of stuff, (…) if they're really depressed, I'm like (…) 'No, thank you'" (AUS_CHCH5287b_2).

Students were more inclined to use Learn More when something came up that they did not understand (particularly diseases) or that they were personally interested in. One boy said he used Learn More "half the time (…). If it's something like I don't understand, like if it's whooping cough, I would go there and see what happens" (AUS_JOMA6335b_2).

*Focusing on Jobs, Money and Children*

Throughout their characters' lives, students mainly focused on finding a good job and earning as much money as possible. One boy explained he "just tried to look for jobs and (was) trying to work out a good life" (AUS_BISH0811b_1). A girl described her main goals as "getting a new job that like is worth a lot of money and like getting a boyfriend that earns a lot of money as well and then get a home together" (AUS_FRJO1239g_2). Another girl adjusted her playing strategies to make more money:

> *When you first play it (…) I kind of was looking at all jobs (…) like I was picking any job, like the ones who make the most money [laughs], and I wasn't getting anywhere, so then I like started picking only the jobs I qualified for. (…) when I first played it, I wasn't like working overtime or anything, but (…) if you have a person who is not making enough money, [um] they can like make more money if you like work a lot more. (AUS_NOMI0551g_2)*

Students took risks and even lied to get more money. One boy admitted, “I had to lie a bit to get a bit more money” (AUS_AIPE4017b_1). Another boy had selected leisure activities to make his character smarter and to get a better job because he “wanted to get really lots of money” (AUS_BISH0811b_1). When asked why students had selected a particular job, a typical answer was: “I had the job with the most expensive, I got the most money out of” (AUS_BRKA0000b_2).

In addition to students’ fascination with moneymaking, many also tried to have as many children as possible. One boy who did not like that complained, “Many people tried and get heaps of babies. (…) I only got two. (…) But one girl got 23” (AUS_JAGU9837b_2). Students could not really tell why they wanted to have so many children. One boy said: “I don’t know. I just kept doing ‘adopted’ or tried to have a child or. Just like that” (AUS_SBCB8808_1) and another one replied, “I don’t know how, but I got eight kids in the game. [laughs] Very weird! (…) I don’t know what happened” (AUS_CHCH5287b_1). Some students apparently wanted to explore the boundaries of the simulation and find out when they could start having children and how many they could have. One male student was surprised that “you couldn’t (…) be stopped from having a child. Like you could have a child at the age of 13!” (AUS_AIPE4017b_2). Students’ desire to have a lot of children on *RealLives* did not seem to reflect their personal preferences. One girl, whose character had had five children, explicitly stated that she did not want to have so many children herself.

The teacher noticed that the students were trying to have a lot of children and asked them to play more seriously, to make good decisions for their character, and to think about what they themselves would do. After a while, students seemed to get tired of having a lot of children anyway and started considering their choices and their implications more carefully. One female student explained that during the second round of data collection she tried “to not age so much (…) and not have that many babies any more” (AUS_FRJO1239g_2).

### 4.1.3 Social Interaction

Most of the time, the students at the Australian school were using *RealLives* on individual PCs, each student creating their own characters and lives. Nevertheless, there was plenty of communication and the atmosphere was lively. Students were frequently sharing and comparing their lives with those of their classmates and commenting on them. One boy explained, “We usually yell out loud across the room as we go along” (AUS_CHCH5287b_2) and another one said, “I’ll (…) tell ’em how long I lived and how I (…) died and stuff, and how much (…) you had to pay and stuff for your house and all that” (AUS_THGE2222b_1).

Whenever students did not know what to do, they asked their friends, the teacher, or

both for help. One boy recalled, “I asked my friend, I asked the teacher, I asked everybody” (AUS_JADA9653b_2) and a girl said, “If I didn’t know (…), I’d ask my friends or a teacher” (AUS_DEJE5130g_2). Another girl explained, “I would ask like [uh] my friend what would I do and then she would help me and then I would like do that” (AUS_FRJO1239g_1). Students appeared to ask whoever was closest to them and seemed capable of providing a satisfactory answer. When they could not understand a word, students usually asked the teacher rather than their peers. A boy remembered, “It said, ‘Would you like to start taking illitic (*sic*) drugs?’, and I didn’t know what they were, and then asked the teacher and they said what they were” (AUS_JOMA6335b_2).

*Group Activities*

As described in section 3.6.1, the students at the Australian school engaged in group activities a couple of times. While some students enjoyed exchanging ideas and making decisions together, others did not like this and would have preferred playing their own character. One boy said he preferred using *RealLives* alone because playing in groups “you get bored ’cause you have to just look” (AUS_JAGU9837b_2). Another boy felt that “in a group, it takes a lot more time, and if you’re on one on one, you can just quickly get on and do what you want in there” (AUS_SBCB8808b_2).

With the teacher determining the groups’ composition, students were usually not playing with friends, but with other peers, who often had different opinions. Overall, there were few serious arguments, but one mixed group split up as the girl wanted to do “girly stuff” (AUS_THGE2222b_2) with the male character, which the boys did not appreciate. One female student described working with a male classmate as follows:

> *We both (…) wanted to do like different things. (…) He wanted to do a music store something and I wanted to do [um] like hairdresser or something like that. (…) And we had to like, pick like one. (…) We did the music store and then (…) when we started studying for a job we did [um, uh] hairdresser. (…) It kinda worked. (…) we kind of figured it out. (AUS_DEJE5130g_2)*

Unable to agree on one strategy, these students decided to do what one of them wanted first and then what the other wanted. Nevertheless, this girl liked playing in groups as she could ask her teammate to make decisions for her when she did not know what to do.

Female students generally expressed a more positive attitude toward group activities. One girl enjoyed the experience very much and felt that “it was good to like have someone to make decisions with you. (…) Me and my partner, we did pretty well together ’cause like we could (…) communicate pretty well” (AUS_WEHO2197g_2). She acknowledged, however,

that some of her friends “didn’t really like that idea (…) ’cause like they (…) don’t like being out of our own group” (AUS_WEHO2197g_2).

A boy who also held a positive opinion about group activities said, “It was still quite fun because you got to learn what other people would do (…). We had a lot of discussions, but we were also on, on the same page (…) in terms of where we wanted to go” (AUS_BISH0811b_2). Another boy mentioned that he and his friends had even engaged in group activities on their own:

> *We would sometimes get into groups and go in the same place and live like as a family (…) we just do it on our own. [Um] we would like make a business and like just pretend that we are in a business together and we’d add up all our money and [um] live in the same area. (AUS_JOMA6335b_2)*

Overall, using *RealLives* in groups appeared to work best when students were playing with their friends, who were usually of the same sex. It seemed most difficult in mixed groups where students were not friends and wanted to pursue different goals.

### 4.1.4 Difficulties and Problems

The students at the Australian school did not encounter any major difficulties or problems while using *RealLives*. Apart from the installation issues in the beginning and some computers freezing and shutting down during the group activity in the second round of data collection, the use of the simulation went smoothly for the most part. There were a few technical glitches, such as the same question being repeated constantly. One boy recalled,

> *Every time the ‘Age a Year’ came up, it kept coming up with the same thing over and over again. (…) It was like ‘You have no job. You want a job?’ I clicked ‘Yes, I want a job.’ It says ‘You have no job’, and it just kept coming up with that, and I found it really (…) frustrating because I kept clicking the same job every time I aged. (AUS_CHCH5287b_2)*

Although being perceived as frustrating, these glitches did not keep students from using the simulation, and they usually just carried on playing.

Students were generally able to overcome smaller problems themselves or with the help of their peers or the teacher. The main difficulty for the students was unknown words, particularly diseases they had never heard of. One boy recalled, “It was easy, but sometimes, like other things you wouldn’t understand a word. If it made it more clear, that would be cool” (AUS_JADA9653b_2). The Learn More option helped some students understand difficult words, but for others it was too complicated as well. Students also sometimes failed to understand why something happened to their characters, as this quote shows: “I was in school for a year and then (…) I was pulled out. (…) I don’t know. (…) It just said ‘You’ve

been pulled out of school'" (AUS_SBCB8808b_1). However, this usually did not worry the students too much and did not keep them from using *RealLives*.

## 4.2. Development of Intercultural Awareness and Sensitivity

This section presents key findings regarding the connections between students' use of *RealLives* and their intercultural awareness (4.2.1) and sensitivity (4.2.2).

### 4.2.1 Intercultural Awareness

Many students at the Australian school mentioned that using *RealLives* had made them (more) aware of how different life can be depending on where one lives. Students noted differences in natural disasters, diseases, cultures, and other aspects affecting people's lives. They felt that using *RealLives* had opened their eyes and broadened their horizons. It had also confronted them with situations they had never experienced or even heard of before. One girl said,

> *You could learn the different types of cultures and [um] their religions and their population and how they live, (…) the equipment that they have. See, most of them don't have any fresh water or [um] first-aids or anything like that. (…) I don't think people understand that. (…) but from playing RealLives I've understood that that's in many cases. All my friends, they didn't have safe water or anything. (AUS_WEHO2197g_1)*

A boy explained, "I didn't know you can get raped that many times in your life, or you can get stolen from or anything, so it's amazing. It actually opens people's eyes" (AUS_AIPE4017b_1). He said he had encountered "very big surprises" (AUS_AIPE4017b_1), particularly being taken out of school and having to move frequently. Other students mentioned that using *RealLives* had shown them "how hard it is to live life" (AUS_JADA9653b_1). Students' intercultural awareness was also influenced by peers' experiences, as this quote shows: "I heard some other girl playing on the computer her father got raped, which is a very big surprise to me 'cause I've never heard of a man being raped in Australia" (AUS_AIPE4017b_1). *RealLives* was considered particularly useful for players unable to travel overseas. As one boy said, "There's people who probably won't get a chance to go overseas and it's good for them to like know what like different countries and stuff, what happens over there" (AUS_THGE2222b_1).

Using *RealLives* encouraged students to compare their virtual lives with their own experiences and life in Australia in general. *Different* was the term students used most often when describing their experiences. One girl said that through *RealLives* she had learnt that "people like all from other countries they are like different from ours"

(AUS_DEJE5130g_2). Another girl felt, “It like shows you (…) how it’s different to our lives” and believed she “learnt what can happen to people that can’t like really, that doesn’t really happen in Australia and (…) different stuff that (…) affects the, the country and people” (AUS_FRJO1239g_1). In her second interview she explained, “Sometimes like war happened and like sometimes I died. Like when I got a disease. (…) And like I don’t think they had any medical treatments, but here they do” (AUS_FRJO1239g_2). After leading a life in China, one girl realized

> *(…) how they don’t have as much equipment as what we do. They don’t have safe water like we do. (…) And they don’t have TVs or phones and stuff like that. (…) They don’t have as many jobs as we do, like that are offered. (AUS_WEHO2197g_1)*

Students were often confronted with diseases, such as hookworm or malaria, which they did not know. One boy, who had played several characters in developing countries, said,

> *You get a lot more diseases than you do in Australia. (…) My Mum would have got food poisoning at least five times, hookworm the same, (…) my son got whip worm. Never heard of half the diseases and I’m like ‘Oh no, what is that?’ (AUS_AIPE4017_1)*

Even diseases that do exist in Australia were sometimes surprising and difficult to understand for students, as they did not have any experience with them. A boy said,

> *The diseases (…) some of them are like hard to understand ’cause like I don’t have epilepsy or something like that and my guy does, and so like suddenly, I was playing my game normally, and then my guy would die because he would have epileptic seizure. (AUS_JADA9653b_2)*

Other differences students noticed were that “you could get a job earlier, like people got jobs at 11 or 12 and that. The legal age here (…), if you wanna (…) work, (…) it’s 14 nine months” (AUS_AIPE4017b_2). This student also said, “It’s a lot different to Australia. (…) Like normally you wouldn’t have your mother and father or even sister raped in your lifetime. It just doesn’t happen like that” (AUS_AIPE4017b_2). About his virtual Australian lives he said, “I wasn’t sexually abused in any way, I wasn’t robbed from, I wasn’t bashed up or anything” (AUS_AIPE4017b_2), which corresponded to his personal experiences.

Many students also noted differences in education, above all, that “it was like really easy to (…) get kicked out of school” and that “not many countries have the education that we have” (AUS_FRJO1239g_1). A boy was surprised that “you could drop out of school. It said ‘Quit School’, (…) you can’t do that nowadays here” (AUS_AIPE4017b_2). One girl summarized her experiences as follows:

> *I think I've played a few Third World countries and there, there were like no opportunities for anything. (…) it took a while for me to get a job and [um] I had to leave school when I was in [uh] I think Year 4 and like so there wasn't really much you could do, like no opportunities. Like the school was shorter than what we have here. It (…) wasn't compulsory. (AUS_WEHO2197g_2)*

Moreover, students became aware of differences in jobs and income. A female student who had played several characters in Ethiopia recalled,

> *They had to work in really hard jobs for a lot of time. Like to earn very little money. And like if you go to somewhere in Australia or America or like anywhere else, the people don't have as hard jobs and they earn like heaps more money. (AUS_NOMI0551g_2)*

A male student remembered how hard it was for him to find a job: "I pressed 'Apply for a job', I couldn't get any jobs. The only job I could get was a beggar. (…) That was pretty frustrating. I was like 'Damn!'" (AUS_AIPE4017b_2). Another boy said, "Some countries pay more (…) for jobs than others, like Australia they paid 12,000 Australian dollars for like a shoemaker, and over in Canada they paid something like 15 (…) thousand dollars in Australian dollar bills" (AUS_CHCH5287b_1).

Several students felt that their *RealLives* experiences had made them aware of how short life can be in other countries. One girl recalled about a character in Egypt,

> *She didn't live until like very old age, like she died when she was about 50. (…) Whereas if you play (…) somewhere like America or England or (…) in some places in Europe, they more likely live to about 80. (AUS_NOMI0551g_2)*

A boy explained, "In Australia, you sort of have an idea, like men are 75 years and women are 80. I died at 45 last time, Dad died at 55, Mum died at 51, so it was very amazing" (AUS_AIPE4017b_1). Another boy said, "In Africa, I died as soon as I was born, 'cause it said, 'You have died from food poisoning or asthma and stuff like that" (AUS_CHCH5287b_2).

Students also noticed differences in families and relationships. One girl remembered,

> *The first one I was in Italy. (…) and like it's really different to Australia (…) like at 15 you're asked if you wanna be in like a relationship and all that and (…) they proposed like at really young age and all that and, yeah, it's like really different to here (…) and like it asks you if you wanna be like pregnant and all that (…) at a really young age. (AUS_FRJO1239g_1)*

Another girl said surprised, "One of my friends said that her family didn't approve of her getting married at 21" (AUS_WEHO2197g_2). A boy was astonished that his character was able to have a child at 13, and another boy found it "very weird" (AUS_CHCH5287b_1) that

his Australian character had eight children, which did not correspond to his personal experiences.

A few students also noticed differences in customs and religions. A girl said, for example, "I think in Paris (…) there was something about [um] about celebrations. (…) There were a lot of different celebrations than what we have in Australia" (AUS_WEHO2197g_2). Having played a character in Thailand, a boy recalled, "I was a Buddhist (…). And their religion is quite different to ours" (AUS_SBCB8808b_1).

Although differences were more striking than similarities, some students also mentioned that the main stages of life were the same no matter where one lived and that particular events could practically happen anywhere. Particularly the boy who was not too enthusiastic about *RealLives* felt that all the lives were pretty much the same (AUS_BRKA0000b_2). All characters would grow up, get some sort of job, have a relationship or family, and die in the end. Other students noticed similarities in living standards in Australia, North America, and Europe. One male student said about Canada, for instance, "They have the same things (…) we have in Australia, like cars, radios, health, publicity (*sic*) toilets, or whatever" (AUS_CHCH5287b_1). Another boy felt that "mainly it's just the same things that keep coming up, like floods, typhoons, war, and that sort of stuff. But that really could happen anywhere" (AUS_SBCB8808b_2). A female student found similarities to be more on a socio-cultural level. She said,

> *'A friend (…) has asked your opinion of something they've done wrong. (…) and you might not think it's good, but you don't know what to say.', (…) I think it was (…) in Thailand (…) or somewhere. And [um] like that kind of happens to everyone that like they have a friend and then their friend has done something wrong, but they don't know what to say to them (AUS_NOMI0551g_2).*

This student concluded that "each country kind of has like its own problems or ups and downs and stuff" (AUS_NOMI0551g_1).

Using *RealLives* also encouraged students to look at themselves from a different perspective. A male student, for example, discovered that it is

> *pretty strange, like (…) we're Australian, right? And we got like a (…) let's say (…) a person that you'd think (…) they're talking weird, but (…) they think you're talking weird, like just different. (…) Just people whose (…) religion and stuff, like the way you talk and stuff, people might think you're different, but to them* ***you're*** *different. (AUS_THGE2222b_1)*

### 4.2.2. Intercultural Sensitivity

The findings in this section show the connections between students' use of *RealLives* and their intercultural sensitivity, comprising the attitudes of curiosity and discovery, openness

and flexibility, empathy, and ethnorelativism. Since the students at the Australian school did not mention respect, it is not included here.

*Curiosity and Discovery*

In their interviews, students generally agreed that using *RealLives* made them interested in learning more about other countries and cultures. One girl recommended using the simulation to everyone because "it's (…) the way to get people to be more interested in the different cultures" (AUS_WEHO2197g_1). When asked what exactly they found interesting on *RealLives*, many students mentioned the unfamiliar diseases and natural disasters, which play a major role in the simulation. One boy explained,

> *I'd be concentrating on more of the diseases (...)'cause they'd be really important. (…) Oh and (…) there would have at least been [uh] I'd say around 50,000 or 100,000 people die a year from either tornadoes or massive food starvation. (…) I got hit directly by two and lost a whole bunch of money. (AUS_AIPE4017b_1)*

Students were also interested in cultural aspects, such as traditions and food, "'cause cultural things always popped up" (AUS_BISH0811b_1), and in the daily life of people around the world. A girl said she was interested in finding out "what they do there and (…) what they go through every day (…). Yeah, the daily life and (…) what kind of foods and what (…) language they speak (…) and their religion" (AUS_DEJE5130g_1). One boy was disappointed that he could not find what he was looking for on *RealLives.* He explained,

> *I didn't exactly find what I was asking. (…) I would be interested in knowing like how they live, and their lifestyle, and a bit about their* ***food*** *(…), the way they build their houses, and their music (…), 'cause I'm a musician. (AUS_JOMA6335b_1)*

Experiencing different courses of life was interesting for many students. One girl said, "It would make me like really interested in like what happened at that age and (…) why they get like a disease or something like that" (AUS_FRJO1239g_1). A boy was most interested in "the way they grow up (…) and how they're (…) made to have a job when they're like 12 and that" (AUS_SBCBC8808b_1). Students also wanted to find out "how old people would live up to at the moment (…) in different sorts of countries (…). Yeah, the average age and (…) what diseases people have (…), what the weather's like" (AUS_JADA9653b_1). Several boys were also interested in different currencies (AUS_JAGU9837b_1, AUS_THGE2222b_1, AUS_AIPE4017b_1).

*RealLives* also provided students with opportunities to explore countries they were interested in, but unable to go to, such as Afghanistan and Pakistan, for example. One boy

wanted to go to "Pakistan (…) places sort of like that in poverty, hunger. (…) 'cause you hear about it and how they're struggling and (…) it shows us what's (…) going on and that. It can tell you about it" (AUS_SBCB8808b_1). Another boy explained,

> *I haven't been to anywhere around the world. I've only been in New South Wales and a* ***little*** *bit of Victoria and I wanna actually know like what's going on there (…), what is different to Australia than it is over there, like (…) is it a better school, do you learn more, how happy are you? (AUS_CHCH5287b_1)*

Other students were particularly interested in exploring their parents' or grandparents' birth countries and neighboring countries. One boy said,

> *I would try probably Papua New Guinea. (…) Just to see how they live over there, 'cause it's pretty much our neighbor. (…) I just wanna see the difference in how we live to (…) how they live. It's so close. (AUS_BISH0811b_1)*

Another boy explained that using *RealLives* had brought back childhood memories: "When I was very young, I went to America and I don't remember much, and just like playing in America makes me wanna go back" (AUS_JOMA6335b_2).

*Openness and Flexibility*

Using *RealLives* also made some students more open-minded, as this quote shows:

> *I think it gave me a bit more of an open mind to (…) learn a bit more about other cultures, like to be open-minded and (…) not just block out other cultures (…). Like I've always been involved in other cultures, but it kind of made it a bit more exciting, and like you could learn, but you could have fun. (…) it's really appealing to me and like everyone I know. (AUS_WEHO2197g_2)*

She also added, "I think it would give me a bit more interest to ask them how they live (…), to ask where they live and (…) how different they live from playing *RealLives*" (AUS_WEHO2197g_1). Other students mentioned that using *RealLives* could reduce fear and facilitate intercultural communication by providing information and experiences that could serve as a basis for conversation. One boy said, "I wouldn't be too embarrassed to talk to them 'cause of the different culture [um…] I would (…) try and get to learn more from them" (AUS_JOMA6335b_1). Another boy stated, "I'd ask some questions that I've actually learnt in *RealLives*" (AUS_CHCH5287b_1). A girl felt that it "would be like really fun like asking them like 'Oh, did this happen? When did that happen?' and like compare it to *RealLives*" (AUS_FRJO1239g_1). Another boy believed that after using *RealLives* it would be easier to communicate interculturally because "you know what people in China or something like that are more likely to do" (AUS_JADA9653b_1).

Neither students nor teacher believed that using *RealLives* could lead to the development of prejudice or stereotypes or could keep students from wanting to visit other countries. The teacher said, “I think with Year-7s, (…) it’s actually positive, ’cause (…) it actually opens up the world to them and shows them the world is not (…) always middle class Australia” (AUS_Teacher_1). Some students, however, did show signs of overgeneralization and their underlying ideas were not necessarily accurate. One example is the boy who concluded,

> *China has way too many people (…). I don’t think there’s enough room to move around in China. It’s like you’re cramped up, isn’t it? (…) India (…) I think everyone might die over there ’cause they were not getting enough food and stuff, like they’re all dyin’. It’s a drought. (…) Canada [um…] you can easily get sick over there (…) ’cause in that game it said that like three years someone’s got the measles and a cold and flu and (…) that’s really weird. (AUS_CHCH5287b_1)*

He also added,

> *When I was in Australia, I got 96 happiness (…), but when I moved to Canada, (…) it moved down to something like 75. So obviously Australia makes you more happy, ’cause of the Gold Coast, (…) maybe because there’s a theme park there? (AUS_CHCH5287b_1)*

With regard to flexibility, using *RealLives* required students to deal with unknown situations. When characters were taken out of school, could not go to university, or get the job they wanted, for example, students had to adjust their playing strategies. One girl recalled, “It was like really easy to (…) get kicked out of school and (…) it’s not that easy to find a job there either. (…) And you couldn’t like start a business (…) if you didn’t go to school” (AUS_FRJO1239g_1). A boy said, “Didn’t go to college ’cause they wouldn’t let me (…) had a job as a (…) garbage collector (…) ’cause the other ones I didn’t have the degree for” (AUS_JADA9653b1_1). Another girl remembered about the difficult job situation in Ethiopia,

> *It was like really hard to get them to make some money. (…) even when they made money, like it wasn’t much. (…) It wasn’t like something you could live on. (…) And also they had to work in really hard jobs for a lot of time. (AUS_NOMI0551g_2)*

Students also had to deal with war and natural disasters, which they had never experienced, and had to be flexible and find solutions to keep their characters alive. One boy recalled,

> *Some countries were at war all the time and so it’s sort of really hard to survive over in those countries. So you need to emigrate or sorts of stuff. (…) And some people don’t really have (...) enough money to immigrate. (AUS_CHCH5287b_2)*

A girl said, “There were tsunamis and [um] I moved over to another state (…) in [uh] China. (…) I tried to move to France, but that didn’t work out. I didn’t have enough money” (AUS_WEHO2197g_1).

Using *RealLives* in groups also encouraged the development of openness and flexibility. Teammates did not always share the same opinions and ideas; they had to be open to different ideas and compromises to be able to play out a life together. As mentioned earlier, this was not always easy for students, and one group even split up. The other groups managed to find compromises, whereby students learnt about their peers’ opinions and ideas.

*Empathy*

The observations showed that students were cheering, putting their hands in the air, and shouting “Yes!” when something good happened to their characters and were sad, disappointed, shocked, frustrated, or angry and shouting “(Oh) no!” when something bad happened. Thus, students seemed to identify with their characters to some extent.

Most students also talked about their *RealLives* experiences using the first person singular. A boy said, “I got turned down — a lot! (…) I was not a happy person” (AUS_AIPE4017b_1) and a girl remembered, “I had children. (…) And [um] I think I got married [um], my Mum and Dad died about when they were 64” (AUS_FRJO1239g_2). Some students switched between the first and third person singular — sometimes to distinguish between their own actions and the things that happened to their characters, sometimes to distinguish between themselves as players and themselves as the character. One boy recalled,

> *I got married at the age of 18. I had three kids. I had my last one when I was 32 and then (…) he got a job, he got, I think it was 12,000 dollars a month for working at mines and then I, and then he, I asked for a raise, and then I got fired. (AUS_BISH0881b_1)*

Another boy said, “My guy was rich, so, and I could collect everything I wanted, like afford everything” (AUS_JADA6953b_2). A girl talked about a previous character in the third person, but used the first person for her most recent character:

> *One was from South Africa. (…) her name was Na, Nintano or, I can’t pronounce it. (…) she was the only child. And today I was from Peru, and my name was Laura, (…) and I had two sisters, I think, and a brother. (AUS_DEJE5130g_1)*

Only one girl almost exclusively used the third person singular when talking about her characters. She said, for instance, “The one I played the most was an Australian person. (…)

her name was Amanda, (…) she was a biologist" (AUS_NOMI0551g_1). Nevertheless, she said she empathized with her characters and had feelings for them:

> *It makes you feel kind of like disadvantaged (…) and (…) a bit sad that like here in Australia or like in other countries, like in Germany, or Europe, or somewhere (…) people have a lot more opportunities (….) they might not have heaps of money, but they've still got the opportunity to (...) go to school and get a job and (…) going to uni. And like make a good like lifestyle. And these people like in Ethiopia like they don't have kind of anything, like any opportunities. (…) they don't even get to go to school. (AUS_NOMI0551g_2)*

Other students also mentioned that they felt sad when their characters died at an early age, could not go to school, or had to suffer from illnesses or starvation.

Identification with characters seemed particularly strong when students discovered connections with their own life, as this quote shows: "My Dad got diabetes and my Dad **does** have diabetes. (…) it's like my like own life" (AUS_FRJO1239g_2). Such connections were often perceived as "weird" or "creepy". The girl explained, "It was like you're another person. Like (…) you go into another character's life and, yeah, it's really weird" (AUS_FRJO1239g_1). A boy said, "That's what's (…) pretty creepy because (…) there it's like 'You've got whooping coughs' or something like that, and I'm thinking 'This character is really me!'" (AUS_CHCH5287b_2).

Another aspect that increased students' identification and empathy with their characters was when characters were of the same sex. Some students assumed this would automatically be the case and only became aware of the fact that it was not when their character started a relationship. Particularly male students wanted characters to be of the same sex as this made it easier to relate to them. They therefore preferred setting up male characters. When characters were not of the same sex, students rarely adjusted their playing strategies and nonetheless based their decisions on their own beliefs, values, and norms. This was usually not a problem, except for the one time when the girl playing with the two boys wanted to "do girly stuff for the guy" (AUS_THGE2222b_2), which the boys did not like.

While most students put part of themselves into their characters and were able to identify and empathize with them to some extent, girls generally showed more empathy than boys. One girl even tried to take on her character's role and to act as if she was that person. She explained, "I thought about what I would do (…), if I was actually living that life. If I was a Chinese. (…) I made the decisions that were right for that, that case" (AUS_WEHO2197g_1).

*Ethnorelativism*

The ways in which students made decisions and talked about their *RealLives* experiences showed that they were generally acting in an egocentric and ethnocentric manner. As mentioned earlier, students selected leisure activities that they personally liked and that were popular in their culture, such as sport, music, and watching TV. They based their decisions on personal experiences rather than their characters' particular living circumstances, for example the boy who immigrated to Thailand because he had enjoyed his vacation there (AUS_SBCB8808b_1). Students were making decisions largely from their personal point of view and were pursuing goals typical in their culture, such as completing school, going to university and finding a well-paid job, without much consideration of their characters' countries and cultures. They were often shocked, frustrated, or angry when being "kicked out" of school, unable to go to university, or to find a reputable, well-paid job, which they considered normal. Many students preferred creating Australian characters as their lives were usually easier, better, and longer.

Students frequently compared their characters' lives with life in Australia; they emphasized the differences between these lives and tried to protect and maintain their own cultural identity. After playing in Fiji, a girl summarized, "I think I had like one car, two TVs, and I think it was two phones. (…) like that's normal, but (…) I think there was a tsunami or something, and like that doesn't happen in Australia, but I've heard that it's pretty common there" (AUS_WEHO2197g_2). Another girl recalled,

> *The Australian one was like normal because like stuff like that can happen to anyone, like getting breast cancer. (…) But (…) the one in Brazil probably (…) shows you what it's like to live in a really poor country where people don't have as much, like poor areas [um] in some countries and like in the one in China when the government isn't as good. (AUS_NOMI0551g_1)*

One Indian-Australian boy, who almost exclusively re-played his family history by having Indian characters immigrate to Australia, also considered life in India normal, although characters died at an earlier age there, for example.

Some students openly expressed preference of their home country and culture over those of their characters, whose lives were often not as easy and luxurious. A girl said, "I had a look at (…) their roads (…). They looked pretty (…) okay. [laughs] I like ours better. (…) I went around and had a look at other peoples' who lived in China. Their places were a bit nicer" (AUS_WEHO2197g_1). She preferred the streets and houses in Australia, but also acknowledged that other Chinese lived in nicer houses than her character. Comparing his personal life with those of his characters in developing countries, a boy said, "My immune system is a lot better than most of the people over there" and "at age 45, I'd have a lot better

education skills" (AUS_AIPE4017b_1). He admitted that using *RealLives* had shown him "how good we've got it in Australia" and explained, "We keep saying we live in a lucky country. My guess is some kids paid no attention until they played that game. 'Cause we do" (AUS_AIPE4017b_1). Thus, using *RealLives* encouraged students to appreciate their own country and culture more and not to take everything for granted. Reflecting on his virtual experiences in developing countries, this student added,

> *A few people couldn't bear to live there. Once, 'cause (…) they can't go shopping, wouldn't be able to go to the beach, or they would, but the beaches wouldn't be too good, and a whole bunch like that. It would be less civilized. (AUS_AIPE4017b_1)*

Nevertheless, he said he personally "would not mind living over there" and would like to "get the Government to send a whole bunch of money over there" (AUS_AIPE4017b_1) to improve the situation. Another boy expressed a similar desire to help:

> *Some countries really, really have bad cases of [um] of diseases and stuff. (…) sometimes I just wish that I could help 'em, like people could, would help (…) some countries have been really, really wealthy (…) but yeah, they don't really care about other countries. They just go 'Look, our country is wealthy! Who cares about the other ones?' And they don't really help any other countries. (AUS_CHCH5287b_2)*

Despite preferring their own culture and life in Australia, students usually did not show an arrogant or superior attitude.

While the positive experiences of Australian characters on *RealLives* supported students' ethnocentric views, some students also made negative experiences in Australia while others had good lives in poorer countries. A boy recalled,

> *I think the first life or second I go 'Yeah, let's immigrate!' I committed suicide from that at age 45. (…) I've made a lot of money, immigrated to Australia, and it was over (…) stress. (…) Or like (…) some of my kids [um] died and committed suicide because of depression. It's like, you know, perfectly making a lot of money, perfectly normal life and you just become sad (…) and you die. (AUS_AIPE4017b_2)*

A girl said about her virtual life in Australia,

> *There were (…) a couple of things that were not as good (…) the person's son died, and then the Mum got breast cancer and the daughter got [um] raped, too. (…) it was a good life, but it had like ups and downs. (AUS_NOMI0551g_1)*

On the contrary, another boy recalled, "I was a professional athlete in [um] Philippines and I was earning [um] like six billion over there" (AUS_BISH0811b_2). Such experiences can counteract the development of stereotypes and ethnocentric attitudes.

# CHAPTER FIVE

## FINDINGS CASE 2 — THE SWISS SCHOOL

This chapter presents key findings from the Swiss case study. In the same order as in the previous chapter, the first section focuses on the use of *RealLives* and classroom interaction (5.1), the second on the connections between the use of the simulation and students' intercultural awareness and sensitivity (5.2).

### 5.1 Use of and Interaction with *RealLives*

This section presents the most important findings regarding the use of and interaction with *RealLives*, including how students learnt to use the simulation (5.1.1), their strategies and patterns of use (5.1.2), classroom interaction (5.1.3), and difficulties and problems (5.1.4).

#### 5.1.1 Learning to Use *RealLives*

According to the survey responses, two thirds of the students had already used *RealLives 2007* on their tablets before the study. In the interviews, all students except for two (SWI_SAJO7622Eb_1, SWI_ASSE8469Eb_2) said that they had used this version of *RealLives* before. One girl stated, for example, "I've played it like five times (…) this year, but I played it quite a lot last year as well. (…) last year we did it on our own, because (…) we didn't have to do it in class" (SWI_DEAL0120Ag_1). Another girl explained,

> *We found it last year when I was in sixth grade and [um] [laughs] everybody started playing 'cause (…) we really enjoyed it. (…) Someone came (…) across it when they were like going around on the computer (...). And then they told everybody about it. (SWI_JUGL0000Ag_1)*

Yet another girl recalled,

> *Last year in 6th Grade we played sometimes at lunch. (…) in the library (…) I don't know how they learnt to (do) it, but all we pressed was Live a Life, Live a Life, and then we always laughed about what comes up. (SWI_EDRA4822Dg_1)*

Other students mentioned that they had used *RealLives 2007* during Technology and Art lessons before.

Students' experience with *RealLives 2007* varied considerably. Two students said, "We played almost every recess" (SWI_CLMO7733Eb_1) and "I have played it over 20 times in, including last year, if you count that. But this year only very few times" (SWI_TESC0986Gb_1). Other students had only used it "probably once or twice" (SWI_TIAN3811Cg_1) and "once or twice in lunch" (SWI_MORA0000Cb_1).

Students enjoyed using *RealLives 2007* because it was "very fun and interesting" (SWI_EVTA6734Ag_1), but they preferred the 2010 version, which they perceived as "more easy to navigate" (SWI_DENI7370Cb_1) and "easier to get around there (…) it's got all the extra pages and more information, and it's more visual" (SWI_TIAN3811Cg_1). Another boy felt that *RealLives* was "more modern, so more modern things would happen. Not like past events" (SWI_TADU0065Cb_2). One boy said about the 2010 version,

> *I prefer how like you can see your faces (…) There are a lot more options like [uh] you can view your stats and you can view different things about the country. (…) I don't think you could do that in the last one. (SWI_EWGR8796Cb_1)*

A girl preferred *RealLives* because "the other one was too simple. This one's more, like has more details and stuff (…) more functions and more information" (SWI_EDRA4822Dg_1). Another girl believed,

> *You can control more what you are doing. You have more decisions. There, (…) you just have to click on 'Age a Year' all the time and then some stuff would just come up. And there you have a control over what you wanna do. It's really nice. (SWI_LAJE4386Dg_1)*

Although the functions were very similar on both versions, many students had not discovered them as they had only clicked Age a Year on *RealLives 2007*.

Nevertheless, students considered themselves competent users of *RealLives*, which, for them, was "just like any odd, normal computer game" (SWI_SAJO7622Eb_1) and "really simple" (SWI_TIAN3811Cg_1). One girl said it was

> *quite easy (…) 'cause all you have to do is click 'Age a Year', and then it will tell you stuff, but if you wanna take any other things, like get a new job, you just have to go on the little icons at the top, and it will show you what to do. (SWI_DEAL0120Ag_1)*

Another girl appreciated the fact that "you don't need to use all the arrows and the keys. You just need to (…) click enter or 'Age a Year'. (…) So it's not that complicated" (SWI_EVTA6734Ag_1).

When asked how they had learnt to use *RealLives*, students replied, "I found that out by myself. (…) You just click 'Age a Year' and just keep clicking that until you die" (SWI_EVTA6734Ag_1) and "It's very similar to the old one. (…) I just sort of experimented and (…) figured it out" (SWI_EWGR8796Cb_1). Another girl said, "It's pretty simple, and it's all laid out very well, and it's easy to use. (…) you can just go explore and then you (…) know what you're doing" (SWI_JUGL0000Ag_1).

A few students had some difficulty in the beginning, but quickly learnt how to use *RealLives*. A boy remembered, "In Technology, we played some games and somebody said

'Try to play *RealLives*!', and I said, 'I don't get that game. That's boring.' And then we played it, and now I really like it" (SWI_CLMO7733Eb_1). A girl recalled,

> *I only found it difficult at the very beginning, (…) but then I got used to it. (…) last year when I tried to play, 'cause I didn't know what you were supposed to do there, so I (…) asked the people who were playing around there what to do, and then they explained, and then it was okay. (…) they kind of somehow learnt from the other 7th-Graders. (SWI_LAJE4386Dg_1)*

In the first lesson with *RealLives*, the teacher explicitly asked the students to click through the different pages, to explore and experiment with the new version. He pointed out important information, looked at the Configure Issues screen together with the students and explained sensitive issues that could come up in their lives, particularly rape.

Most students were able to use *RealLives* quickly and without difficulty. A girl who was not familiar with *RealLives* explained how over time she had become more proficient:

> *My first turn, I wasn't so sure on it, so I read everything very carefully, and now it's kind of free and (…) I can work a little bit faster and get through the years a lot faster. (…) it does help if you get a little bit of an outline what happens, so then you can work faster. (SWI_JODA8530Dg_2)*

When they did not know how to do something, students either used trial and error methods or asked their peers or the teacher, sometimes also the researcher. A girl recalled,

> *I had a couple of difficulties with spending stuff (…) it (…) gave me three choices, get a loan and reduce spending or get a job to help that, so I first tried getting a job, but it didn't really work that well. So then I clicked Reduce Spending and it came up with all these choices, so I would go with the average stuff, so I'm not spending too much or too little and then sometimes it would say 'Fine', but other times, it would just be like I still have to do more of that, so it was really annoying trying to figure [laughs] out what to do. (SWI_DEAL0120Ag_1)*

A boy said, "I had (…) a few problems at the start 'cause I didn't really get it. (…) I just asked a few friends how they've do (*sic*) it" (SWI_ASSE8469Eb_2). Students often asked peers how to start a business or invest. One girl recalled, "Today I started a business, and I wasn't sure how it worked, so I asked one of my friends" (SWI_MACA9821Dg_2). Nevertheless, some students failed to master these functions, as this quote shows: "I haven't really invested anything 'cause I really found that confusing. And getting loans. I never really got that. (…) It is really confusing for me. (…) I've been trying to (…) use it, but it just doesn't make sense" (SWI_TADU0065Cb_2).

Those who did manage to use the business and investment options increasingly focused on moneymaking and started competing with each other. During the second data collection, some boys were almost addicted to moneymaking, and the teacher had to remind

them repeatedly to keep living their lives and "let go of the greed" (SWI_Teacher). One boy explained, "Before, I always tried to do well in school and become a senior government official because that makes lots of money, (…) but then I started a business (…). And it really gets fun!" (SWI_TADU0065Cb_2). Another boy said, "I didn't know how to get money. I just got a job and then I didn't know how to get on. Now I know how to get really much money" (SWI_ASSE8469Eb_2). Some girls also became interested in moneymaking during the second round of data collection and consulted successful boys, who showed them how to run a business and invest. The boys enjoyed being treated as experts and were happy to show off their knowledge.

### 5.1.2 Strategies and Patterns of Use

Integrated into Social Studies, the use of *RealLives* was controlled and regulated by the teacher. He instructed the students which continents to choose and suggested particularly interesting countries, told them which options (not) to change in the Character Designer, to look at particular pages, and to use the Learn More option to collect information for the comparison task. Nevertheless, the students were in control of their *RealLives* use and learning to some extent; they developed their own goals and strategies and also focused on aspects other than those stipulated by the teacher.

Students mainly used the Action, Self, and Family pages, but also looked at the Country and Stats pages as instructed by the teacher. One girl explained, "The Action one is quite good because you can do lots of things and see what happens" (SWI_JODA8530Dg_2). A boy declared, "I love the Actions, 'cause you can do **so** many different things and like you can pick a new job, (…) you can [uh] adopt a child, you can [um] choose your leisure activities" (SWI_TESC0986Gb_1). Students used practically all of the actions, particularly the ones related to career and family. A boy recalled, "I tried the adopting, (…) having a kid, and (…) I tried this working overtime and seeing if I could get a pay raise for my character" (SWI_TESC0986Gb_1). A girl explained, "Sometimes I ask for pay raises and work overtime, and I enrolled in this (…) third college with this one person. And then you can adopt children and have children" (SWI_TIAN3811Cg_1). Some students did not emigrate or use the more advanced business and investment options, like the boy who said, "The [uh] borrowing money, I haven't used that. Or immigration (…), 'cause I like to stay in one country" (SWI_ASSE8469Eb_2).

Some students used the Stats page to track the development of characters' attributes and income and use this information for decision-making. One girl explained, "Every maybe five years, I go to my status and check if I've been making progress or not, and I try to make

it balanced. (…) I try to improve some (graphs) that are red or [uh] I try to stay if it's either green or blue" (SWI_ELAL4346Cg_2). A boy said, "I often go to Stats to see my wealth and also to Family, like to see if I have different cars, for example" (SWI_ASSE8469Eb_2). Another boy said he did not use the Stats page because "it's just like money and it goes up and down (…) don't really care about that. [laughs]" (SWI_CLSI0075Ab_2).

On the Family page, students checked their assets (e.g., wealth, number of cars, telephones, radios), which they often compared with their classmates. A girl said, "It's got (…) everything that you need to know, really. (…) how much money you're making, and (…) if you've got a lot of cars, or if you're struggling to even keep a house" (SWI_TIAN3811Cg_1). Students also looked at their family members' pictures and used the family tree to keep up with family development and the number of children.

As instructed by the teacher, students used the Country page to collect information for the comparison task. One girl explained, "I used the Country and I looked what's there (…) so I can write about it" (SWI_JUGL0000Ag_1). Another girl said it helped her orientate:

> *The Country page? That's really helpful, 'cause sometimes I have **no** idea where I am. (…) Like in England, I was living (…) close to where my grandma lived. (…) at first I had no idea where I was. So I went there and looked and then I found I was living close to where my grandma lived. (SWI_JODA8530Dg_2)*

### *Creating Characters*

As the students at the Swiss school had to compare lives in Europe and South America, in urban and rural places, they had to create characters with the Character Designer. Most students already knew how to do this; others received help from the teacher. Initially, the teacher instructed the students to only choose their country, but when two neighbors were given characters with the same name in the same place, he realized this did not work. The researcher and a girl told the teacher that one could either lead a completely random life or had to select all the options in the Character Designer, whereupon the teacher instructed the students to alternate places and gender, but not to manipulate their character attributes, so that they would have an average life. Some students nonetheless changed them. A girl admitted, "I made it so she was (…) 100%"; she said she was "kind of playing around" (SWI_JUGL0000Ag_1). A boy reprimanded a girl for maximizing her character's points by saying "That's cheating!" and "That's not really what life would be like then!" (Group E, 2009-09-15), but she disagreed. Some boys also selected countries they were not supposed to play in because they were interested in them (e.g., Afghanistan and Somalia). One boy accidentally created a character in Papua New Guinea, which he believed to be in South America. Trying to ensure students were following his instructions, the teacher repeatedly

reminded students to choose only countries in Europe and South America and asked individual students which countries they had selected.

When creating characters, students often chose names of famous people, such as Michael Jackson and Albert Einstein, or of classmates. They enjoyed telling their peers how "they" were doing in their lives, which the students whose names were chosen liked. Students also often named their characters' children after their classmates.

Students mostly created characters in countries they had lived in before, which was possibly due to their extensive experience living abroad. One boy said,

> *I played (…) maybe eight lives and most of them I lived in (…) Costa Rica and Argentina. (…) I like playing there because I (…) used to live there. I lived [uh] in Argentina for five years and in Costa Rica for six. (SWI_CLSI0075Ab_2)*

Another boy recalled, "I wanted to emigrate to England, 'cause I (…) was born there. (…) it's a bit personal, yeah" (SWI_SAJO7622Eb_1) and a girl explained, "I chose the UK 'cause that's where I come from" (SWI_JUGL0000Ag_1). Another girl said that she had re-played her own past:

> *I kept moving one of my characters around, seeing how it would cope and stuff. And that's kind of how I felt when I kept moving around. So I just wanted to see how it was, like for somebody else. (…) It was a little stressful for them and I think that happened to me as well (…) it's cool how everything comes together, and it's so real. (SWI_JODA8530Dg_2)*

Some students wanted to learn more about the countries they were born in, like the boy who said, "I am living in the Czech Republic. And I picked that because I was born there (…) but I, I don't remember it 'cause I lived there for three years. So I wanted to (…) learn more about it" (SWI_EWGR8796Cb_1).

Particularly girls also selected countries they had other personal connections with. One girl selected England because her brother went to boarding school there (SWI_EDRA4822Dg_1); another girl wanted to play in Denmark because her mother had traveled there and liked it (SWI_JIMA7266Gg_1). Another girl said, "I kind of (…) wanna live like an Indian life 'cause we went to India the one time and some of their lives are hard" (SWI_TIAN3811Cg_1). Yet another girl explained,

> *In 10$^{th}$ Grade, they offer a program where you can go to Macedonia or Romania and build houses, and that's what I wanna do in 10$^{th}$ Grade. And that's what I convinced my sister to do. So she's going to Macedonia. And then I lived a life in Macedonia and I was like telling her about it. (SWI_KALE4865Eg_2)*

Some students were also interested in exploring countries they did not know much about, for example, the girl who said, "Most was in South America because (…) I haven't been there. (…) I don't know a lot about it, so I'd like to learn about that" (SWI_JUGL0000Ag_1). Other students selected their countries rather randomly. A boy said he chose Andorra "because it's just really cool and tiny [laughs], and it's just in between, at the end of a river" (SWI_ALAN0000Ab_2) and a girl explained, "I've never been to Ireland. I don't even know why I chose Ireland. I just picked a random one" (SWI_EDRA4822Dg_1).

*Decision-making*

Although students were aware of their task and the reasons they were using *RealLives*, they did not always follow the teacher's instructions and were not all using the simulation in the same way. One girl said,

> *I think that [um] this is a game, but still (…) we should take it serious because (…) we're supposed to learn by doing it. (…) I think that we should live the life as if we were living it and how we would want to live it. I wouldn't want to get children with 15 or something [um], so I think that we should make really clear decisions. (SWI_EDRA4822Dg_1)*

Other students did not take their virtual lives so seriously. One girl stated she would simply "do what I'm told to do" (SWI_EVTA6734Ag_1); others enjoyed experimenting with the simulation. A girl said, "It's kind of fun really to live (…) another person's life and make all these silly decisions. You get to find out what, if you were that person, what would have happened" (SWI_DEAL0120Ag_1). A boy liked trying different things because

> *maybe (…) you wanna know how you can improve on something, and it might help you with that (…), like if I wanted to be more fit, I could try out things on that and see which one works the best. (…) and if like you're being pressured to like smoke or something, you can try it on there and see the consequences, which I like. (SWI_DENI7370Cb_1)*

He also admitted, however, "I do like to take the occasional risk because (…) it's exciting and because I like to see like what (…) happens afterwards" (SWI_DENI7370Cb_1). A girl wanted to compare the outcomes in the simulation with her own experiences. She said,

> *I don't like lying to people at all. (…) I've said 'Yes' once, that like I'll give her untruthful information, and she found out (…) that happens a lot in our grade here (…), so I was like 'I knew that was gonna happen!' Yeah, just to see how, say, maybe she got away with it. (SWI_KALE4865Eg_2)*

Some students stated that the ways in which they used *RealLives* varied according to their mood; others said it depended on the particular character and situation. One girl said, "It

depends how I feel. Sometimes I feel like achieving something, sometimes I wanna go down a different route and see what happens" (SWI_JODA8530Dg_2). Another girl recalled, "Sometimes I tried only good lives, sometimes I tried bad ones, just to see what sort of impact it has on your person" (SWI_TIAN3811Cg_1). A boy explained,

> *It says, 'Would you like to kick your daughter or son out?' I was like 'No, I could never do that!' (…) kicking out a child (…), but maybe, I don't know. I think it just depends on the situation. (...) I cannot really tell what situation (…) it does vary from one thing to another. (SWI_TESC0986Gb_1)*

The choices and decisions students made in their virtual lives were usually a mix of personal beliefs, values, and preferences and character-based decisions. One boy recalled,

> *For my free time, I always picked studying, even though I don't do it (…). I just thought it would (…) get me a good job, if I study all the time. And then I, I picked sports and outdoor activities 'cause I* ***do*** *do that. (SWI_EWGR8796Cb_1)*

A girl said,

> *I'd go along what I would think would happen, like the usual age to get married for me (…) is like about 30, and so I'd go along (…) those lines, and try to go to college (…), 'cause that's what I would do anyway. So I kind of base it on the lines of what* ***I*** *would do as well. (SWI_JUGL0000Ag_1)*

Another girl explained,

> *Well, I normally choose what I'd like to do, but [um] I always do 'Read and Study' because I want my character to have a good life [laughs] (…) I also do 'Play and Socializing' 'cause I think socializing is important, or the person will be alone and not have fun in the future. And then [um] the fashion one 'cause I think the person should also know how (sic) they're (…) wearing and have some fashion. And [um] the (…) sports, 'cause the person should be active (…). Well, it depends sometimes (…), 'cause if I'm a boy, I'd probably do more activities. (SWI_MACA9821Dg_2)*

As mentioned earlier, some students checked the Self and/or Stats page to identify their characters' strengths and weaknesses and to see which attributes needed improvement and based their decisions on this information. One boy stated,

> *I like check it [uh] a couple of times and I just see what's going down and how I can change it by changing my leisure time activities. (…) if (…) let's say, artistic scale is 100, and [um] sports is down to like 30, I would change from art to sport as one of my things to get sports higher and only leave a slight bit of art. (SWI_SAJO7622Eb_1)*

Several students enjoyed trying things on *RealLives* that they wanted to do in their own lives in the future. A boy said, "I clicked a writer 'cause that's what I want to be, and (…) you can sort of just (…) test it out. So it's fun" (SWI_EWGR8796Cb_1). Another boy

described using *RealLives* as “almost like a competition with myself sometimes, to see how great I can make my character” (SWI_DENI7370Cb_1). His aim was to “live like the best life that I can” and he felt he had “made a lot of right choices and (…) pretty much did a life that I think I would like to have” (SWI_DENI7370Cb_1).

*Using the Learn More Option*

Although students were instructed to use the Learn More option by their teacher, not all of them used it all the time. One girl believed, “I don’t really need to learn more because I’ve been playing it for over a year, so I feel I don’t need to know any more about it” (SWI_DEAL0120Ag_1). Some students forgot to click on Learn More and only realized this when it was too late. A girl recalled, “I only clicked about Learn More once she died, because I wanted to know more information about why she actually died (…) lymphoma. I don’t know what that is because I didn’t click the Learn More section” (SWI_EDRA4822Dg_1). After that, she was using Learn More more frequently.

Other students used Learn More more often. A boy explained, “If I don’t know, I ask the teacher or click on ‘Learn More’” (SWI_CLMO7733Eb_1). A girl stated, “I’d hit ‘Learn More’ about everything and read that” (SWI_KALE4865Eg_2). Another boy said he used Learn More, “most of the time” as it was “very good information” (SWI_CLSI0075Ab_2). He explained, “When I see something that, like a fire or something, that I find interesting, I just click it to learn more about that thing, but if I see something that I don’t really care about, I don’t click” (SWI_CLSI0075Ab_2). One boy felt that the use of the Learn More option “just depends on the person”; “if you really wanna [um] click on the Learn More button, then you’re more about learning. But if you just wanna keep on going through the thing, you’re just more about playing” (SWI_TESC0986Gb_1). About himself he said,

> *I like to definitely [laughs] learn more. (…) pretty much every time. Not if it’s like the same thing, such as ‘Oh, [um] your son has a girlfriend.’ Then (…) I’m not gonna click on that ’cause (…) I don’t need to know the stats of the girlfriend. I just need to [um] know who it is. (…) if it’s something such as ‘You’re being drafted into the military’, then I’m definitely gonna click on that to see how many people are drafted in a year and (…) how long you have to go for it. (SWI_TESC0986Gb_1)*

Most students used Learn More when something came up that they had a particular interest in, or a word, particularly a disease, they could not understand. One boy recalled,

> *If I (…) thought it was an interesting fact, like there are Catholics (…) more in Brazil than anywhere else, (…) I clicked on it. (…) if there’s lots of disease, I’d click on it, or like earthquakes, and then the facts will pop up. (SWI_MORA0000Cb_1)*

Another boy said, “When I don’t understand things or (…) just wanna find out more about things, I usually click that” (SWI_DENI7370Cb_1) and a girl explained, “If it was a disease that I didn’t know of, then I’d always click Learn More, and I would know what that disease would be” (SWI_EVTA6734Ag_1). Another girl said, “If I click on it (…) and I see something interesting, [uh] I click on Learn More and I learn it more and I just note it down” (SWI_ELAL4346Cg_2).

*Focusing on Money and Children*

Despite all having the same task, students focused on different aspects of their lives while using *RealLives*. When asked what he typically aimed for, a boy replied, “It depends. (…) if I can get a lot of money, that’s good. If I can get married, that’s good. (…) Like the kind of aspirations that a [um] normal person might have” (SWI_DENI7370Cb_1). Another boy said, “I always (…) wanna do the college, the vocational school, and the third one is graduate school. I always wanna do those (…). And then I wanna get a good job, and a wife” (SWI_CLMO7733Eb_1).

As mentioned earlier, boys in particular were extremely attracted by the business and moneymaking opportunities on *RealLives*. From the end of the first week of data collection onwards, many boys spent most of the time comparing their income, discussing businesses and investments, and perfecting their moneymaking skills. The teacher had to remind them repeatedly to continue living their lives, look for information about the countries, and “let go of the greed” (Group A, 2009-12-15). A girl complained about this by saying “Too many people were comparing how much money they had” (SWI_TIAN3811Cg_1). A boy admitted that he was interested in “only like my own income and that stuff. [laughs]” (SWI_ALAN0000Ab_2). He added, “I (…) usually don’t get really old and it doesn’t really matter to me because I’m like ‘Just get rich! Just get rich!’ [laughs]” (SWI_ALAN0000Ab_2). Another boy said, “I try to make a lot of money. (…) or have lots of kids. (…) I wanna make (…) a lot of money so I can move to different places. (…) I like to have lots of money. [laughs]” (SWI_TADU0065Cb_2).

Other students were interested in having many children, particularly girls. As one boy noted, “Most people were into child raising, [um] having children and that” (SWI_MORA0000Cb_1). During the lessons observed, female students frequently shared and compared information about their families and relationships with their friends. Some girls always tried to have a lot of children and were laughing every time they announced that they were pregnant or had a child (e.g., SWI_JUGL0000Ag_1). A few male students also liked to have a lot of children, mainly because they could compete with their friends and see who had

the most. One boy was disappointed when he found out that his character was infertile. He said, “Me and my friend, we always played who can get more babies last year. And so I can’t do that anymore in this life” (SWI_CLMO7733Eb_1).

Apart from their wealth and the number of children, students also compared other aspects, for example their character statistics. One boy explained,

> *We definitely (…) compare our lives, like (…) ‘Oh, I have so much money!’ (…) sometimes money isn’t the only thing that matters. And they’re like ‘Well, you don’t have as much money.’ I’m like ‘Well, really, that doesn’t matter to me.’ It matters that (…) my person’s having a good life. And also we like to compare our stats and stuff, if we have a clear conscience, how our family’s doing, and everything like that. Just the whole thing we like to compare. (SWI_TESC0986Gb_1)*

### 5.1.3 Social Interaction

During both rounds of data collection, the students were using *RealLives* in their Social Studies classroom together with the teacher. During the first round, the teacher was either at the front using his computer and an interactive whiteboard and talking to students from there, or he was walking around the room answering questions and offering help and support to students. The students were sitting in groups of four, two next to each other and two opposite, usually with same-sex friends. During the second round, students were sitting in rows facing the walls of the classroom and in one row in the middle of the room with two students facing each other. The teacher mainly stayed at the front during the second round of data collection to discuss homework with individual students. He only walked around briefly to hand back homework and overall interacted less with the students.

The classroom atmosphere was always pleasant and often lively. Students were frequently reading aloud, laughing and shouting “Oh my God!”, “Wow!”, “Yes!” and “No!”. In the first lesson, the teacher firstly allowed the students to experiment and familiarize themselves with the simulation. After about 15 minutes, he started giving instructions and telling students which pages and information to look at. The students generally followed these instructions and told the teacher about interesting information they found. They enjoyed sharing and comparing all kinds of facts and numbers with the whole classroom, but particularly with their friends/neighbors. Students were frequently looking at each other’s screens, exchanging their location, age, number of children, income, and so forth and comparing their characters’ points for happiness, intelligence *et cetera*. Students commented on others’ utterances and added their own experiences. When someone shouted s/he had died of some disease, others blurted out what they had died of, for example.

The students were usually quiet and listening whenever the teacher was lecturing, although some continued playing, pointing to their screens, and whispering to their neighbors.

During the first round of data collection, the teacher interrupted students' *RealLives* activities every 10 to 15 minutes to remind students of their task, point out important information and observations, and answer questions. Once the teacher had finished talking, students quickly resumed their lives and continued sharing and comparing what was happening.

Peer communication was crucial; even the quietest students needed to share their experiences every now and then. Some students even walked over to friends sitting further away to exchange what was happening in their lives, particularly during the second round of data collection, when they were not sitting in groups. As mentioned earlier, some girls asked more experienced boys to come over and show them how to make money, which the boys enjoyed. Apart from the fact that students were leaning over to others and walking around more due to the changed seating arrangements, there were no changes in classroom interaction visible during the second round of the data collection. The boys generally seemed more active, talking and walking around more, but also clowning about and teasing each other more; the girls were behaving more maturely, taking the activities and the teacher's instructions more seriously and taking more notes on their own initiative.

In the interviews, students said, "We share a lot. Like if we (…) get mugged or something, we will share it. It's just interesting to sort of compare the different countries when you're doing it" (SWI_EWGR8796Cb_1) and that it was interesting to "see what's up in other people's lives" (SWI_TIAN3811Cg_1). One boy explained, "We're like 'My, my business has made that much money. (…) my Dad died. I got kicked out of school'" (SWI_CLSI0075Ab_2). Another boy said, "I'm like 'Oh yeah, I made this much.' [laughs] (…) 'Oh, no! I have **that**?!' or something like that. (…) it's **funner** than like just sitting there in your room" (SWI_ALAN0000Ab_2). Students also shared "funny stuff that might have happened, or not funny, but unfortunate. (…) You fell down the stairs (…) or something like that, you got hit by a car" (SWI_TADU0065Cb_2).

A boy described using *RealLives* as "sort of social because you wanna tell other people what happened"; he felt that "it's better to play with more people" (SWI_TADU0065Cb_2). Likewise, a girl said,

> *I guess it's more interesting if you're with your friends 'cause then you can say 'Oh, my God, this happened to me!' or 'What's happening to you?' or 'How is your life going?' or something like that. It's kind of fun to interact (…). Like compare on how you're living (…) But it's also nice to do it alone. (SWI_MACA9821Dg_2)*

Another girl explained,

> *You **are** making your own life, but when (…) something interesting happens there, you just wanna say it because (…) it's just so interesting. (…) I'd say maybe it is kind of a group experience because you learn from others about what they're telling you and about their lives compared to yours. (…) if [um] my friend, if she's (…) living in a different country from me, I can see the differences between the two rural lives or urban. (SWI_ELAL4346Cg_2)*

One boy felt that using *RealLives* was "kind of like a group activity 'cause you talk about how your person's doing" (SWI_ASSE8469Eb_2). He listened to what his classmates were saying because

> *you could take that as a warning in case (…) they did something that's bad, for example start smoking, which I never really do in the game, 'cause I just wouldn't want to. And then that's kind of a warning not to smoke and not taking drugs. (SWI_ASSE8469Eb_2)*

Although sharing and comparing their experiences was important to all students, its frequency and volume varied considerably: Some students were talking quietly with their neighbors every now and then; others were shouting out almost everything that was happening in their virtual lives. One boy complained about this, asking his classmate reproachfully, "Why do you announce everything that happens to you?!" (Group C, 2009-09-16). The other boy answered that there was always something exciting happening in his life, which he wanted to share.

*Group Activities*

With everyone having their own tablet, students usually did not share characters. Only in a few cases, when students had technical problems with their tablets, were they working in pairs. In these cases, one student was normally watching while the other (usually the student whose tablet it was) was playing. There were hardly any discussions or arguments; however, one girl mentioned that she and her male neighbor disagreed when having to share a character due to a technical problem with his tablet:

> *I did another life with X, but he kind of ruined it, because he had a 14-year-old girl [laughs] with five children, so I let him have that life. (…) He got married with like 17. [laughs] I wouldn't have done that. [um] And he didn't go to college. [laughs]. (SWI_EDRA4822Dg_1)*

In this case, the girl yielded the life on her own tablet to her neighbor, disagreeing with what he wanted to do with the character.

### 5.1.4 Difficulties and Problems

As explained in the case profile (3.6.2), the students at the Swiss school experienced major problems when trying to register their copies of *RealLives,* which caused confusion and frustration, and some students even had to resort to using the 2007 version during the first few lessons.

Once registered, *RealLives* ran smoothly for the most part. The program rarely produced error messages that required students to abandon a life and restart. On occasions, students encountered bugs that would not allow them to invest or start a business, did not display statistics correctly, and caused all characters to have the same name. These, however, did not keep students from continuing their lives. A boy recalled, “The first few lives, it didn’t let me invest money and do businesses (…). It just wouldn’t let me put numbers in the bar” (SWI_MORA0000Cb_1). Another boy said, “I saved it and today it didn’t open and it didn’t work. (…) I saw it. It tried (…) and then it said ‘Integer value’” (SWI_CLMO7733Eb_1). Other students also had trouble opening their saved lives, but this problem was easily resolved by starting *RealLives* first and then opening the lives. Some students and the researcher knew this and informed those who were struggling. Moreover, a few students forgot to change their Windows theme at the beginning of the second round of data collection, so that *RealLives* was not displayed properly. Again, this problem was solved easily by reminding students to change their theme.

Since most students at the Swiss school were already familiar with *RealLives* when the data collection commenced, there were few questions or problems regarding the use of the simulation. As mentioned earlier, some students initially asked their friends what to do on *RealLives* and some had difficulty using the business and investment options, but these were not necessary to progress in the simulation and to gather information for the comparison task.

The main problem area was the understanding of difficult words. Students often did not know the diseases they encountered in their virtual lives (e.g., lymphoma, senile dementia, infertility, hookworm, and schizophrenia) and also asked about professions and subjects they were not familiar with (e.g., laborer, freight handler, forestry, and sociology). Several students asked what *academic probation* and *vocational school* were and what the terms *start-up capital* and *bond fund* meant. Some students were not familiar with the different currencies of the countries they were “living” in; others researched them on the Internet or knew them because they had lived in the country before.

When students came across something they did not understand, they either clicked on Learn More, asked their friends, the teacher, or even the researcher, looked up information on

the Internet, or used a combination of these strategies. One boy said, “If I don’t know, I ask the teacher or click on Learn More” (SWI_CLMO7733Eb_1). Another boy recalled,

> *It was certain sicknesses that I didn’t know, like (…) there was this really weird one that I just, my person just had yesterday. (…) then I just asked the teacher. (…) It’s also good (…) if you have a teacher there, ’cause he can explain things. (SWI_ASSE8469Eb_2)*

A girl explained,

> *I got stuck sometimes and I asked my teacher, but one time he didn’t know [laughs], so I was kind of stuck in there. (…) I think it was something about a government system because (…) in the game, they wanted to take my mother or my father to jail (…), but I wanted to like [um] get consequences and I asked Mr. X, but [laughs] he didn’t really know. So I had to go research it myself. (SWI_ELAL4346Cg_2)*

The teacher tried to help as much as he could, but did not always know a solution. When he was unable to solve a problem, he asked the students for help or the researcher. The teacher discussed questions that came up repeatedly or were particularly relevant in front of the whole class and, for example, gave just-in-time lectures on the terms *conscience*, *drafted*, and *multiple sclerosis*. He also told students that if they left their cursor on particular words, such as goiter, wasting, and stunting, the simulation would provide an explanation.

Students were usually creative and persistent in dealing with difficulties and problems. One boy explained, “If I’m not making enough money (…) I have to either reduce spending, get a job, or get a loan. I tried getting a loan, but then I didn’t understand how it worked, so I just reduced my spending” (SWI_TADU0065Cb_2). A girl said,

> *I am married and I have one child, but it took me a long time to get married because (…) I had to like get a lot of boyfriends, but a lot of them rejected me. (…) I had to like keep pressing the button finding new romances. (…) But then I seeked (sic) new romances and then finally I found another one. (SWI_JIMA7266Gg_1)*

Overall, the use of *RealLives* in the classroom went smoothly and students were able to play out a variety of lives and to collect information for the comparison task.

## 5.2 Development of Intercultural Awareness and Sensitivity

This section looks at the connections between students’ *RealLives* experiences and their intercultural awareness (5.2.1) and sensitivity (5.2.2).

### 5.2.1 Intercultural Awareness

Despite their intercultural experience, the students at the Swiss school felt that using *RealLives* had made them more interculturally aware. A girl believed, "*RealLives* is really good because (…) you can see some other peoples' lives, for example you could do lives in Africa, and then you could see how it's so different from what your (…) life is" (SWI_LAJE4386Dg_1). Another girl thought that through *RealLives*, individuals "can learn how (…) their life is very different to another person's life, and why it might be that way" (SWI_EVTA6734Ag_1).

Students also reflected on their own lives, learnt to see themselves from a different perspective and realized that their way of living is only one of many — and a particularly privileged one. One boy noticed that "there aren't as much people that have such nice lives and go to school and have safe water and safe food as us" (SWI_ASSE8469Eb_2). Another boy said that through *RealLives* one "can learn not to take stuff for granted (…) thinking that so many countries are so poor" (SWI_MORA0000Cb_1).

Most students preferred creating characters in countries they had lived in or visited before. While they implicitly expected their virtual experiences to correspond to their personal ones, this was not always the case. For example, a girl who had lived in Sweden and created a character there encountered alcoholism and several road traffic accidents, which she had never experienced herself. She recalled,

> *I lived in Sweden (…) I really like Sweden, so I chose Sweden. (…) I thought it would be more fun, I guess, but it turned out not the way I thought it would. (…) 'cause I didn't know all those things could happen in Sweden. (SWI_EVTA6734Ag_1)*

Another girl said,

> *I've learnt, like in England, (…) I've lived there all my life except for the last three years, and when I've been there, nothing bad has happened to me, and I haven't known anyone bad happened to them, but then when I played RealLives, quite a couple of bad things happened to people. So I realized that bad things can happen, it's just that you, I might not be in that place when it happens. (SWI_DEAL0120Ag_1)*

A boy who had visited France and played a character there said, "I wasn't (*sic*) expected that my car got stolen in France. (…) France is like a normal country. (…) I thought that happens just like in India or China" (SWI_CLMO7733Eb_1). Also about France, a girl recalled,

> *When I played in France, there was quite a lot of crime, which does normally happen, but (…) it didn't happen in the parts, which I was thinking it would happen. It happened more in the (…) richer areas, and normally that doesn't happen in France, so, yeah. (…) it gets a little confusing. [laughs]. (SWI_JODA8530Dg_2)*

While some students were confused, others were shocked. A boy who was born in the Czech Republic and played a character there said he knew it was not a very rich country, but

> *person per car was three. (…) that shocked me a bit. And then the (…) life (…) expectancy was kind of low. Like for a male it was 73 years of age and for a female it was 80. That's rather low compared to (…) other parts of Europe. (SWI_EWGR8796Cb_1)*

Another boy, who had lived in Argentina and Costa Rica for several years and played characters in both countries, complained that the simulation was wrong. About his virtual lives, he said,

> *They were pretty different, because in Argentina (…) they stole it from you and stuff and your Mom died and they (…) assault your Dad and you have been robbed, and same in Costa Rica, but that actually never happened to me there (…). And it says about fires, but that never really happens, too. (SWI_CLSI0075Ab_2)*

Although he had lived in both countries for several years, he was not aware of these issues. Upon reflecting on the discrepancies between his virtual lives and his personal experiences during his interview, he realized that his living conditions in these countries had been special. He said,

> *Well, I know it's kind of different because (…) we're not like everybody else, because I actually had kind of bodyguard, so no one could actually get to me. (…) Maybe that's the reason I wasn't robbed [laughs] (…) But yeah, it was much difference. (…) nothing happened to my family (…), or nothing like that. (…) and (…) it said like (…) about quitting school and smoking cigarettes at (…) the age of 12 and stuff, but (…) none of my friends did that. (SWI_CLSI0075Ab_2)*

Other students compared their virtual lives with their lives in Switzerland. One boy said, "It was scary that some of them were so poor. It's sort of weird 'cause in Switzerland and Germany, where I lived, it's not like that mostly" (SWI_MORA0000Cb_1). Another boy explained,

> *I noticed that like my family and I got affected by loads of diseases. (…) my father died of diabetes (…) my son got pneumonia (...), there were loads of other ones. (…) what also surprised me was that there was quite a bit of crime, like I got robbed (…), which wouldn't (…) usually happen here in Switzerland. (…) I didn't really think about it, but, yeah, now I sort of know that it can happen. (SWI_EWGR8796Cb_1)*

Leading virtual lives in countries students had no prior experience with also increased their intercultural awareness. For example, a girl remembered about a life in Brazil, "I got abused four times. (…) And I thought that was quite shocking, 'cause I didn't know you can

get abused **that** many times by the same person" (SWI_EVTA6734Ag_1). Another girl recalled,

> *I think it was (…) Malta or something like that, (…) it said that like ladies or women weren't really respected. And that is in Europe and normally Europe is not entirely like women [um] offensive, (…) it was kind of weird (…) it gives you a bit of an outline of what happens and stuff like that. It definitely gives you the inside details. (SWI_JODA8530Dg_2)*

Another aspect of life students became more aware of was health. A boy mentioned that he had never heard "that you could die with a case of food poison (*sic*)" (SWI_CLSI0075Ab_2). A girl was shocked that her character died suddenly at age 47:

> *I was having a healthy life (…) a good life and atmosphere, and then I just died for no reason. (…) At age 47. (…) I don't know. (…) when I clicked Learn More, they just said 'You, you died.' (…) I thought that was weird. (SWI_ELAL4346Cg_2)*

Another girl explained,

> *The main aspect is different sicknesses that we're not aware of (…). For example, I never even knew that you could die from, like suddenly you could get mouth cancer. (…) I had never heard of that. But now I heard about it 'cause [um] my (…) child died because of that, and it made me aware of what it is. (SWI_LAJE4386Dg_1)*

Similarly, another girl said, "Schizophrenia. [um] I had never heard of that before, (…) even though that sounds a little like weird, but I've never heard of that before. [um] Playing today, I, three of my lives (…) had that" (SWI_KALE4865Eg_2).

While the students believed that using *RealLives* increased their intercultural awareness, the teacher was skeptical about this. When asked if he believed that his students had become more interculturally aware, he replied,

> *It is **so** hard to know. (…) if it's **culture** and cultural awareness that we're looking for (…) I'd like to see more **done** in their own culture, like (…) customs, traditions (…)'cause it still comes down to choosing mating partners, choosing jobs and careers (…) school (…). But no, I don't know. (…) I'd maybe say that no, there isn't a lot there that would let you get to the heart and core of an Arab culture (…) or an Asian culture. (SWI_Teacher_2)*

He added, however, that European and South American cultures did not differ from each other as much as African and Asian cultures, and that he wanted to wait and see if leading virtual lives on other continents contributed more to intercultural awareness.

### 5.2.2 Intercultural Sensitivity

This section comprises the key findings related to intercultural sensitivity; that is, students' curiosity and discovery, openness and flexibility, respect, empathy, and ethnorelativism.

*Curiosity and Discovery*

In their interviews, students said they found it particularly interesting to create characters in countries they already had experience with. One girl explained,

> *I was born in Sydney, so I played there a couple of times, and I lived in New York, (…) in Germany, (…) in Switzerland, where I played once, [um] and I lived in Brazil, where I played once. (…) I also played in Singapore once, and I was there for five years. (SWI_KALE4865Eg_2)*

Students also wanted to go back and visit countries they had visited in person. One girl said, "I kind of (…) wanna live like an Indian life 'cause we went to India the one time and some of their lives are hard" (SWI_TIAN3811Cg_1). A boy wanted to go back to Malta "because it's just a small island" (SWI_SAJO7622Eb_1). Another girl, who had lived in the UK and Switzerland and visited Italy, explained,

> *I would go to either the UK or (…) Switzerland or Italy. (…) The UK (…) I mean the weather is not exactly good, but some places in England are sometimes safer to go to. Switzerland because it's almost always safe, (…) and Italy because it's a nice warm place, and it hardly ever rains. (SWI_DEAL0120Ag_1)*

Some students were also interested in exploring countries they had never been to and did not know much about. A girl led several lives in South America, for example, "because I (…) haven't been there. (…) I don't know a lot about it, so I'd like to learn about that" (SWI_JUGL0000Ag_1). Another girl, who had already played in Finland, said,

> *I would like to try something (…) very different, maybe in the south, like Spain or Portugal (…). Because it's different. Because Finland is in the north and (…) they'll be like really in the south. (…) Maybe the climate is different and that. (SWI_LAJE4386Dg_1)*

She also wanted to explore "more Asia. So like India and China. [um] 'cause I don't know an awful lot about those either" (SWI_JUGL0000Ag_1). Two boys said, "After this life, I want to try doing [um] Turkey. (…) I just (…) know nothing about Turkey, so I'd like to learn more" (SWI_EWGR8796Cb_1) and "Next time I'll try Czech (…) I don't know so much about Czech Republic, so I wanna try it out" (SWI_CLMO7733Eb_1). Another boy wanted to create a character in Ireland because "a lot of my family live in Ireland, but I've never actually been or lived there, so. I'd like to do that" (SWI_DENI7370Cb_1). He added, "Other countries might be some European countries that I like not have been to much. (…) So I

might try and do that, (…) to see what it's like" (SWI_DENI7370Cb_1). Another boy explained, "I have a fascination with the Asian culture, so I'd really love to learn about [uh] countries such as Singapore or Japan, China, Korea, everything. And (…) I'd like to live an African life, too, because Africa just really amazes me" (SWI_TESC0986Gb_1). Although he believed he knew a lot about Asian countries already, he wanted to lead virtual lives there to "learn even more until I fully understand that country" (SWI_TESC0986Gb_1).

When using *RealLives*, students were also interested in learning more about topics they had a particular interest in, such as history, the military, or diseases. One boy said, "the [um…] sicknesses interest me quite a lot" (SWI_ASSE8469Eb_2) and another boy explained, "I like to see how many [um] months people are drafted out into the military. (…) I don't know why, but I think it just amazes me (…) how many months they have to go" (SWI_TESC0986Gb_1). A girl was particularly interested in "the history and the culture of the country" because "it's always interesting to know which country conquered that country and how they were dealing with it, and how they got their independence" (SWI_EVTA6734Ag_1). For another girl, "the most interesting is that you get to like be older than what you really are and you can experience like what an adult experiences (…), and you can like seek romances and get jobs and college" (SWI_JIMA7266Gg_1).

Several students believed that using *RealLives* increased interest in other countries and cultures (e.g., SWI_ELAL4346Cg_2; SWI_MORA0000Cb_1; SWI_SAJO7622Eb_1). One boy said, "I **do** think it (…) can interest them in a new country, not just their own" (SWI_TESC0986Gb_1). A girl thought that "maybe if you like the place, you could travel and visit, know what it's really like" (SWI_JUGL0000Ag_1). Some students had already searched for more information and/or already wanted to visit a particular country. One girl stated,

> *Before I was never interested of Finland or Sweden or any of that. I just thought 'Oh, what's the point?' (…) but now when I play RealLives, (…) I'd like to see (…) if that actually happens, if I went there. (SWI_DEAL0120Ag_1)*

Another girl said, "I really wanna go visit Malta now because it sounds really cool" (SWI_JODA8530Dg_2). According to her, *RealLives*

> *was quite influential, but when I got home, my Mom and Dad they kind of didn't like the idea because some of it wasn't entirely true. 'Cause they've travelled the world and they've seen like things and (…) they told me that some of the things would never ever occur there. (…) one place I lived, there was a volcano, and they said [uh] the volcano didn't exist there. [laughs] So sometimes it can be a little bit off. But most of the time it's quite good because it gives you like the inside details of everything. (SWI_JODA8530Dg_2)*

Another girl had already sought more information on the countries she had lived in and concluded, "I think it's quite accurate because [um] now I've been wanting to know more about those cultures I've been living in, and I have, and it's like 'Oh, it's more accurate than I thought'" (SWI_KALE4865Eg_2). She also added,

> *I know **I'**ve been more interested. Like my parents said, 'Where do you guys wanna go on your next vacation?' (…) I wanted to go to [um] Estonia and Ethiopia now. (…) They looked at me like I was crazy. 'Why do you wanna go **there**?' And then I told them, 'Oh, we're playing RealLives. Sounds cool!' (SWI_KALE4865Eg_2)*

She felt, "It makes **me** more interested because (…) I'd love to think of myself as open-minded" (SWI_KALE4865Eg_2), but at the same time acknowledged that less open-minded individuals may not become more interested by using *RealLives.*

*Openness and Flexibility*

While most students were open and receptive to new information and experiences, some did not quite believe what they saw on *RealLives.* One boy said about his virtual lives, "Most of them didn't seem so real. It was scary that some of them were so poor. It's sort of weird 'cause in Switzerland and Germany, where I lived, it's not like that mostly" (SWI_MORA0000Cb_1). The boy who had lived in Argentina and Costa Rica struggled to accept the information and experiences presented on *RealLives.* When asked if these corresponded to his personal knowledge and experiences, he replied,

> *No, because in Costa Rica, every like two years it says there was like an earthquake. Well, there is [uh] lots of earthquakes, but no one died or anything. And it says about fires, but that never really happens, too. There's never like a fire and stuff. (SWI_CLSI0075Ab_2)*

Initially, he rejected what he saw on *RealLives;* he was quite upset and complained that *RealLives* was wrong and that the lives in Costa Rica and Argentina were too poor and too negative. Upon reflecting on the discrepancies between his real-world and virtual experiences, however, he acknowledged that his own life was quite special and realized that the average life in Argentina and Costa Rica might not be what his life had been. He became more open and willing to accept contradictory information and also started to see some similarities, as this quote shows: "They said that there's lots of mountains and that there's lots of earthquakes in Costa Rica and that Argentina and Costa Rica are very poor countries and that there's a lot of beggars in the street. (…) that was true" (SWI_CLSI0075Ab_2).

Other indicators of openness were that students wanted to ask individuals living in their characters' countries questions and find out if their experiences corresponded to those on *RealLives.* One girl explained, "You're thinking 'I wonder if that person had a similar life like the one I played.' So you kind of wanna ask them if it was all like it was there" (SWI_DEAL0120Ag_1). A boy felt, "It would be interesting to find out if it was sort of true" (SWI_EWGR8796Cb_1) and another boy said, "I'd like to learn new things from the person, too. And [uh] what their perspective of it [uh] of Cyprus is" (SWI_TESC0986Gb_1).

Students believed that their *RealLives* experiences would not influence their opinion about individuals from the countries and cultures they had played in (SWI_SAJO7622Eb_1; SWI_CLMO7733Eb_1, SWI_MORA0000Cb_1) and usually said they would suspend judgment and wanted to find out first whether or not what they had experienced on *RealLives* was true. A girl said, "I don't really believe in these games that much. (…) I think I would just take that away and just (…) learn about them the way they are and not about how *RealLives* tells them" (SWI_EDRA4822Dg_1).

As students were asked to compare life in Europe with life in South America in their assignment, they had to make generalizations, and this bears the risk of overgeneralizations and stereotypes. Some students seemed to overgeneralize based on little experience. For example, one girl believed that Finland was safer than England "because when I was playing the UK life, there was just more burglar and [uh] Finland there was I think only one, not much" (SWI_JUGL0000Ag_1). Another girl said, "My Mom brought over some (…) work colleagues the other day and one of them was from Brazil, and I was like 'Oh, yeah! I know your country'" (SWI_KALE4865Eg_2). Although she had led only one life in Brazil, she believed she already "knew" the country.

Most students, however, were more cautious in their judgments and considered a range of aspects when expressing their opinion. One girl explained,

> *I learnt that [um] some of the conditions aren't really well (…) I got robbed a lot of times. Like people steal and (…) I've heard that (…) a lot of people are losing their jobs. (…) I'm not really sure how to explain it, but [um] I think it's safer to live in Europe. (…) well, it depends. If you're from there, I guess it's safer, but if you're a foreigner, I, I think it's safer to live in Europe than it is to live in South America. (SWI_MACA9821Dg_2)*

Another girl summarized her experiences as follows:

> *In [um] Europe you (…) normally get into college and you normally have quite a good living, and in South America it's kind of harder (…). It's okay if you're in the (…) main city, but if you're out in, towards the country, it's harder. (SWI_JODA8530Dg_2)*

She said she got the impression that "it's a little bit more dangerous in South America" (SWI_JODA8530Dg_2), but felt that *RealLives* was biased toward Europe and portrayed European lives very positively while emphasizing negative aspects in South America.

Like students' openness, their degree of flexibility varied. Some students based almost all their decisions on their own beliefs, values, and preferences, even when they were of the opposite sex, belonged to a different religion, and lived in a different country. One boy said, "I actually go on my own point of view. Yeah, 'cause if that was **me**, then I wouldn't like want to smoke" (SWI_ASSE8469Eb_1). A girl explained, "I would do it the way I would want my life to be or someone else's life to be" (SWI_EVTA6734Ag_1). Another girl said, "I just try how I would do it, and as a man (…) I don't really know. [laughs]" (SWI_LAJE4386Dg_1).

Other students were more flexible and varied their choices and decisions. A boy said, "Every once in a while, I might change it" (SWI_DENI7370Cb_1) and a girl explained, "Sometimes I like to like experiment and try different things, see how it comes out, but usually I do what I would do in my life" (SWI_JIMA7266Gg_1). Two other students stated, "Sometimes I tried only good lives, sometimes I tried bad ones, just to see what sort of impact it has on your person" (SWI_TIAN3811Cg_1) and "It depends how I feel. Sometimes I feel like achieving something; sometimes I wanna go down a different route and see what happens" (SWI_JODA8530Dg_2).

One girl described her decision-making as follows:

> *I think to myself, (…) if I was this person, I'm like 14 and my friends want me to drink alcohol, I mean, I wouldn't do that in real life, so there's no point in doing it (…) in this game (…). If I play a guy in (…) Finland, then I would think, well, if I know anyone from Finland that's a guy, I would think 'What would he do?', and then I would decide like that. But if it's just a girl from England like me, (…) I would think of myself for that part. (SWI_DEAL0120Ag_1)*

A boy who declared, "I kind of like [uh] try being a different person, a different gender, seeing what it's like" (SWI_TESC0986Gb_1) said about his decisions,

> *It depends on the time, (…) kicking out a child (…), I wouldn't have done that, but maybe, I don't know. I think it just depends on the situation. (…) I cannot really tell what situation (…) it does vary from one thing to another. (SWI_TESC0986Gb_1)*

Some students were highly flexible, adjusting their decisions to their characters' attributes and living circumstances and even "allowing" them to make decisions they would never make. One girl said,

> *I look at my character's points 'cause I (…) know my point of view, that I'd do a lot (…) differently, but (if) my character (…) likes doing something, I'd be like 'Okay then I'll let you do that.' But if it doesn't, then I'll be like 'Okay, no.' (SWI_KALE4865Eg_2)*

Another girl, whose character was unhappy, recalled, "I tried to make her more happy (…). I tried (…) going back to school, maybe if she wanted to study more, or if she was more interested in art. (…) or in fashion/appearance to make her look more pretty" (SWI_JIMA7266Gg_1). A boy explained,

> *You're like very poor and they say 'You can do this illegally and they're possibly not gonna catch you', but you're not sure, so you (…) ought to think 'Should I do it? I'm poor.' (…) most of the time I said 'Yes' because there's nothing to lose if you're poor anyway and you don't have a family. (…) It depends how poor you are and if you're starving and stuff. (SWI_CLSI0075Ab_2)*

Openness and flexibility were also required to overcome difficulties, as this quote shows:

> *I had a couple of difficulties with spending stuff, (…) it (…) gave me three choices, get a loan and reduce spending or get a job to help that, so I first tried getting a job, but it didn't really work that well. So then I clicked Reduce Spending and it came up with all these choices, so I would go with the average stuff, so I'm not spending too much or too little, and then sometimes it would say 'Fine', but other times, it would just be like I still have to do more of that, so it was really annoying trying to figure [laughs] out what to do. (SWI_DEAL0120Ag_1)*

Some episodes in their characters' lives forced students to reconsider and adjust their strategies. One girl recalled,

> *I think my father went to jail and they killed my mother. (…) Because I did something very bad. [laughs] (…) it shocks you, and your whole life changes because now that maybe you lost (…) some of your family, (…) your person acts different (sic), and it's harder because you're all alone now. (SWI_ELAL4346Cg_2)*

A boy whose character also lost his parents said, "It would challenge me as a player because I did (…) need to (…) learn how to [um] adjust to this situation" (SWI_DENI7370Cb_1).

One girl explained that she had to be flexible and open to new ideas when sharing a character with her neighbor. She summarized this experience as follows: "Though some decisions are harder, because your friend has the [um, um] different opinion, but they're both interesting" (SWI_MACA9821Dg_2).

*Respect*

Respect was only mentioned explicitly by one girl who felt that players of *RealLives* learnt "that even though they're from a different culture, you should respect them, because that's how life can be, if they were in that situation" (SWI_EVTA6734Ag_1).

*Empathy*

When using *RealLives*, students were highly engaged and excited, smiling, cheering, and shouting "Yes!" or "Yeah!" whenever something good happened in their virtual lives and sad, disappointed, or angry and shouting "(Oh) no!" when something bad happened. They also frequently shouted sentences like "I'm a millionaire!" and "I'm pregnant!" as if referring to their own life.

During the interviews, six students used the first person singular when talking about their characters and 10 mixed the first and third person. A girl recalled, for example, "I was in a lot of road accidents, and I think my Dad became an alcoholic" (SWI_EVTA6734Ag_1) and a boy said, "My name is (…) Jakob, and I am living in the Czech Republic" (SWI_EWGR8796Cb_1). However, another girl, who also referred to her character as I, said, "(It) doesn't really matter. (…) It's just a simulation [laughs]" (SWI_TIAN3811Cg_1).

Some students switched from first to third person to distinguish between themselves as the player and the character: for example, the girl who said, "I went to school, but I didn't do very well in school" and "My character is not very happy. (…) I tried to make her more happy (…) I tried (…) going back to school" (SWI_JIMA7266Gg_1). Similarly, another girl first said, "In England, I was living (…) close to where my grandma lived" and then "I kept moving one of my characters around, seeing how it would cope and stuff" (SWI_JODA8530Dg_2).

One boy used the third person to talk about a past and not very successful life, but the first person to refer his latest and more successful character:

> *The first one, I was a girl from (…) Germany (…) who didn't do very well. She kind of died at 16 from a car accident. But then my second one, which I am playing at the moment, is a bit better. I was born in Italy and [um] I moved to [um] Dorset (…) in England, and I started a gunsmith (…) factory business. And I am now a multimillionaire. (SWI_SAJO7622Eb_1)*

Students generally seemed to identify more with successful characters, which this quote supports: "If [uh] it's a good character which I can almost relate to, it's good, but if it's someone [uh] that I don't really like, I don't really pay much interest" (SWI_SAJO7622Eb_1). A girl replied, when asked if she identified with her characters, "Yeah, I did at bit. Sometimes

you don't because (…) you don't think [um] this is so enjoyable, but sometimes you do and you have a good life, you're like 'I wish I could be that person!'" (SWI_DEAL0120Ag_1).

Two girls were exclusively using the third person singular when talking about their characters' lives. One of them simply recapitulated facts, stating, for example, "Her name was Amy Baker and she was in Ireland and she died at 21" (SWI_EDRA4822Dg_1). The other girl reproduced a kind of dialogue with her character: "I was like 'No, no one is coming to get you. It's all okay.' But I couldn't tell her that" (SWI_KALE4865Eg_2). She added, "If they are like really unhappy and just moping around and having like tons of children and breaking up and getting with people, I'm like 'What are you thinking?' [laughs]" and "(If) my character (…) likes doing something, I'd be like 'Okay then I'll let you do that.' But if it doesn't, then I'll be like 'Okay, no'" (SWI_KALE4865Eg_2).

A third girl mainly used the third person singular, except when talking about her emotions. She said, "At the moment, the one I've got, I think he's 56" and "When something bad happens, like I get burgled, and I feel kind of angry because they've taken that, you feel that you're actually there doing it" (SWI_JUGL0000Ag_1).

During the second round of data collection, students seemed more distanced when talking about their characters. They were mainly giving summaries of their experiences and were mostly using the third person singular.

Several students mentioned that they had feelings for their characters when good or bad things happened to them. One girl said, "It's kind of strange [laughs], (…) there was a lot of crime and [um] bad things which happened, and then I was like 'Oh, no!' [laughs]" (SWI_JODA8530Dg_2). A boy recalled,

> *When (…) my character's [um] son's girlfriend got an epileptic (…) seizure and died, (…) I just felt the sadness, and also when (…) my Mom's house got robbed (...) and she died of breast cancer, I just 'Oh my gosh!', (…) I just felt the emotion. (SWI_TESC0986Gb_1)*

A girl remembered how she felt when her character could not find a partner:

> *It took me a long time to get married (…) I had to like get a lot of boyfriends, but a lot of them rejected me. (…) I was like* ***'What?!'****, and then I had to like keep pressing the button finding new romances. (…) my first romance, he actually proposed, but then he broke up with me right before we got married, so. That was sort of. But then I seeked (sic) new romances, and then finally I found another one. (SWI_JIMA7266Gg_1)*

Another girl was worried about her character's mother, who was raped: "I was wondering if this would affect my Mom's personality. But she went on living pretty natural, so that sort of

made me feel relieved that like my Mom didn't do anything weird" (SWI_JIMA7266Gg_1). She also said,

> *My sister, she sort of got into college and was sort of smarter than me in the game [laughs], so I was sort of disappointed that my character wasn't smarter. [um, uh] I was also sort of disappointed that I had to go through a lot of times to get boyfriends and that [um] I couldn't get more well-paid jobs because I didn't go to college, but I was also happy because I got a pretty cool job. (SWI_JIMA7266Gg_1)*

Two boys declared in their interviews that they did not really have any emotional bond with their characters (SWI_MORA0000Cb_1; SWI_ALAN0000Ab_2). One of them explained, "Not really, because it doesn't usually say 'Oh, I'm sad all of a sudden.' (…) it says maybe 'I'm chronically depressed', but that's it. (…) You're like 'Oh, look! I'm depressed. Oh no! I just (…), I died'" (SWI_ALAN0000Ab_2). He did, however, become excited when his characters were rich and living a long life, as this quote shows: "When you're like living a long life, you're like 'Yes, yes! You're not dying, you're not dying!', 'You're really rich. Good, good, good!' [laughs]" (SWI_ALAN0000Ab_2). A girl said,

> *When like its Dad or [uh] your Mom dies, it makes you feel a bit sad for if you were that person, but (…) if it's just like a random person died, you don't feel that way, 'cause you didn't even know 'em. (SWI_DEAL0120Ag_1)*

Although most students felt an emotional connection with their characters, only few tried to put themselves into their character's shoes and tried to think and act like them. Some choices, such as smoking, drinking alcohol, or doing something illegal, were generally out of the question for many students, irrespective of their character's living circumstances. One girl felt,

> *Sometimes with the things you can decide what to do as if it's your own life, it's your responsibility. So like one of them was like 'Your friends are smoking. Do you wanna join them?' (…) I usually say 'No', 'cause (…) it's just stupid (…) I think to myself (…) if I was this person, I'm like 14 and my friends want me to drink alcohol, I mean, I wouldn't do that in real life, so there's no point in doing it (…) in this game. (SWI_DEAL0120Ag_1)*

Another girl said, "When I was asked 'Do you wanna drink?' or 'Do you wanna smoke?' then I would always say 'No' because that's the wrong thing to do" (SWI_EVTA6734Ag_1). A boy explained, "(…) start smoking, which I never really do in the game, 'cause I just wouldn't want to. (…) I actually go on my own point of view. (…) 'cause if that was **me**, then I wouldn't like want to smoke" (SWI_ASSE8469Eb_2). Another boy said, "Sometimes I chose logical answers, like drugs, to become addicted to drugs, I'd say, 'No.' Or alcohol and

smoking" (SWI_MORA0000Cb_1). Two girls declared, "I don't steal because I think (…) there's no point about stealing" (SWI_LAJE4386Dg_1) and "When it said, 'Do you wanna do your job illegally?' (…) I would always pick 'No' because that's just very wrong and you can end up in jail. (…) Normally, I would say 'No', if it's something like (…) illegal stuff" (SWI_EVTA6734Ag_1).

A few students, however, tried to suspend their personal beliefs and tried to think and act as if they were their characters. One girl said, "If I'm a boy, I'd probably do more activities" (SWI_MACA9821Dg_2), another girl explained, "If I play a guy in (…) Finland, then I would think, well, if I know anyone from Finland that's a guy, I would think 'What would he do?' and then I would decide like that" (SWI_DEAL0120Ag_1). Yet another girl recalled,

> *You're sent to rob and my character was like 'Yeah, let's rob him!' (…) so it's like (…) 'I like to rob things and stuff like that', 'cause they'd done it before. And it said it had a guilty conscience, so I said 'Yes', and I didn't think that was very smart (…), it wasn't a good idea. I wouldn't have done that myself, but. (SWI_KALE4865Eg_2)*

It was not easy for students to suspend their personal beliefs and values. One boy remembered how he was torn between his personal opinion and his character's situation, "Some of the stuff, like illegal investments and stealing, (…) my guy was poor, I was thinking he **could** use that, but it's also really bad (…). And he might get caught (…). So those were hard for me" (SWI_MORA0000Cb_1). Another boy explained,

> *Sometimes it tells you 'Do you want to (…) risk that much money to do this thing?' and then you say 'Yes' or 'No', and (…) you can get (…) lots of money (…) or you're like very poor and they say 'You can do this illegally and they're possibly not gonna catch you.', but you're not sure, so (…) you ought to think 'Should I do it? I'm poor.' (…) most of the time I said 'Yes' because there's nothing to lose if you're poor anyway and you don't have a family. (SWI_CLSI0075Ab_2)*

*Ethnorelativism*

Due to their experience living abroad and attending an International School, most students seemed to have developed a more ethnorelative view and were accepting cultural diversity. They acknowledged differences between cultures and lives in various countries, but — apart from the boy who had lived in Costa Rica and Argentina for 11 years — usually did not try to defend or protect their own culture. Students generally seemed open to new information and experiences and tried to accommodate them, even when they did not match their own knowledge and experience. They accepted even negative information and experiences, such as alcoholism in Sweden, discrimination in Malta, and crime in France, which they had not experienced themselves. Although such experiences were described as confusing or shocking

by the students and made them think about their personal experiences and beliefs, they usually accepted them.

One girl still seemed to be in the minimization stage, playing down differences between cultures and emphasizing commonalities. She felt that "to some extent everybody's life is the same" and therefore considered leading lives of culturally diverse characters "not that hard" (SWI_TIAN3811Cg_1). Another girl had moved on from the minimization to the acceptance stage. She said,

> *I thought that [um] everyone was like the same no matter what culture, race, religion and all that. But then I realized that living in different places through the simulation is a lot more different than I had in my mind. (…) more things happened than we hear about in the news and all that. (SWI_KALE4865Eg_2)*

Students mostly followed their own cultural beliefs, values, and norms: They wanted their characters to complete school, go to college, find a good job, earn a lot of money, get married, and have a family — all things they considered normal. One boy said, "If I can get a lot of money, that's good. If I can get married, that's good. That kind of stuff. Like the kind of aspirations that a [um] normal person might have" (SWI_DENI7370Cb_1). Another boy explained, "I always (…) wanna do the college, the vocational school, and the third one is graduate school. I always wanna do those (…). And then I wanna get a good job, and a wife" (SWI_CLMO7733Eb_1). As described earlier, boys mainly focused on earning money, while girls were particularly interested in relationships and family issues.

Students found it annoying when they could not achieve the aforementioned "normal" goals in life. A boy said, "In Europe, it was kind of okay, because you always get rich and you always finished school very well, but in (…) Argentina and Costa Rica, most of the time they kicked me out of school and (…) that's kind of annoying" (SWI_CLSI0075Ab_2). While playing, other students also complained about being removed from school, being unable to find a partner, or about being infertile.

Some students were questioning whether *RealLives* actually portrayed the average life in each country. One girl felt that "it's kind of telling you that Europe's good and South America is kind of bad. (…) but that's just the impression I get" (SWI_JODA8530Dg_2). A boy said,

> *Some of the things that I learnt, I think that in Africa and all those countries (…), you can have a very bad life. But I'm not sure because I never been there, but (…) they put Africa as a very bad place to live, like your Mom died, you're in war, they kill you. (SWI_CLSI0075Ab_2)*

Nevertheless, he said he “wouldn’t mind going to Africa” because one thing “is like go to Africa, and something is living in Africa. That’s kind of different” (SWI_CLSI0075Ab_2). When asked whether life in Africa was portrayed negatively on *RealLives*, another boy felt offended by the question and replied,

> *That’s not fair (…) saying that. I mean, I like (…) more natural places, like Africa, for example, with the animals, than places like New York. ’cause it’s just full of tourists (…) it’s just crowded (…). I was there this summer and it wasn’t really fun. (SWI_ASSE8469Eb_2)*

These students refused to make negative judgments about South America and Africa based on their *RealLives* experiences and would have still liked to go and visit these continents despite the negative aspects presented in the simulation.

# CHAPTER SIX

## FINDINGS CASE 3 — THE AMERICAN SCHOOL

Chapter 6 presents key findings from the American case study. As in the previous chapters, the first section (6.1) describes student use of, and interaction with, *RealLives* as well as peer interaction; the second section addresses connections between student use of the simulation and their intercultural awareness and sensitivity (6.2).

### 6.1 Use of and Interaction with *RealLives*

This section demonstrates how students learnt to use *RealLives* (6.1.1) and shows their patterns and strategies of use (6.1.2). It also describes interactions between students and with the simulation (6.1.3) and identifies difficulties and problems during the use of *RealLives* (6.1.4).

#### 6.1.1 Learning to Use *RealLives*

Apart from a handful of students who had tested *RealLives* at home, students had no prior experience with the simulation. Without instructions and teacher support, they had to learn how to use *RealLives* by themselves. Boys in particular managed to do so quickly and without noteworthy difficulties. One boy said, “It was actually very [um] easy to (…) find out what to do” (USA_AMLE6028Cb_1); another recalled, “You just had to like point and click with the mouse basically. (…) it only took about a minute to figure out where everything was. (…) after that, I knew what to do, where to click on” (USA_TRJO1718Cb_1). Another boy explained, “It was pretty easy, because you could just click Age a Year, and that was pretty much it. And then you clicked ‘Okay’ and ‘Yes’ and ‘No’ to [um] make the decisions (…). They were pretty much straightforward” (USA_KASC1746Db_1).

Students were exploring the simulation and using trial and error methods to discover its functions and limitations. One girl said, “At first, I didn’t know how (…) to use *RealLives*, until I just like looked at the age thing and I just clicked it once and, and it just showed my age and then it (…) said what happened” (USA_NOLU2932Cg_2). Another girl recalled,

> *After a certain time, nothing would come up automatically, like you’d have to click something for something to come up. (…) I didn’t know that for a while, so I was just sitting there waiting. But then (…) I just figured out you had to press (…) Age a Year. (USA_ELTI6170Ag_1)*

A boy explained,

> *At the beginning it says (…) you are zero years old and then you see the little Age a Year button (…) as you're going along, you kind of notice little tabs above, and then you click the Actions and then you see (…) what you can do. And then (…) once in a while you check back at the Actions to see if there's anything new. (USA_SHMI4260Bb_1)*

Another boy remembered,

> *I kind of just clicked around a little bit until I realized what to do. (…) The first time I played, it said that I was sick and like I'd thought that there would be something that I could do about it, but there wasn't. Like I just kind of have to wait until I got better. (USA_MAAN7778Db_2)*

Some students, mainly girls, were somewhat confused or worried in the beginning, but they quickly realized that using *RealLives* was not difficult. One girl said,

> *When I first heard about RealLives, I was kind of like 'Oh my gosh! I'm gonna (…) hurt this person. (…) I'm (…) not gonna do very well.' [laughs] (…) But it's actually really fun, and I thought it would actually be hard, but it wasn't. (USA_JOBA2213Ag_2)*

Another girl explained,

> *In the starting, we were really confused because nothing was really happening, but then after a while we got to know what to do. (…) I just clicked all the buttons [laughs] that I could, and then just looked through all the pages that were there. (…) someone told me that you can't really do anything when you're zero years old, so we kept on clicking Age a Year and then, yeah, you could do more things. (…) when we started the game, on the Actions page you couldn't click on anything, so I thought there was something wrong with the game. [laughs] But then after a while they were (…) available. (USA_SAAJ1530Cg_1)*

A boy recalled,

> *I was just kind of sitting there 'Oh, I'm really confused. How am I supposed to play this?' And then (…) I saw the Age a Year button, so I thought, 'Well, that's probably gonna make me age a year.' And I also went into Family and like checked out how they're doing. (…) I also went to like Actions and just like saw all the options there. (…) that's pretty much how I learnt. (USA_AMMI5519Ab_2)*

More experienced students often helped less experienced students, which they appreciated. A girl said, "I didn't really even know like about like aging a year, so [uh] my friend who was sitting next to me kind of helped me" (USA_MAJA7786Ag_1). A boy remembered,

> *My friend X was sitting next to me and (…) he played (…) before me, so he was like, 'If you (…) give people charity, if you have a good karma, then it usually comes back to you.' (…) So I tried to (…) do volunteering, and I tried to put my charity up. (USA_SAJE1123Cb_2)*

Peer learning was particularly relevant for the more advanced business and investment options. A girl explained, “I didn’t know how to do the borrow and invest thing until someone told me. Then after that I got it” (USA_ELTI6170Ag_1). A boy remembered, “The first time I played, I didn’t know how to invest. So I had to ask someone there” (USA_MAAN7778Db_2).

Over time, students were becoming more competent in using *RealLives* and were using the business, investment, and emigrate functions and the Character Designer more. One boy explained,

> *I’m not testing as much, like ‘Ooh, what is this, dude?’ ’cause I already kind of know what everything is. I’ve been focusing more on trying to define the character and more on kind of seeing where I can go (…) I’ve gotten better at playing the game, better at living, I guess (…) this time around, I’ve immigrated (…) so I’ve learnt more, like I didn’t know about the immigrate ones for last time. (USA_JUWI2267Db_2)*

Another boy said,

> *Before, I used to (…) pick a random job and go with it. And then this time I (…) kind of played around a little more. I took a lower-ranking job and then asked for raises and then eventually I was making more than the higher-paid jobs kind of thing. (…) Did I said stock and stuff? (…) I played around with that a couple of times (…) – I did high-risk stock – twice I got more money and twice I lost a lot. (…) I used the spending thing a lot more (…), I actually based it on what I was making. (USA_SHMI4260Bb_2)*

Yet another boy recalled,

> *The first time I played, I didn’t know that I could choose my person. So I (…) was stuck with (…) some person, (…) the second time I played, someone showed me how to do it. (…) So this time I got to choose my person. (USA_MAMA2525Bb_2)*

A girl said,

> *A lot of times the little [um] windows come up and they just say, ‘Do you want to invest in things?’ (…) And before I just said ‘No’, ’cause I didn’t really know what that was, but now I’ll be doing that. And emigrate, (…) I wanted to see if I can go somewhere else, so I tried picking a place to emigrate to. And that worked. (USA_DAKE9181Dg_2)*

Another girl explained,

> *When I used it the first time, I like died right away. [laughs] [um] But like now, when I live longer, it’s like kind of interesting ’cause I get to make more choices. (…) I do like more things, like investing and (…) starting my own business – which is kind of hard – but [laughs] [um] yeah, I do more things that are like more businessy (sic) than I did last time. (USA_JAMA5531Cg_2)*

She also added, “I kind of paid more attention to the littler details that come up when you click Age a Year, where it talks about like food shortages, and [um] the fights going on in the country” (USA_JAMA5531Cg_2). Other students, however, were clicking through their lives faster. One boy said, for example, “I just kind of felt like I went through a lot faster. (…) when I was in China, I (…) only got to 16 (…), but in this game I got to maybe like 25 or 30” (USA_AMMI5519Ab_2).

### 6.1.2 Strategies and Patterns of Use

Without instructions from the teacher, the students were free to use *RealLives* how they wanted. They usually used the Actions, Self, and Family pages and hardly clicked on the Country and Stats pages despite exploring all pages in the beginning. One girl said, “I looked at the Stats and (…) the [um] Country page, (…) but then otherwise I mostly stayed on Actions” (USA_MAJA7786Ag_1). Another girl recalled, “I went to like myself, I looked at my family, [um] I looked at the (…) page where you can like move out, find a romance, go to school, and find a job” (USA_JOBA2213Ag_2). A boy mentioned, “I think I’ve done the Actions, Family, and Self, but that’s it. I might have done the others, but I don’t remember” (USA_AMMI5519Ab_2). Another boy explained,

> *I like the Actions page, then the Me page, where it shows your face and (…) your country and stuff. Because once you’re in your 20s and 30s, there are a lot of actions that you can do, (…) if you wanna invest in money, or (…) try to get a new and better job, (...) the Family was helpful to remind you of who was in your family. And if someone like got sick or like your brother got married and he had children (…) you wouldn’t remember that. So you could check on the Family page. (USA_SAJE1123Cb_2)*

Students preferred the Actions page because it gave them control and many options to choose from. A girl said, “I usually did the Actions one because you could control your person a little more. The Actions (…) really helped me the most. I guess because you could do everything to someone” (USA_NIJA1124Dg_1). Two boys stated, “I stayed the most on Actions ’cause that was like the most control” (USA_JEJO1566Ab_1) and “I stay on the Actions page and (…) don’t wait for like something to pop up. I’ll just like do something on that one” (USA_MAAN7778Db_2). Another boy stayed on the Actions page for he did not like waiting for other pages to load. He said,

> *Sometimes half of it loads (…) you can’t click much and (…) a few seconds later then it comes up. (…) that’s the main reason I don’t switch between pages too often. I usually just (…) stay on the Actions page. (…) because that’s where I can get the most done from. (USA_SHMI4260Bb_2)*

Students used most actions on the Actions page, particularly those related to career and family. Their use of actions depended on the character's age, as this quote shows,

> *There's not many actions when you're three years old (…), so you would mainly (…) listen (…) to the RealLives. But then when you are 15 and you could get a job and you could (…) seek a romance,(…) you start to do things more by yourself. (USA_SAJE1123Cb_2)*

With more experience, students were using more actions. Emigrating, starting a business, and investing were usually the last options students tried, as they were more difficult to understand and master. A boy said,

> *I guess used all of them (…) the last one that I used was (…) the investing one (…) that one I wish I had found a lot earlier because (…) I (…) could double my money in a few years [laughs]. (USA_SHMI4260Bb_1)*

A girl stated,

> *The first time, I didn't emigrate anywhere 'cause I didn't really know how to play the game and [um] do that kind of stuff, but the second time, I emigrated to Australia, which was fun, and then (…) I lived in China and (…) moved to [um…] Australia again. Now I'm emigrating more and trying to go to other places just to see what it's like there. And I'm also like investing in things and before I just kind of lived my life and just aged and that was it. (…) now I'm doing different things 'cause I know how to play more. (USA_DAKE9181Dg_2)*

Several students did not use particular actions as they considered them bad choices. One boy said he used "all the stuff that (…) would like make sense" and explained, "I wouldn't like quit school, if it gave me the option. (…) I tried investing in something, but it didn't really make a whole lot of sense to me, so I didn't really do it. [laughs]" (USA_AMMI5519Ab_2). Another boy stated, "I didn't really quit job, and leave marriage and quit school. They didn't really seem like good ideas" (USA_TRJO1718Cb_1).

One girl rarely had to use the Actions page because "by the time I pressed Age a Year, it had like tons of stuff coming up, which I think is good" (USA_JOBA2213Ag_2). Another girl said,

> *I went and pressed like Age a Year and then after that they would come up with stuff (…) that happened during that year (…) after that was over, sometimes I'd click like Get a Job or (…) Move Out or something like that, but [um] there was a lot of stuff that came up in like a year from just me not clicking anything (…) I like to age fast 'cause I wanna see what happens when I get older, so (…) I clicked on a couple of stuff by myself, but not a lot. (USA_ELTI6170Ag_1)*

On the Self page, students checked their character statistics, which they often compared with their peers. One boy mentioned, "After every time I aged a year, I'd go to the

Self page and I'd look at all my attributes and see how it changed" (USA_TRJO1718Cb_1). A girl explained, "I'd probably check every one in like two or three years that I aged. I'd probably just go and see if it changed a lot" (USA_ELTI6170Ag_1). Students went to the Family page, "to see [uh] how many [uh] cars, telephones and televisions we had" (USA_TRJO1718Cb_1) and to see their family members, their jobs and income, who was living at home, and who had moved out. They also used the Family page when they had "lost track like how many kids I had" (USA_MAJA7786Ag_1). Students whose characters had a lot of children used the Family page to count them, see what they looked like, and which jobs, income, and diseases they had. A girl said, "When I had my children, I would go over there to see what they looked like" (USA_NIJA1124Dg_1).

The Country and Stats pages were hardly used. When asked about the Country page, a girl said, "No. I never went there" (USA_ELTI6170Ag_1); a boy replied, "No. Never really thought about that" (USA_AMMI5519Ab_2). Since the school had disabled Internet access, the Google map at the center of the Country page was not displayed, and this caused many students to skip this page. One boy said, "I think like the data thing wasn't working or something" (USA_SHMI4260Bb_2). Even students who knew about the additional information on the Country page did not normally use it. A boy stated, "I wasn't actually. (…) if I wanted to learn more, I guess that would be the better thing to go to" (USA_MAMI1895Bb_1).

Some students used the Stats page to keep track of their income and character statistics. A girl said she clicked on it "just to see like where my money was and stuff" (USA_ELTI6170Ag_1). Many students, however, could not understand the graphs and therefore did not use the page. One boy explained, "I did not click on the 'Stats' page. (…) I wasn't sure what that was" (USA_TRJO1718Cb_1). Another boy said, "I didn't use (…) Stats too much 'cause (…) I didn't quite understand what it was. And then I kinda understood, (…) it's tracking my income, (…) but it was kinda hard to read" (USA_SHMI4260Bb_1). A girl stated, "I thought it was really hard to understand the (…) Stats. 'Cause I don't really understand how (…) it matched up with money (…) and all that" (USA_CHDE6775Dg_1).

*Creating Characters*

Although students did not have to lead lives in particular countries and were not told about the Character Designer, many discovered this function and preferred it over the random option. One boy explained, "When you were first here, I only used the Character Designer once. I didn't really know about it until (…) I started exploring the file menu. So I found that and that was really cool" (USA_CAPE8706Bb_2). A girl said, "I was looking at the different buttons

(…) and then I saw Character Design, so I clicked on that and (…) I saw the countries (…) so I just like chose the country and where I wanted to live" (USA_NOLU2932Cg_2).

Several students learnt about the Character Designer from their peers, though not necessarily about all of its functions. One boy said,

> *The first time I played, I didn't know that I could choose my person. (…) the second time I played, someone showed me how to do it (…) I didn't know you could choose the (…) health bar kind of thing. I didn't know you could (…) bring that up to like 100. (USA_MAMA2525Bb_2)*

Another boy explained,

> *I think one of my friends told me how to use it. (…) He said it would be under File and then Character something. So then I clicked, I think it was Character Selection (…). It was actually really interesting 'cause you got to find out (…) all the different countries (…) you got to (…) choose your name (…). I just chose my character and I just chose the name and then (…) I chose England, and then I just hit start. (…) someone said you could do something like the health, but I didn't know how to do that. (USA_CHST0127Ab_1)*

The Character Designer was especially popular among boys, but some girls were also interested, as this quote shows:

> *I didn't know about Character Designer, so [um] this guy X, he told me how to use it and (…) how you get to it (…) he was doing it and I was like 'Oh my gosh! How do you get there? Like how do you that?' And he was like 'Oh, just go over to like File or something.' And so then **I** used Character Designer and I went to Australia. (USA_ANAD8009Bg_2)*

Many students created so-called "superman" characters by setting all character attributes to 100, which usually meant longer and more successful lives. Some students varied their settings to see the differences between characters. One boy explained,

> *The Character Designer, I just kind of played around with. (…) I was curious (…) what happened if you put 100 somethings (sic) and just kind of play around with the little mixer (…). The first one I made 100 everything (…) I could (…) do anything. (…) then the second one, (…) it probably all averaged out to 50. (…) And the life was much more average. (…) when I made everything 100, (…) I was a multimillionaire kind of thing. (USA_SHMI4260Bb_2)*

Another boy said,

> *The first time when I played, I did not make my own character. (…) But the second time my guy was born there (in the USA). (…) I chose for him to (…) be born there, (…) I was never really sick, and I never had to deal with (…) famine (…). And my guy was born rich in the United States (…). My first one was a very bad life, my second one was a very good life. I wanted to see how they compare (…) I set everything to be as good as it possibly could. (USA_TRJO1718Cb_1)*

He acknowledged, however, that

> *No one really has it like that. No one is (…) smart, athletic and musical, artistic and all that stuff combined (…). If you were one of those lucky people, (…) you'd become very rich and you'd have many choices of what you could (…) do with your life. (USA_TRJO1718Cb_1)*

Another boy compared the life of a superman with that of a character resembling himself. He explained,

> *One time (…) I made it everything max, (…) so it was perfect. (…) then for the recent one (…) I put it like just as I would be, like my actual self. So I adjusted it for me. So instead of having everything max, there ought to be some lows and some highs. So it would [uh] be different. (USA_CAPE8706Bb_2)*

Supermen also allowed students to experiment more and to make bad choices without risking their characters' lives. One student reported, "Some people I know, (…) they'd make a superman and then they'd just do everything, they'd do drugs, they get born in like a little country, and then do all that stuff until they are like 20 and then they try and get the life back. [laughs]" (USA_JUWI2267Db_2).

While many students enjoyed creating supermen, some considered it boring or unrealistic. For them, achieving a good life with an average character was more challenging and rewarding. One boy said,

> *I don't really like to design the characters — I did once, though, just so I could live in Madagascar — but it's not really fun to play a perfect character. So I played one that (…) didn't really have that much of a conscience, (…) just some random guy, but he had like 95 art. So that was cool. And it was natural, so. (…) it seems more realistic. (USA_JUWI2267Db_2)*

Students often tried to establish connections between themselves and their characters; for instance, by creating characters of their own sex and in a familiar place and giving them names of people they knew. A girl noticed, "Usually, for some reason every time a girl had it, they ended up with a girl and a guy had it they ended up with a guy" (USA_ANAD8009Bg_2). A boy explained,

> *I think I've never actually played a woman (…) I've played a lot of male characters. (…) it just seems like you can connect with them more, already since [uh] also how diverse the cultures are. It's kind of hard almost to play a woman. Although I think it would be kind of interesting, but at the same time, (…) especially since you're comparing characters, (…) you can identify, you can say **I** without feeling weird. (…) it'd be odd, 'I got divorced from my husband.' That sounds a little (…) it's just more, (…) I wanna say more interesting, though I'm not sure that's true, but it's more appealing, I think, to play someone of your own gender. (USA_JUWI2267Db_2)*

Students often named their characters after famous people and figures, such as Michael Jackson and Ronald McDonald, or after teachers and classmates. One boy said, “In French my name is X, so when I lived in France, my name was X, and all my children were like my classmates’ names in French” (USA_SAJE1123Cb_2). He also added, “I try to stay in like moderate areas in housing (…) maybe not because that’s what I live in, but I guess I related to that more in a sense” (USA_SAJE1123Cb_2).

Many students seemed to become attached to their characters while playing and saved their lives before leaving the computer. One boy said, “That guy is still saved on the computer” (USA_TIRO5433Bb_1) and a girl mentioned, “I ended the game ’cause the class was over (…). But I saved it” (USA_JETO1370Ag_1). Another girl said she saved her last life, but not the one before because she “didn’t really like” it (USA_MAJA7786Ag_1).

As students were familiar with the country and culture, and characters usually had better opportunities and healthier and longer lives in the USA, many students, particularly boys, preferred creating characters in the USA. One boy explained,

> *I like to stick around North America. (…) I mostly went to other countries which I had limited opportunities with, so I decided to go to the USA and Canada, which I’d have more opportunities - for education. And that (…) really helped me play more. (USA_CAPE8706Bb_2)*

Another boy said,

> *The last one I chose to live in America, just ’cause I wanted to (…) get farther than I did with the other ones. (…)’cause for the most part, (…) the people that I’d seen playing, like talked to, like they’d gone to America and they’d like made it all the way through school and stuff. So I thought I might just try and make it through school this one time. (USA_MAAN7778Db_2)*

Students also liked to create characters where they themselves wanted to live, as this quote shows:

> *I picked two of my characters so they lived in America. (…) I thought like America has like the most opportunities in education, so. I could get the best jobs there. (…) they both lived in Denver, Colorado. I wanna live there when I grow up. (USA_JEJO1566Ab_1)*

For some, only playing in the USA was too boring. A girl said, “I did the Character Designer ’cause I wanted to be in the US, (…) but half way through we changed just doing random (…) I wanted to see what else there is, ’cause I kind of live in the US” (USA_CHDE6775Dg_2). Other students selected countries other than the USA because they were born there, had a family history there, or religious ties. One girl explained, “I chose South Africa ’cause I was born there. So I wanted to see all these little things that I didn’t know about it since I only lived there for five years. Maybe I can get more information about

it" (USA_NOLU2932Cg_2). A Jewish boy preferred characters in Israel. He said, "I think one I was in Haifa, the other one I was in Jerusalem. (…) Pretty good places. I like them" (USA_AMMI5519Ab_2). Other students were creating characters in Africa because they were studying Africa in school. A girl explained, "Since we were learning about all the countries, we kind of wanted to see like how different like things worked" (USA_ANAD8009Bg_2).

Several students created characters in Australia, which was considered an interesting and different country, but with similar opportunities as the USA. One girl stated, "I didn't really wanna go to the United States 'cause I already live there and I think the point of this is to learn about other cultures. And I thought Australia was an interesting place" (USA_DAKE9181Dg_2). A boy said, "I've never actually been to Australia, so I thought it would be pretty cool to live there in the game" (USA_MAMA2525Bb_2). Others chose Australia because they or their family members had been there on vacation or were planning to do so.

A few students did not care where their characters were living, for example the girl who said,

> *I had characters in India, Africa and China and I, I don't really care where the person's from, I just think it's interesting 'cause it's just from like anywhere (…) I was never in the United States, but I'm okay with that because it's just like I live here. [laughs] So it'd be kind of boring, (…) even though there's so many different types of people in the United States. (USA_JETO1370Ag_2)*

*Decision-making*

When making decisions on *RealLives*, the students mostly thought about what they personally liked and would do; one boy even stated, "I tried to make it as much like me as possible" (USA_SHMI4260Bb_2). Another boy said he based his decisions "on what **I** would have done. Like how I would have liked to spend my free time. I usually did reading, studying, sports, like television (…) physical training. I usually did some playing and socializing and some volunteering" (USA_JEJO1566Ab_1). A girl explained,

> *I was thinking about what I would do. (…) I looked at them, but I didn't base my decisions on (…) how old they were or anything. (…) I did base them on what I did, 'cause I like like art, and so I put that for most of mine. And like sports. (USA_JETO1370Ag_1)*

In line with their cultural beliefs, values, and norms, students usually tried to make appropriate decisions for their characters, such as not drinking alcohol, smoking, taking drugs, or committing crimes. A boy said, "It was mostly just like a normal life. (…) I didn't like do anything extra bad (…). Like I didn't steal (…) when it gave me the chance. I just decided

'No' (…) 'cause I figured out I'd just get caught (…). I wouldn't like quit school, if it gave me the option" (USA_AMMI5519Ab_2). A girl explained, "I just chose what I like to do (…) 'cause I wanted to see what would happen. But for things like 'Your friends are drinking alcohol', I clicked 'No' 'cause I didn't think it was a good thing to do" (USA_SAAJ1530Cg_1).

Girls in particular were taking their decisions quite seriously. Some even considered their virtual lives a test for real life, as this quote shows:

> *Oftentimes we're faced with decisions on smoking, drugs or alcohol, (…) but I never said 'Yes' because [laughs] I don't really wanna smoke or do (…) drugs or alcohol (…) if you say 'Yes' to drugs, smoking or alcohol, then obviously you're gonna learn something about yourself, that you're not gonna be very good on your peer pressure. Because if you can't even do it in a computer game, then in* ***reality****, you're gonna get crushed. (USA_ANAD8009Bg_2)*

Another girl recalled,

> *There was one thing that said 'You've (…) found like a 100$ bill on the streets and do you want to keep it?' (…) what I do, it's just say, 'No, it's the wrong thing to do', and I just give it back. (…) 'cause I would never feel right if I stole, even though there's like no one around. And (…) it was like 'A lot of your friends have decided to smoke. Do you wanna join with them?' And that's like an (sic) really easy decision, because I don't want to smoke and I never will smoke, even if my friends are doing it. So I just automatically say 'No.' (…) it'd shorten my time in the game, 'cause it'd probably say, 'You have lung cancer and you have just died. (…) It'd kind of ruin the game for me, so. Why would I wanna do it in a virtual game, if I wouldn't do it in real life? (USA_NOLU2932Cg_2)*

Making decisions such as not smoking therefore aligned with students' personal beliefs as well as the simulation.

With more experience, some students were experimenting more and taking their decisions less seriously. A girl said,

> *The second one, like it's more like just a game, but it's not like (…) 'Whatever, it's just a game.' (…) I don't get like really into it, but I'm not like (…) just like click whatever. (…) if I wanted to have like a serious life, I wouldn't have as many kids, and (…) I probably wouldn't try to immigrate to the United States 'cause that could be like dangerous. (USA_MAJA7786Ag_1)*

A boy explained,

> *I was just kind of curious what would happen (…),'cause I had never accepted when it says 'Some of your friends smoke cigarettes' and stuff. And I thought, (…) probably most kids do. Well, (…) at least a couple of kids do it, and it's supposed to be average, so. I (…) decided to try for the first time. (…) And that did affect me later on, because (…) I think I got like caught by the Principal or something. (…) I was just curious (…) I've always wondered whether it actually affects anything (…) other than your (…) conscience level. (USA_SHMI4260Bb_2)*

Some students enjoyed experimenting and taking advantage of the fact that *RealLives* was a simulation. A boy stated,

> *I realize that it's not a real life, (…) it's a game, a computer game. I would probably click something just to see what, what happened, just to learn, so like 'Don't do this, don't do that when you get older' (…) I think I learnt a lot of stuff not to do. (USA_AMST7765Ab_1)*

A girl felt,

> *It was a lot of fun how like you can make decisions and (…) make life like really bad, like I did that one time. (…) with my second person. (…) He was an alcoholic [laughs], he smoked, he took drugs. He is (…) homeless at the end and, yeah, it just wasn't really good. [laughs] And I starved him, and then I made that person like have a lot of children and adopt a lot of children. So like they all like died from like malaria and stuff like that, which was kind of funny. (USA_NIJA1124Dg_1)*

Although students usually based their decisions on their personal beliefs, values, and preferences, many also considered their characters' attributes and living circumstances to some extent. One boy explained,

> *I did it (…) judging by what I was going through. (…) And I would pick things that would like help me (…), like I picked reading and studying (…) because that would help me better through college. And when I was a kid, I would pick like socializing to make more friends (…). Things that I personally like and wanted my character to have. (USA_KASC1746Db_1)*

Another boy said,

> *When I was (…) doing school things, I would do reading and study, (…) art and outdoor activities, or something like that. So it would help the person in the game. And then after I graduated, I got a job, I just switched to stuff that I liked. (USA_CHST0127Ab_1)*

Several students checked their character statistics on the Self or Stats page before and/or after making decisions "because you can (…) see if you're healthy or not, (…) if you're very strong, or if you have a lot of money, or if you're happy or not" (USA_ELTI6170Ag_1). A boy stated, "I checked to see what was going down. I could change my leisure activities (…) Like put them back up" (USA_JEJO1566Ab_1).

One girl was following her characters' development particularly closely and was considering all her decisions carefully. About one of her characters, she said,

> *Since she was really little, (…) one of the highest percentages was in art and so (…) I chose to let her do art (…) and I think it's [um] something that makes her more happy, 'cause she hasn't really been like a happy person. (…) in the beginning, she was only like 20% happy, and it started getting lower and lower as she aged, (…) I kind of didn't know what to do. (…) after she got married, she got a lot more happier, so I was kind of relieved. But her health isn't very good, and she doesn't get enough*

> *protein, because there isn't a lot of good water, and (…) her growth was actually stunted because she can't get enough protein and enough of the nutrients that she needs. (…) she's not very healthy and I (…) don't really know how I can change that. So I've been trying to like move her around to different areas of Yemen (…) I'm just working on trying to get her health up. (USA_ANAD8009Bg_1)*

Students also sometimes moved or chose particular jobs based on their character's situation. One boy explained, "The reason that I moved from China is because there's a lot of disasters happening, and it kept on saying 'Your family was not affected.' But I knew one of the times that we were going to be" (USA_KASC1746b_1). A girl had chosen particular jobs for her characters because "mostly like the jobs were the same as the rest of the family, 'cause they would want you to do the same" (USA_SAAJ1530Cg_1).

Making decisions for a character of a different sex, age, or cultural background was not easy for students (see also 6.2.2). A girl explained that when playing a male character, "I thought a little bit of it. (…) I didn't do exactly what I would have done, but I kind of did, if I was a boy, what I would have done. [laughs]" (USA_ELTI6170Ag_1). Other girls said, "I tried to think of what an adult would do, but it's kind of hard, 'cause I'm a kid. [laughs]" (USA_JOBA2213Ag_2) and "It was hard to decide like what job I would pick. 'cause I didn't know like which one I would be able to get. Or like if I should move out of my house when I was (…) however old. But I did and it worked out" (USA_JETO1370Ag_1).

Peers also influenced student decision-making to some extent. Students often asked their classmates what to do, which job to choose, and what to name their children, although not always following their advice. One boy recalled how he was asking his classmate, "So I'll be like, 'Oh, should I do this?', 'cause he already played before, and he would tell me kind of 'Yes' or 'No' or 'Decide by yourself'" (USA_SAJE1123Cb_2). A girl said, "For the leisure activities, (…) I mostly just did it (…) because this other kid said that (…) you could get (…) this really good job, like if you picked this one" (USA_MAJA7786Ag_1).

*Using the Learn More Option*

Not being told to use the Learn More option, students usually skipped it, although many seemed to be aware of its educational value. When asked if they had used the Learn More option, students replied, "No. I didn't" (USA_KASC1746Db_1) and "No. I never really clicked on that ever. [laughs] I don't know why" (USA_AMMI5519Ab_2). Others answered, "Not really, 'cause I just (…) wanted to live the life instead of reading the article. (…) I think I should have, though" (USA_MAAN7778Db_2) and "I didn't click on Learn More at all when I played, but I mean if it was interesting, then I would (USA_ELTI6170Ag_1). Another girl said, "No, I didn't. (…) I think you have to click the Learn Mores on like the different

disasters and stuff like that to make it more educational, but I think it's pretty fun" (USA_NIJA1124Dg_1). A boy recalled,

> *I tried to do that, but (…) it took me to an Internet page, and we weren't connected to the Internet. (…) If we do get the Internet connection, yeah, I would follow up on the links, if I didn't know it. (USA_CAPE8706Bb_1)*

Some students believed they did not need to use Learn More because they understood most of what they saw on *RealLives*. A boy answered,

> *No, because (…) what I did learn about the country is like how hard it was (…) to live there; their religions and stuff I already knew. I already knew that the (…) Middle Eastern (sic) was Muslim-focused. So I think I knew most the facts that they gave me. (USA_CAPE8706Bb_1)*

A girl replied,

> *Not normally, 'cause when I did it at home one time it was just boring. So I didn't really click on it (…)'cause most things I understood. (…) some of the things I didn't understand, I kinda (…) just figured it out (…). As I went along. (USA_CHDE6775Dg_1)*

Another girl explained,

> *I did once and it like brought me to a web page or something. I'm not sure. But I didn't (…) really like it (…) because I kind of understood a lot of stuff and didn't need to learn more, but I thought it was more fun just to like decide on like basic things instead of learning more about what you're doing. (…) I guess you would learn more, if you clicked it, but I didn't really click it too much. (…) I still feel like I learnt something, but I guess I could have learnt more details about the country if I clicked the Learn More button. (USA_CHDE6775Dg_2)*

Those who did use Learn More mainly wanted to obtain information on diseases and natural disasters, but also on food, education, and other topics they were personally interested in. A girl said she used Learn More "if there's something interesting, (…) something about the diet of the people or something that I might think is kind of cool. (…) like about the staple foods" (USA_DAKE9181Dg_2). Another girl used Learn More "most of the time" because she found it interesting to learn that "some percent of people go to school or like some (…) percent of people have a job" (USA_JETO1370Ag_1). A boy stated he clicked on Learn More

> *if it seemed like a thing of interest (…) if I didn't really seem to be interested about it, I just pressed Okay. (…) when it said like I had a worm or something, I was like 'Wow, what's that?' and I'd click on Learn More (…). Diseases that had real like long names that I didn't know how to pronounce. (USA_AMST7765Ab_1)*

Another boy explained,

> *I still clicked on the Learn More, 'cause I was just interested (…) one time it said a certain disease was breaking out in a certain area and I clicked it. (…) I got to learn about what I didn't already know. (…) if I didn't know something already, I would wanna know about it, so I could maybe use it in the future. (USA_CHST0127Ab_1)*

A girl recalled,

> *I didn't know what a peptic ulcer was (…) I didn't really understand some of the stuff, so I pressed Learn More and then that would be easier. (…) so I learnt a little bit about that. And about my culture they said some stuff, but (…) some of the times I just pressed Okay, 'cause the first few times I'm like* ***Learn More****, then (...) 'Okay. I know a lot about it.' [laughs]. (USA_JOBA2213Ag_2)*

She believed that "Learn More actually helps a lot" because "you can (…) decide, if you think it's important, you should press (…) Learn More, but if you think 'I don't really think I need to learn this', then you press 'Okay.' (…) And I think that's good" (USA_JOBA2213Ag_2). A boy also appreciated that students could choose what they wanted to learn more about. He said,

> *That's actually (…) something good, 'cause there's things you wanna learn about and things you don't wanna learn about and so Learn More kind of really helps that out. Like the staple food, I wanted to learn more about that, but something like an earthquake, I wasn't quite as interested. (USA_MAMI1895Bb_1)*

A boy mentioned that Learn More had helped him with his decision-making: "One time it asked me to, like I wanted to steal something, and I pressed the Learn More, and I read about it and (…) I couldn't do it. [laughs] 'cause (…) it said like your percentage wasn't very high of getting away" (USA_CHST0127Ab_1).

Some students used Learn More because it was already enabled on their computer. One boy said, "At least for my computer it (…) automatically went to Learn More, so you could (…) say Less Information (…), but I just went with what the computer gave me" (USA_SAJE1123Cb_2). Another boy stated, "I had it on all the time (…) it always had stuff on the bottom. (…) sometimes like about things that I found interesting (…) I-was-born stuff I didn't really read" (USA_JEJO1566Ab_1). According to another boy, the information on Learn More was "much better, it gives you much more statistics and stuff" (USA_SHMI4260Bb_2). He explained,

> *I usually have that on. (…) Sometimes it repeats itself, (…) but (…) I (…) at least always (…) read the first sentence to make sure, (…) if it's something (…) I have already kind of seen before (…) I don't usually read the whole thing. (USA_SHMI4260Bb_2)*

Some students, however, found the Learn More option confusing or complicated. One boy said, “It kind of got confusing because it was a big, big page with lots of words (…). I don’t like reading” (USA_TIRO5433Bb_1). A girl said,

> *It’s not really complicated, but (…) I don’t really like know what some of it means. (…) who like knows like bigger words (…), they can do this like more. (…) someone who already knew a lot about Africa, (…) they’d probably understand it more that I would. ’Cause I don’t know anything about anywhere. (USA_MAJA7786Ag_1)*

*Focusing on Money, Emigrating, and Family*

Not being given instructions, students set their own goals when using *RealLives*. Getting a good education and job and making a lot of money were important goals for most students. One boy said, “I tried going to school to get my wisdom up” (USA_TIRO5433Bb_1); another boy aimed for “getting a good job and staying in school” (USA_MAAN7778Db_2). A girl wanted

> *to have like a really good job, like a high-paying job, so I could like support my family. And then [um] probably to live like in a safe place, without any disasters or anything. (…) and then also to be in school and college. (USA_ELTI6170Ag_1)*

Another girl said,

> *I would wanna aim for like getting raised in kind of a low-class or (…) village and then (…) get a good job and stay in school (…) maybe like immigrate illegally [laughs] to the United States and do well there. I think that would be really awesome ’cause it’s like low to high. (…) it would be nice to be born kinda rich, but then there’s really no purpose. (…) I think personally the purpose is to get the person to the highest point they can get to. (USA_NIJA1124Dg_1)*

Students usually selected the best paid jobs they could get. A girl said, “I actually clicked on the ones that made all the money” (USA_MAJA7786Ag_1) and a boy explained, “You can be a potter or you can be an artist, (…) or a painter. (…) the artist seemed to earn more than the other two categories, so that was what we got” (USA_JUWI2267Db_2). Another boy tried to make more money by investing. He recalled,

> *I had gotten wealthy from all these different pay raises, which was nice, and I had a lot of money and everything. And it asked, (…) ‘Would you like to make a small low-risk situation thing?’ and I (…) figured ‘Why not? I mean I’ve got so much money, (…) I can just gain it back ’cause I’ve got so much.’, clicked ‘Yes’, lost a lot of it, then (…) got the money back, clicked ‘Yes’ again (…). But then I realized, this is never gonna work, so I just stopped it and got more money. (USA_AMST7765Ab_1)*

One boy decided to steal to get more money. He said, “I actually went for the money because I had no house (…) I didn’t give anything to charity, I had the least amount of food that you could get (…), I didn’t buy any just random items” (USA_SAJE1123Cb_2).

Money also played an important role when students used the Emigrate function. Students wanted to immigrate to countries where they could make more money, but they also needed money to get there. One boy explained,

> *When I was in like Afghanistan, (…) my salary was like 1,200 or something and then in my third life, when I moved to Iraq, (…) I think I got the painter job and it was like 152 [um] I forget what the money thing was. And so (…) you can actually see (…) which country (...) is better for having a job, and that way you can make more money. (USA_AMLE6028Cb_1)*

Another boy said, “I just thought anywhere than where I’d been might have been a better place to make money. (…) That was the main factor for me” (USA_TRJO1718Cb_1). He added,

> *I didn’t have very much money, so when I tried to move to the United States or (…) Russia or some place like that, which was big – well China is big, but I wasn’t (…) getting much money there – [um] I didn’t have enough money to get to these places. (…) I didn’t even have enough money to illegally immigrate there, so I just (…) went to one of the (…) only countries that I had enough money to get to. (USA_TRJO1718Cb_1)*

Another boy recalled,

> *I emigrated to Djibouti. (…) I didn’t have [laughs] a good amount of money ’cause apparently Djibouti is pretty bad. I lost a lot of money (…) emigrating there and I lost a lot of money there (…) because you can’t make a lot of money there, and you can’t [laughs] emigrate back to where you lived. (USA_VAGE1928Cb_2)*

The Emigrate function was very popular, particularly in the beginning when students had not yet discovered the Character Designer. One boy said,

> *With all my characters I tried to immigrate somewhere. Just for more variety and to learn more about the culture [um]. (...) With the girl in China, (…) I think she ended up in California. (…) my first time was a guy from Afghanistan. I illegally immigrated to Michigan and made about 200,000 dollars (…) And another one (…) I immigrated to Australia and made about a million dollars. (USA_MAMI1895Bb_1)*

While some students hesitated to emigrate due to the negative experiences of their classmates, others were curious and wanted to try it precisely because of that, or because their friends were doing it. One girl said, “I didn’t try (…) emigrating because (…) somebody in my group died from it” (USA_CHDE6775 Dg_2). Another girl wanted to emigrate **because**

she had “heard other people (…) saying like they had immigrated illegally and then they like died or got caught and sent back” (USA_JETO1370Ag_1). A boy explained, “I hear all the stories of people wanting to immigrate to America, so I thought I might do that” (USA_MAMI1895Bb_1). Another girl stated, “My friend next to me moved (to) Philadelphia, so I wanted to go to Philadelphia” (USA_ELTI6170Ag_1). Yet another girl recalled,

> *I was gonna try and immigrate (…) I was thinking about like (…) Fiji or something [laughs] like that. (…) my friend X, she moved to Fiji, and I’m like ‘How come they didn’t let* ***me*** *go?’ And she just started laughing ’cause she could go and I couldn’t. [laughs]. (USA_JOBA2213Ag_2)*

One girl emigrated because her character was affected by natural disasters. She said,

> *Where he was living, there were like a bunch of floods happening (…) and there were storms and there was like all these [um] natural disasters happening. (…) we just wanted to move out of that area. Just in case. (…) So we just picked (…) Sydney, Australia, which seemed like it wouldn’t, like anything would happen. But there were a couple (…) natural disasters, like heat waves, since it’s so like dry there. (USA_ANAD8009Bg_1)*

Most students wanted to immigrate to the USA or other Western countries, where characters could have better lives. A girl said, “I tried to immigrate to the United States (…). Because they have better job offers” (USA_NIJA1124Dg_1). A boy remembered, “I tried emigrating to different countries that seemed like they might be better than mine (…) I tried [um] Britain, I tried America. I think I tried Canada” (USA_VAGE1928Cb_2). Another boy explained,

> *I’d aim for living in America ’cause I (…) think it’s easier to get jobs here (…) as opposed to like [um] China or India. And I would want like a lot of money ’cause then you could have a nice house and have lots of food. (USA_CHDE6775Dg_1)*

Yet another boy remembered,

> *In my first life, I was (…) a girl in Iraq and (…) when I was 30, I did not have a job, I did not have a (…) home, so I tried to emigrate illegally into Canada. I did not make it. (…) it says ‘You do not have enough money.’ (…) Money is a basic factor. (…) I tried several different countries, from Canada, America, I think I tried Brazil (…). Because I think America (…) you have better job opportunities. Canada same thing and (…) you can sort of settle down in Canada easier, there’s a lot of nature up there. Very good. I’ve actually been to Canada before. Very nice place. (USA_CAPE8706Bb_1)*

Students usually preferred destinations they were familiar with and personally liked. One boy said, “I got to move to Florida, which was pretty good. (…) I’ve been there once and it was pretty cool” (USA_ KASC1746Db_1). He explained, “I would like it in the United States because that’s where I live and that’s where I know most about. And I’d like them to

have a lot of money" (USA_ KASC1746Db_1). Another boy stated, "I moved to the United States, to (…) Cincinnati. (…) I just like Cincinnati. (…) They have a good football team there" (USA_CHST0127Ab_1). A girl said, "I just like picked the United States because (…) I already know about life in the United States, so I just picked that" (USA_MAJA7786Ag_1).

Fewer students wanted to explore other countries; for example the girl who stated, "Now I'm emigrating more and trying to go to other places just to see what it's like there" (USA_DAKE9181Dg_2). A boy was fascinated by war and emigrated to Afghanistan and Iraq. He said,

> *Iraq, I knew [um] not a lot, but a fair amount [um] mostly about (…) the Iraq [um] Second Iraq War, (…) and Afghanistan (...), I don't really know much, but I knew that (…) Americans were fighting the Afghanians (sic) (…) in Afghanistan, and it's actually (…) why (…) I wanted to go to these places, like see things that were touched by war (…) in our world and see (…) what's happening in RealLives. (USA_AMLE6028Cb_1)*

Another boy immigrated to India because

> *it just seemed kind of cool (…). I don't know why (…). I like Australia and other places, but I didn't have enough money, so I figured maybe I could get into India, and it seemed just kind of like a cool place to be for a while. (…) I don't know too much about India. I remember like studying it at one point. But I can't quite remember it all, (…) it's like one of my places of interest. I have like a lot of countries that I like and that was one of them. (USA_AMST7765Ab_1)*

A girl explained,

> *I tried to go into Australia. Twice. (…) 'cause my Mom went there for a long time and she said it was like really cool, and we're thinking of going there this summer. (…) a family friend [laughs], he went to Australia and they went on this boat that had a clear bottom and you could see everything, so I really wanted to get there to do that, but I never really got to go there. (USA_NIJA1124Dg_1)*

Inspired by his Social Studies lessons, another boy wanted to do a tour through Africa, not knowing that he could only emigrate once. He said, "I was trying to bunny-hop from Madagascar to kind of take a tour of Africa. So I went to Mozambique, which really isn't a very nice place to be, as I learnt, and I couldn't immigrate, so. [laughs]" (USA_JUWI2267Db_2).

Once they had discovered the Character Designer, some students did not emigrate as much. One boy explained, "I played with that more [um] in September. (…) because while using the Character Designer, (…) I was already where I wanted to be" (USA_SHMI4260Bb_2).

Apart from moneymaking and emigrating, another common focus of students was family and relationships. Girls in particular enjoyed comparing their families, getting married, and having many children. Some students wanted to see how many children *RealLives* would allow them to have, which even resulted in one girl's computer to run out of memory. One girl stated, "We talked a lot about how many kids we had" (USA_CHDE6775Dg_1). Another girl explained,

> *I tried to see how a kid would affect my life. And I don't think it impacted it too much, but I think it was harder because (…) when I had the kid, I couldn't do as many (…) activities (…) I had to give up some stuff. (…) So it was hard. (USA_CHDE6775Dg_2)*

Students' desire to have many children did not necessarily reflect their personal aspirations, as this quote shows:

> *I had a lot of kids with all of them, and then I got married (…) a (…) lot of times (…). It was pretty much with all the characters, but with the last character (…) the guy also like adopted a lot of children. (…) I had five of my own and then like six adopted. (…) then I went like broke in the game. Didn't have a lot of money. I don't want to have a lot of kids. (USA_MAJA7786Ag_1)*

### 6.1.3 Social Interaction

Using *RealLives* in the library influenced students' interaction with the simulation and with each other. On the one hand, other students and teachers also used the library and were sometimes distracting participants. On the other hand, some participants did not dare talk in the library because it is usually a quiet place. One boy stated, "No one really said anything to us. (…) of course we weren't screaming and we just talked to each other and laughed at someone else's misfortune" (USA_JUWI2267Db_2). A girl recalled, however, "I often got shushed by librarians [laughs]" (USA_JAMA5531Cg_2). She thought, "It'd probably be easier in the classroom, but it's fine either way, 'cause when it's just four people it's not that (…) loud" (USA_JAMA5531Cg_2). Another boy stated, "I just felt like bad whenever I (…) talked [laughs], 'cause I felt like I'd used to be like annoying somebody else" (USA_AMMI5519Ab_2). He believed that using the simulation in a classroom "would be (…) louder and like more sharing, because like the library, you're supposed to be all quiet (…) so you don't disturb other people. (…) in class, I feel like it'd be a lot more fun" (USA_AMMI5519Ab_2).

Students were normally playing in groups of four, two next to and two opposite each other, with each student on one notebook. Sometimes, other participants who were in the library came over, looking at students' screens, asking questions, or suggesting actions. A few times, two students were sharing a computer while waiting for an interview or the next lesson.

Most students were reading aloud what was popping up on their screens and saying or shouting “Yes!”, “No!”, “Wait!” and “Oh my God!”. They were sharing and comparing their experiences during and after playing, as this quote shows:

> *After we play, even (…) while we’re playing (…), we are talking to the people next to us a lot [um]. And then afterwards, (…) people are sayin’, (…) the big one is ‘How did you die?’, but (…) a lot of them is (…) ‘How much (…) were you making?’, [uh] ‘What job did you have?’ (…) ‘Where did you live?’ (USA_SHMI4260Bb_1)*

When asked what they were sharing, one boy replied, “We were like ‘Oh, I’m 34!’ and then we were like ‘Oh, I just had a child!’ or ‘Oh, I just got married!’, stuff like that” (USA_KASC1746Db_1). A girl said, “We talked a lot about how many kids we had and (…) people would say like ‘Oh, I got an awesome job!’ or [um] ‘Oops, I just went bankrupt’” (USA_CHDE6775Dg_1). Another boy explained,

> *If something like **really bad** happened, I would kind of say it. (…) if it’s like ‘Your mother has died’ (…) they kind of like respond to it. (…) or like (…) ‘Do you wanna have like a risky thing that you can put money into?’, (…) I kind of like ask if I should (…), ’cause I’m not really sure if it (…) would work. [laughs]. (USA_MAAN7778Db_2)*

Students enjoyed sharing their experiences, as this quote shows: “I like playing with other people because you can interact with them, like, say, ‘Oh, my, I just turned 36’ and (…) ‘I just got married’ and stuff like that” (USA_MAMA2525Bb_2). A girl felt, “It was fun like communicating and like talking about what your character was like and stuff. It was kind of like bragging on how (…) good your life was in the game” (USA_CHDE6775Dg_2).

While some students shared almost everything that happened, others were more selective. One girl explained, “Sometimes it was just for yourself, but when something interesting came up, you (…) just share that with everybody, and then someone else would have something to share (…) that has something to do with that” (USA_JETO1370Ag_2). She believed that “the more important things were shared (…). Things that were more surprising or something” (USA_JETO1370Ag_2).

Although leading their own lives, students were listening to what others were saying, commenting on, and learning from it. One girl said, “I’m like ‘Oh my gosh!’ and then I’m like ‘My Dad had a heart attack?’ and I’m like ‘Oh!’ [laughs] Everybody just like, it started getting quiet for a second. [laughs]” (USA_JOBA2213Ag_2). Another girl explained, “Sometimes when people would say something, it kind of would be like ‘Oh, how do you get to that?’ or something, and then they’d share it”(USA_JETO1370Ag_2). Yet another girl found it interesting to hear what others were saying “because a lot of times it’s something (…)

that might be happening to me, too. Or that might be something totally different from what's going on with me, and I think that's interesting, too" (USA_DAKE9181Dg_2). A boy recalled,

> *Whenever like a window popped up that has something to do with your life, like, say, 'You had the measles', you'd be like 'Oh, I got the measles!' and everyone would be like 'Oh, that's pretty bad.' They would still be focusing on their life, but you would share your information with everyone else. (…) You wouldn't really explain it, you'd just like say the hot topics in your life. So it wasn't really distracting. (USA_SAJE1123Cb_2)*

Students also asked others for help when they did not know what to do or how to use a function. As described earlier, students learnt, for example, how to use the Character Designer, how to start a business, and how to invest through peer interaction. One girl stated, "I liked it. (…) if you didn't understand something and someone else did, (…) they could explain it to you, or (…) if maybe you asked someone like 'Well, oh, should I have five children or should I keep four?'" (USA_CHDE6775Dg_2). A boy explained, "When it (*sic*) like 'Do you wanna have like a risky thing that you can put money into?', (…) I kind of like ask if I should (…), 'cause I'm not really sure if it (…) would work. [laughs]" (USA_MAAN7778Db_2). Another girl said,

> *It was helpful because then you could ask questions, if you didn't understand something or like if you didn't know where to go or like what to press, if you're like 'Oh, I don't know how to get out of this.' (USA_JOBA2213Ag_2)*

Moreover, students adapted their use of *RealLives* to their peers' to some extent and borrowed ideas from other students. One girl mentioned, "For the leisure activities, [um] I mostly just did it like because this other kid said that if you like you could get (…) this really good job, like if you picked this one, and so I would do that" (USA_MAJA7786Ag_1). Another girl said,

> *I didn't realize that you could just age and age and age as much as you wanted. So I'd age, like take some time, (…) 'cause I was just kind of like figuring out how to work everything, so I was going like slower than everyone else. When I was at 6 years old, the guy across from me was at 23 years old, (…) then I just started aging more quickly. (USA_ANAD8009Bg_1)*

Most communication took place between neighbors, who were often good friends and frequently checked each other's screens, shared and compared what was happening in their lives, and gave each other advice. A girl said, "First like I didn't really even know like about like aging a year, so [uh] my friend, who was sitting next to me, kind of helped me" (USA_MAJA7786Ag_1). A boy recalled,

> *My friend X was sitting next to me and (…) he played (…) before me, so he was like, 'If you (…) give people charity, if you have a good karma, then it usually comes back to you.' And things like that. (…) I'll be like, 'Oh, should I do this?' (…) and he would tell me kind of 'Yes' or 'No' or 'Decide by yourself.' (USA_SAJE1123Cb_2)*

*Group Play*

Students were not instructed to use *RealLives* in groups and were rarely sharing characters with others. Many students nonetheless considered using the simulation a group activity. One girl said, "When I'm here at least, it's more like a group thing, or with like the (…) person next to me" (USA_JAMA5531Cg_2). Another girl felt it was "more like a group activity, 'cause everyone's always talking about what they're doing (…), and if something interesting happens, we'll say it out loud and everyone can talk about it" (USA_DAKE9181Dg_2). A boy stated,

> *I feel like I play in a group because (…) we all do our name, then we discuss about like what we're doing. And it's really fun to talk with other people. When you're alone, you (…) really just press the button and you just play, but when you got a group, you have (…) someone to talk to and you can find out about other people what they're doing (…). So you can find out more. So while you're playing in America, you could be watching other guys playing in Canada or somewhere like that. You can learn about both things at once. (USA_CAPE8706Bb_2)*

Another girl explained,

> *It kind of depends who you're put with. (…) if you're put with people that are like quiet and just like focused, then it can feel like just an individual thing. But if you're with people that are kind of like talking about each character like 'Oh my gosh, my character (…) just like turned four!' or something and 'My character just got out of school!' (…), then it feels more like a group thing. (USA_ANAD8009Bg_2)*

Two students could not decide if using *RealLives* was an individual or a group activity. One of them said,

> *I don't wanna say it was a group activity, but since everybody's kind of doing something, you're (…) always curious, (…) everyone's kind of asking, but you're always doing your own thing. It's like you're always on your own life, but (…) you always pay attention to what, like every once in a while you'll go over to the person next to you. And everyone's just kind of sharing (…) when something interesting happens. (USA_SHMI4260Bb_2)*

The other student explained,

> *It was kind of both because like they were asked for advice on like what to do and like whether they should immigrate or not (…), but you still (…) controlled most of the game, so it wasn't really like you were sharing a computer, but it was still like a group, kind of. (USA_CHDE6775Dg_2)*

One student described sharing a character with a friend while waiting for an interview as follows: “We are sitting out there together and we have the same character, so we’re discussing (…) where we should move, what we should name each child, [um] if we should leave the marriage or like [um] all these different things” (USA_ANAD8009Bg_1). About their decision-making, she said,

> *Usually our decisions were the same, like we had the same ideas (…) it was definitely her idea to move to Sydney, Australia. I was thinking like another part of China, but she was just ‘Let’s go to Australia!’ and I was like ‘Alright’ (…) it said that we didn’t have enough money to move in legally, (…) they said ‘Do you wanna try illegally?’ and I said, [um] ‘What if (…) they get caught and then sent to jail?’ Would they be in jail for life? ’Cause she said, ‘We’ll just age a year, and we’ll be out. So we might as well just try.’ [laughs] (…) So we just tried anyway, ’cause she changed my decision. (…) and we luckily got in. But (…) then she decided to move into the most populated area in Australia (…) called Sydney. And I was thinking maybe we’ll be bound to (…) be found out there, but I just was like ‘Oh, well.’ And then we moved to Sydney, Australia. (USA_ANAD8009Bg_1)*

Despite these different opinions, she felt that “it was good working with someone because (…) maybe they can change your perspective on things and [um] make you change your decisions” (USA_ANAD8009Bg_1).

### 6.1.4 Difficulties and Problems

Although having little to no experience with *RealLives* and no teacher support, students did not encounter major difficulties using the simulation. When asked if they had had any problems or questions, students answered, “No, I don’t think so” (USA_CHST0127Ab_1), “I didn’t really have any questions. It was pretty straightforward” (USA_JETO1370Ag_2) and “It seemed like a pretty well streamlined game” (USA_JUWI2267Db_2).

A few technical issues, including one very slow computer and some error messages, were solved with the help of the researcher and the school’s IT staff. Students also discovered some bugs in the program. One boy recalled, “Once I had a glitch where it wouldn’t let me move out. [laughs] That’s the only real thing. (…) I started a new guy, ’cause I wanted to move out. I was like 30. [laughs]” (USA_JUWI2267Db_2). A girl said she kept getting information on a wife her character had already divorced, “We got this new wife, but for some reason it kept on telling us what was happening to our old wife. (…) I think it thought that [um] we were still married” (USA_ANAD8009Bg_1). Another girl remembered, “I had too many kids, I guess, and it ran out of memory. (…) So I had to start over. That was frustrating” (USA_CHDE6775Dg_2). Yet another girl was unable to open the life she had

saved and therefore had to start a new one. She said, “I tried to finish (…) my first game, but I couldn’t get it to work on the computer. (…) So I started a new one” (USA_JETO1370Ag_1).

For some students, the program was a bit too slow. One girl said, “Sometimes it takes like a couple (…) extra seconds to load, but that’s not really that bad” (USA_JAMA5531Cg_2). A boy stated,

> *There weren’t really problems, but (…) it runs a little slow (…) sometimes (…) I click something, it takes a few seconds (…). And then [um] sometimes half of it loads, (…) you can’t click much, (…) a few seconds later then it comes up. (USA_SHMI4260Bb_2)*

As mentioned earlier, the disabled Internet connection confused some students and caused them to think that the Country page was not working. Other students could not really understand the graphs on the Stats page, as this quote shows:

> *I thought those were really confusing ’cause it (…) was so small, I didn’t really know if it (…) would plummet and then go higher, and I didn’t know if (…) that was good or bad. And it was in green sometimes or in red, and I (…) couldn’t understand it. [laughs]. (USA_CHDE6775Dg_2)*

Some students felt that some buttons on the Stats page were not working. A girl said, “One time I was looking at the statistics, (…) and it didn’t really work, so I just clicked (…) on [um] another one of the screens, and then I clicked on it again and it worked” (USA_DAKE9181Dg_2). A boy remembered, “Sometimes I’d like click like all the buttons and it wouldn’t allow me to do something (…) a couple of buttons didn’t work, and that’s the only site that did that” (USA_SAJE1123Cb_2).

The most difficult functions, particularly for girls, were the business and investment options. One girl said, “There was one that was like invest or loan. I couldn’t figure out how to do that” (USA_JETO1370Ag_1). Another girl admitted, “I got like confused with the investing and borrowing money. (…) I actually didn’t really know how it worked, ’cause (…) investing is a real life stuff, so it was kind of just confusing for me” (USA_MAJA7786Ag_1). Yet another girl said about investing,

> *It was really difficult to understand ’cause I didn’t really get what it meant. (…) I never used it. I think it’s for the bank accounts, but then there was some other choices, (…) when you like invested and stuff, (…) there was a whole list of stuff. I didn’t really get what they were all for. (USA_CHDE6775Dg_1)*

She added, “I don’t really understand bank accounts or stuff like that either” (USA_CHDE6775Dg_1). Another girl believed that older students could understand these options better:

> *I tried to make a business. Didn't know how to do that. (…) I think it was [uh] invest money, and didn't really get that either. [laughs] So more with like the money stuff that, I think, maybe an older person would know a little better than I would. (USA_NIJA1124Dg_1)*

The boys in this case study overall seemed more adept than the girls in dealing with businesses and investments. When asked if they had used these functions, they replied, for instance, "I actually started investing in some stuff, and I started my own engineering business (…) I had an income of about 30,000 dollars a month, so it was pretty good" (USA_TRJO1718Cb_1) and "I had to figure out first how to invest because it kept saying (…) 'You are not spending much money.' Then I, yeah, decided to invest. (…) I invested in banking and land" (USA_JEJO1566Ab_1). Another boy explained,

> *I invested in a lot of land, and started a car-washing business, or auto repair I mean, and I made about a million dollars. (…) I just knew. I clicked investing and I just put a, like all my money in there, which I guess is a bit unreal, unrealistic, but that's how it kind of worked for me. (…) Well, my Dad kind of (…) explained that stuff to me, so. I knew a bit about it beforehand. (USA_MAMI1895Bb_1)*

He also admitted, however, "I wasn't quite sure about the start-up capital, after all it was the amount of money you start with, and like investment was how much money you put into it. I didn't have 100% an idea about that, but I had (…) an idea" (USA_MAMI1895Bb_1).

A few boys nonetheless did have some difficulties in investing or starting a business. One of them said, "I didn't like understand what all the investing stuff was about" (USA_AMMI5519Ab_2) and another recalled, "I tried to start my own business, and it didn't go too good, 'cause I had to invest money and then I got kind of confused there" (USA_TIRO5433Bb_1). Another male student asked the researcher how to use the investment function. He said,

> *I had to figure out first how to invest because it kept saying – even though I was spending the most money I thought I could - it kept saying 'You are not spending much money.' Then I (…) decided to invest. (…) I asked you. (USA_JEJO1566Ab_1)*

When unable to understand and use a particular function despite trying several times and asking their peers and/or the researcher, students chose a different function or started a new life. A girl said, "When it was like the starting fund and everything, I didn't really know what to put. So I just got a job" (USA_MAJA7786Ag_1). Like many students, she felt that "it's not as big of a concern" (USA_MAJA7786Ag_1). A boy recalled, "I moved to Afghanistan and (…) I didn't have enough (…) money to immigrate, so I started (…) a new life" (USA_AMLE6028Cb_1). Another girl decided to move back in because emigrating was too difficult for her. She explained,

> *I tried clicking immigrate, but it was kind of complicated 'cause like it said that now you have to find a house and then kind of get settled. So it was kind of confusing. So then I just clicked 'Go back to their own house.' (USA_SAAJ1530Cg_1)*

Another boy remembered, "When I got married, (…) I could not adopt a child. I did not know why. (…) But I had a child actually" (USA_CAPE8706Bb_1). He also said, "I [uh] tried to immigrate to the US, but I did not have money at the time. (…) So I worked in England as a (…) computer programmer" and recalled,

> *I couldn't figure out how to [uh] change my like dwelling area in the Toronto area. (…) I tried clicking on many buttons, but I couldn't (…) be specific about where I wanted to, to go, so I tried moving to a different city and (…) there I could be specific. (USA_CAPE8706Bb_1)*

Several students did not know the different currencies and some did not even realize that their currency was not American dollars and were surprised, for instance, how much a beggar earned. One girl admitted, "The money. (…) I didn't understand too much really. Like it would be like different currencies" (USA_NIJA1124Dg_1). Another girl explained,

> *They have a different kind of money and so I had to (…) try to change it (…) it was more confusing, so I had to kind of learn which one was higher and which one was low. (…) it was difficult 'cause I couldn't really tell the difference. (…) I didn't know if I had a lot of money. (USA_CHDE6775Dg_2)*

Students often asked their peers about more complicated words on *RealLives*, particularly about diseases. One boy admitted "The diseases were trouble for me. I didn't know how to pronounce them or anything, so I'd be like 'How do you pronounce that?'" (USA_AMST7765Ab_1). Another boy said, "There were like some things that I didn't know what they were. (…) I got a pop-up saying that you were sick with like something and I wouldn't know if that was like life-threatening or not" (USA_MAAN7778Db_2). Yet another boy recalled, "I had a whooping cough, I think. But it said (…) a different like name for it, and I was really confused" and "In one game my sister had a peptic ulcer, and I'm not really sure what that is" (USA_AMMI5519Ab_2). Two girls stated, "The medical problems. (…) I didn't really know most of them" (USA_SAAJ1530Cg_1) and "There were a lot of diseases that I didn't know (…) I didn't really understand some of the stuff, so I pressed 'Learn More' and then that would be easier" (USA_JOBA2213Ag_2).

Other words students often asked about were *ample, urban, surname, drafted, academic probation, secondary school, freight handler,* and *domestic helper*. The meaning of *vocational school* was unclear to many and students usually could not provide a correct explanation. In one lesson, for example, a boy told his classmate that vocational school was a school where one could become a priest or a nun (7B Social Science, 2009-09-23). A girl said,

> *I tried vacation, vocational school. Before I thought it was just like extra school, (…) like redoing school. But this thing, I think it helps you. (…) Is it like a school (…) in between like (...) elementary school and like and high s [um] college? Or is it, is it college? (USA_CHDE6775Dg_2).*

However, none of the above-mentioned difficulties considerably impacted on students' playing experience or caused them to stop using the simulation.

## 6.2 Development of Intercultural Awareness and Sensitivity

This section presents the most important findings regarding the connections between students' use of *RealLives* and their intercultural awareness (6.2.1) and sensitivity (6.2.2).

### 6.2.1 Intercultural Awareness

Students generally felt that using *RealLives* made them more aware of differences and difficulties in lives around the world. Asked what he liked best about the simulation, a boy replied, "The realism. (…) it kinda opens your eyes to the rest of the world" (USA_SHMI4260Bb_1). Another boy said the simulation allowed him to see "how much lives can differ", particularly "the difference between wealthy countries and poorer countries" (USA_SHMI4260Bb_1). Yet another boy realized, "Everything's not like America [laughs] (…) and lots of very different things happen" (USA_VAGE1928Cb_2). A girl believed, "You learn a lot about (…) the differences between their way to live and our", for example, "how difficult it is for people to feed their families and to get (…) shelter and find a job" (USA_JOBA2213Ag_2). Even students who already had knowledge about diverse countries and cultures became more aware of these differences and difficulties. One boy said, for example, "What I did learn about the country is like how hard it was (…) to live there; their religions and stuff I already knew" (USA_CAPE8706Bb_1).

Using *RealLives* made students aware of aspects of life they had never experienced and often found surprising or shocking. One girl said about her character's country, Yemen: "I didn't even know it existed. So it was cool 'cause I learnt a lot about it" (USA_ANAD8009Bg_1). A boy said about India, "I didn't know there was like discrimination (…). That was kind of a shock to me" (USA_AMST7765Ab_1). Another boy recalled, "In China, there were some like earthquakes and volcanic eruptions. (…) I just wasn't expecting those, 'cause (…) I'm not used to (…) earthquakes here" (USA_AMMI5519Ab_2). Yet another boy stated,

> *In Afghanistan, (…) it was saying that (…) women would have to be covered head to toe, even their faces, and I never knew that. (…) I only heard of that happening (…) like years ago (…). But I didn't know it was still around. (USA_AMLE6028 Cb_1)*

Students frequently compared their virtual lives with life in America, as this quote shows:

> *Something that I remember is that you were able to move out of your parents' house at the age of like 12. (…) That was India. (…) I just thought that was kind of odd. (…)'cause like in America you move out at like (…) 18 or something. (USA_MAAN7778Db_2)*

A girl recalled,

> *My character at age seven or eight had to start working, and I still don't work. (…) I was kind of like shocked. Just like 'Oh my gosh!', like people so young have to (…) work and raise money for their family. (USA_ANAD8009Bg_2)*

Another boy found it hard to find similarities between himself and his character. He said,

> *I've only lived 12 years, (…) but during that time, (…) what shocked me was, I didn't really. (…) I'd (…) find some kind of correlation, (…) like your sister (…) gets sick or anything, you getting into trouble,* ***that*** *kind of thing, like basic stuff, but it just shows how different some cultures are. (…) that's interesting. It's not a bad thing, it's a good thing. It just shows how diverse the world is. (USA_JUWI2267Db_2)*

He also added that what he had expected to happen "didn't always happen, because it seems that they're just different countries. Like, for instance, in Ethiopia almost nothing was the same, (…) different diseases (…) I can stand out in the cold for two days and I wouldn't catch malaria" (USA_JUWI2267Db_2).

Many students were surprised or shocked by the diseases and natural disasters in their virtual lives. One girl explained, "Sometimes like pop-up random facts, some of them would be like 'Wow! I didn't really know that about this country' and then how there's like a hundred and something different diseases in Asia and 100,000 people die from that every year" (USA_NIJA1124Dg_1). A boy said, "I didn't realize there were so many disasters" (USA_CHDE6775Dg_1) and another boy stated, "I **really** didn't realize in how many developing countries how easy it was and how many people (…) would catch diseases like malaria, measles, whooping cough. That was new and really surprised me" (USA_JUWI2267Db_2).

Other students noticed differences in people's diets. One boy said, "(…) about the staple foods. I thought that was interesting. (…) how differently they eat" (USA_MAMI1895Bb_1). Another boy realized that a poor person can get robbed as well. He said, "The poorer one was getting robbed from a lot, surprisingly. [um] Even though (…) you could only steal (…) a couple hundred at a time" (USA_SHMI4260Bb_1). Other students were surprised how hard it was to emigrate to the USA; one boy was shocked when his

character “actually died when he was immigrating (…) illegally” (USA_MAMI1895Bb_1). He said, “I knew you could like be arrested, but I didn’t know that you could die. And it happened a lot” (USA_MAMI1895Bb_1).

Students were also shocked and complained when being removed from school, shouting, “I got kicked out of school!” (7C Social Studies, 2009-09-21), “That sucks!” (7B Social Studies, 2009-09-24) and “No, I wanna go to school!” (SSlab, 2009-09-24), for example. They were wondering why they had been “kicked out” and how they could go back. Students also realized that not everybody could go to college after high school. A boy remembered,

> *In China, it said that most people did not go to college, and I was a little bit surprised by that. I just figured like most people went and like a couple didn’t, but apparently not a lot of people get in. (USA_AMMI5519Ab_2)*

Using *RealLives* made students aware of the fact that getting a good education is anything but normal for many people and that they are privileged to attend such a good school. One boy said, “It showed me how lucky I was to be born here and go to such a great school and have parents who let me stay in school” (USA_TRJO1718Cb_1).

Students also became more aware of their own culture and began to see themselves from a different perspective. One boy explained, “It had a perception of like the American diet and the American like average income and stuff, and you never really notice that until you actually learn more about it” (USA_CAPE8706Bb_2). A girl said,

> *We never like, I never really like realize what it’s like for (…) people who live in like China and stuff, but you can like learn about all like the jobs that they have (…). Also the money like was a lot different, ’cause like here it’s like dollars, and then there was like (…) converting money into like weird stuff, which like seems weird to me, but to them like our money here is probably really weird to them. (USA_MAJA7786Ag_1)*

The teacher also believed that using *RealLives* had made students more interculturally aware. He said,

> *It’s been interesting to hear kids talk about maybe how their lives have ended much sooner than they expect to in this country. I think most of the kids in this country expect that they will live into their 70s and 80s and maybe 90s and realizing that many people in the world because of diseases or [uh] violence or whatever [uh] they’re not gonna come close to that. (…) I think it, it’s a great tool to give kids (…) an insight to different parts of the world. (USA_Teacher_1)*

### 6.2.2 Intercultural Sensitivity

This section comprises key findings related to students' curiosity and discovery, openness and flexibility, empathy, and ethnorelativism. Since respect was not mentioned explicitly by students, it is not included.

*Curiosity and Discovery*

Students found many interesting aspects in their virtual lives, for example "knowing (…) where they live and like school and like their food. (…) the personal lifestyle" (USA_MAJA7786Ag_1) and "some percent of people go to school or like some (…) percent of people have a job" (USA_JETO1370Ag_1). A boy was interested "how much you make, and relationships" (USA_MAMI1895Bb_1). Another boy recalled, "When it said like I had a worm or something, I was like 'Wow, what's that?' and I'd click on Learn More" (USA_AMST7765Ab_1).

One boy mentioned, "Every time I aged a year, there were some facts about China, like how women were respected, when people got their rights, wars. It said famine affects this amount of people every year. (…) I thought that was pretty interesting" (USA_TRJO1718Cb_1). A girl stated, "I pay attention to the bubbles that come up (…) because (…) they're (…) pretty interesting to learn about other cultures" (USA_DAKE9181Dg_2). She was particularly interested in "something about the diet of the people or something that I might think is kind of cool. (…) about the staple foods (…). Just more about their everyday life" (USA_DAKE9181Dg_2). Others were also interested in food, as this quote shows, "The staple food, I wanted to learn more about that, but something like an earthquake, I wasn't quite as interested (in)" (USA_MAMI1895Bb_1). Another boy was interested in education and wanted to "look at the gap between (…) like USA and Ethiopia. (…) that was interesting" (USA_JEJO1566Ab_1). He added, however, "Stuff I didn't really find interesting was like the map and things like the terrain and stuff. That was not exciting" (USA_JEJO1566Ab_1). Another girl said,

> *There were things like floods and, well, (…) there have been floods here, (…) like Katrina and that sort of thing, but I've never been affected by any of those disasters directly. (…) I got hookworm a couple of times and (…) I've heard of it a little, but I've never (…) met anyone who's had it or have had it myself, so. It was kind of interesting to learn about that kind of stuff. (USA_DAKE9181Dg_2)*

Some students became so curious about characters' difficulties in immigrating to the USA that they approached the teacher. He recalled,

> *Someone had a conversation with me (…), they tried to emigrate to the United States, and (…) they were not able to legally and then they tried to do so illegally, and that didn't work either. And so they*

> *had some questions about 'Do people try to come to the United States illegal (sic)? How many? Do (sic) people not able to come? (…) there was a lot of curiosity about that. (USA_Teacher_1)*

Several students believed that using *RealLives* increased their interest in other countries and cultures. One boy said, "Yeah!" (USA_AMLE6028Cb_1) and another one explained, "Before I played this game, (…) I wasn't very interested in China, but then when played the game I was sort of really interested (…), 'cause it taught me some interesting stuff" (USA_AMLE6028Cb_1). Other students felt that the simulation rather reinforced existing interests and was best suited for students who wanted to learn more about other countries and cultures. One girl stated,

> *It also depends on the person. Because if they are really interested in that place and they want to learn more or they wanna visit there, then I think (it would) be interesting to play it, but if they (…) think their life is like fine here and they don't wanna change anything and (…) they don't care about people in other countries, then I don't think it would benefit them. (USA_ELTI6170Ag_1)*

A boy believed,

> *If (…) someone wanted to learn more about Ethiopia and they got an Ethiopian character, then they can learn more about that, but if someone didn't really wanna learn about Ethiopia, then they just kind of go along with the game (…) and not quite pay (…) much attention to the facts. (USA_AMST7765Ab_1)*

Students believed that using *RealLives* could make them interested in visiting a country, but it could also cause them to not want to live in a particular country. One boy explained,

> *It doesn't keep me from going there, it just keeps me from wanting [laughs] to live there. (…) sure I'd like to visit (…) the places that I (…) lived in, 'cause that would be cool. It's like 'Awesome! That's what it looks like.' (…) 'That's where I might have (…) lived.' (…) but I wouldn't wanna live there 'cause of the disasters and (…) the stuff that happens. (USA_VAGE1928Cb_2)*

A girl felt, "It's depending on which country, 'cause maybe you think Pakistan is bad, but maybe it'd be good to **visit.** And like India seems cool, but maybe not as good to visit" (USA_JOBA2213Ag_2). Another girl said,

> *Sometimes like pop-up random facts, some of them would be like 'Wow! I didn't really know that about this country' and then (…) there's like a hundred and something different diseases in Asia and 100,000 people die from that every year. Like now I know I'm not gonna visit **that** country." (USA_NIJA1124Dg_1)*

As mentioned before, students were most interested in living in the USA on *RealLives*, but some also wanted to explore Europe. A boy said, "Maybe somewhere in Europe, like France, Spain or Italy. One of those places, because those have different cultures, but they are common cultures that a lot of people know about in the US" (USA_KASC1746Db_1). A girl declared, "Oh, I really wanna live in Europe! (…) I just like love Europe, 'cause it has, it's different cultures mixed together, so you can get like a different perspective on things" (USA_NOLU2932Cg_2). Another girl was interested in "England or Ireland or places around there. (…) Just because like we've learnt about them a little bit in school, and they seem interesting, and they have like a lot of history" (USA_JETO1370Ag_1). In her follow-up interview, she added, "I went to Ireland over the summer and I think it would be interesting to (…) have a character there 'cause I (…) know exactly what happened in Ireland, like everyday life, so that would be interesting" (USA_JETO1370Ag_2). Another girl was also interested in Europe "'cause you hear a lot of stuff about Europe" and because she "liked how they're kind of old-fashioned but not" (USA_CHDE6775Dg_1). She also said,

> *Maybe not China, (…) I don't really think I'd ever want to go there. It just doesn't appeal to me. I think other countries would be fun. (…) Europe or like [um] some of those countries where it's (…) hard to get a job and stuff like that, 'cause then you could understand why it's hard to get a job (…) or maybe even Australia (…). Yeah, I like Australia. I went there in the summer actually. (USA_CHDE6775Dg_1)*

Students were also interested in living in countries characters were rarely created randomly in, as this quote shows:

> *I think it'd be cool to like be in Europe or (…) Ireland (…) nobody I knew ever got (…) there, and also nobody was ever born in the United States that I knew of. (…) I know that we live in the United States, so it's kind of weird to play someone (…) in the same places here, 'cause you're not really learning that much, 'cause you already know, but I just think it would be cool what (…) happened to that person as they got older. (USA_ELTI6170Ag_1)*

Some students were interested in leading African lives as they were studying Africa in school. A girl said, "Somewhere in Africa maybe. 'cause we studied that this year, so I'd already know a little about it and now I can learn more" (USA_DAKE9181Dg_2). Another girl felt that leading African lives "would help like learn more about Africa" (USA_MAJA7786Ag_1).

Other students were interested in countries they had heard about but did not know much about and that their parents or other family members had visited. One girl wanted to have an Australian character because "this summer (…) I'm [um] going to visit Australia for

about a month, and I'm pretty sure that there's gonna be a lot of interactions with that there. So that should be interesting" (USA_JAMA5531Cg_2). A boy explained,

> *Maybe Croatia 'cause that (…) sounds like a cool place. I remember in 4th Grade when we were doing a map of Europe and it just looked like a cool place to go. And also maybe the Czech Republic, to visit Prague (…) my parents went to Prague, so I kind of wanna go there. I've always wanted to go to Poland, 'cause that's where my grandfather lived. (…) So I kind of wanna go to Poland, too. (USA_AMMI5519Ab_2)*

Some students were also interested in exploring more exotic countries and cultures and places that were hard to get to. One boy explained, "I'd say like Peru. (…) just more exotic places that (…) I, well, maybe know not too much about. (…) so I can learn more about it" (USA_MAMI1895Bb_1). Another boy preferred Afghanistan because he "wanted to see (…) in the middle of a war, (…) what it is like and how much money you can get and (…) if there was a war going on" (USA_AMLE6028Cb_1). Yet another boy was interested in India and said,

> *I don't know too much about India. I remember like studying it at one point. But I can't quite remember it all (…) it's like one of my places of interest. I have like a lot of countries that I like. (USA_AMST7765Ab_1)*

Another boy thought,

> *It would be interesting (…) to create my own character (…) in (…) Russia, since it's so different from America. Maybe I'd like to create one in Cuba, just 'cause I'll never probably see Cuba. And (…) I liked Madagascar. It was kind of cool 'cause they all had French names, but it was an African culture. It's interesting. (USA_JUWI2267Db_2)*

A girl stated, "I really for some reason wanna be **Jewish.** Don't know why, except maybe on my 13th birthday I'd have my own Bat Mitzvah. [claps] That'd be so **awesome!"** (USA_NOLU2932Cg_2). She did not know which country she would have to choose for this, but wanted to do some research.

*Openness and Flexibility*

As described in 6.1, students showed openness and flexibility in learning how to use *RealLives* and adjusted their playing patterns and strategies to their characters' situations. One boy explained, for example, how he tried different things to make a character happier:

> *I was investing money 'cause my guy wasn't that happy. So I invested a lot of money in like farming to see if he'd be happier if he had more money, but that wasn't it. So then I tried having another child [laughs], but that wasn't it. (USA_KASC1746Db_1)*

Students were flexible and persistent, using trial and error methods and consulting with their peers trying to find appropriate solutions.

Although students were often surprised and shocked by the information and experiences on *RealLives,* most of them were open to them and believed they could be true — even when contradictory to their own knowledge and experiences. For example, a boy who had considered the burqa a thing of the past learnt that it was still customary in Afghanistan; another boy realized that many Chinese were unable to attend university, the opposite of which he had believed to be the case. Another boy said about his virtual lives, "They seem pretty authentic. (…) I don't really know that much about what it's like to be an Ethiopian woman, (…) but it seems like" (USA_JUWI2267Db_2).

Some students were skeptical about particular aspects of their lives, such as young characters being removed from school, but they normally did not reject them as wrong and adjusted to the situation. Students also usually suspended judgment when lacking knowledge and experience. One boy mentioned, "I don't really know about when I got pulled out at age six, 'cause I don't really know about Indonesia" (USA_KASC1746Db_1). Another boy said, "I don't know, if I was a (*sic*) average person in Djibouti, but I didn't do anything wrong and that's where I ended up. So maybe lots of people had to end up like that?" (USA_SAJE1123Cb_2). One boy, however, considered facts about China "made up". He explained,

> *Whenever you aged a year, there were always facts about China (…). Most of them were just made up in the game. 'Cause in the game, China had gone to a war and (…) two of my brothers had been drafted into the military. (USA_TRJO1718Cb_1)*

Students believed using *RealLives* influenced their opinions about culturally-diverse others. One boy said, "Kind of, yeah. Because I'd be (…) connecting the *RealLives* with how they are" (USA_KASC1746Db_1). Another boy thought, "Just knowing how they live more, (…) influences it, (…) where they grew up and what kind of things happened there" (USA_MAMI1895Bb_1). Yet another boy explained, "I'd wonder if you were one of the people that did that or the people that did this" (USA_JEJO1566Ab_1).

After a poor life in Asia, a girl said, "If I met someone from Asia, I'd be like 'Wow, your life sucks!' [laughs] (…) I would really wanna, like 'Come live with me for a week or so.' [laughs] (…) 'cause like my person did not eat a lot and (…) I guess that's (…) real" (USA_NIJA1124Dg_1). While this student was overgeneralizing, others were more careful and pointed out that everybody's life was unique. One boy stated,

> *I can (…) look at (…) someone from one of those countries and have some idea (…) what life could be like for them. Obviously I can't (…) see exactly what they're doing, but I have some idea of the culture. (USA_SHMI4206Bb_1)*

A girl said,

> *It's not like everyone's the same there, so you can't really judge that the person you're meeting is the same as the person you played. Or the life that they're living. (…) you get background information (…), but other than that not really. (USA_ELTI6170Ag_1)*

Another girl felt that this background information could facilitate intercultural interaction. She explained, "I didn't really know much about China, so if I did meet them, it would make it a little easier 'cause I'd know more about their country" (USA_SAAJ1530Cg_1).

Like the girl with the poor life in Asia, other students also showed signs of stereotyping and thus were not open and flexible. A boy said, for example,

> *I went to Mozambique, which really isn't a very nice place to be, as I learnt (…). There was a lot of disease, there weren't many available jobs, fighting was always happening. It just wasn't really very good. (USA_JUWI2267Db_2)*

Another boy stated, "Iraq and Iran, in the Middle East is very poor. Very corrupted by the war and stuff. (…) it's a very tough place, and so is China. It's overrun by corporations and stuff and [uh] everything else of it is really hard to live" (USA_CAPE8706Bb_1). Having played several lives in these places and reflected on them, however, he expressed a more differentiated opinion:

> *I had a China life. That was pretty good. (…) I grew up, I get (sic) [uh] full education, I got a job, (…) I didn't make a lot, but I, I think I was pretty normal. (…). And [uh] there were some Middle Eastern ones, some ones good, some ones bad. (USA_CAPE8706Bb_2)*

*Empathy*

When using *RealLives*, students were usually showing emotions. They were excited, crossing their fingers, cheering and shouting "Yes!" or "Yeah!" when good things happened in their lives and pulling their hair, shouting "Oh no!" and pretending to cry when bad things happened. In part, these emotions were player emotions (e.g., frustration when unable to reach a goal), in part signs of emotional empathy. A boy explained, "Sometimes when I tried to do something good, I was like happy, but whenever like I couldn't get a job (…) that was not fun" (USA_JEJO1566Ab_1). He then felt "frustrated and angry" (USA_JEJO1566Ab_1). This student also recalled, "The second one, his sister died, which is sad" (USA_JEJO1566Ab_1). A girl said about a female character,

*I was about to have her move, because I was afraid (…) all the wildfires were hitting the area (…). And so I was getting a little like worried 'cause it was like 'Alright, when is this gonna come near my area?' (USA_ANAD8009Bg_2)*

When talking about their *RealLives* experiences, nine students exclusively used the first person singular, for example the boy who said, "The first time I was in Israel, (…) I skipped like two grades or three grades (…) and I also got into college and finished (…) graduate school" (USA_AMMI5519Ab_2). Similarly, a girl said, "I had like three children (…) and a husband. And then in India I had like six children" (USA_JOBA2213Ag_2).

Most students mixed first and third person singular, alternately referring to their characters as *I* and *he* or *she*. One girl said, "My other one (…) he was from China. (…) he (…) wasn't accepted into college. (…) I dropped out of school (…) and I moved away from home at seven, or he did" (USA_CHDE6775Dg_1). A boy recalled, "He had an older sister (…) and he had two parents (…) and I went to college, graduated in business, and then I went to graduate school" (USA_CHST0127Ab_1).

Sometimes students switched between first and third person to distinguish more clearly between themselves as players and the characters. A girl said, "He was an alcoholic [laughs], he smoked, he took drugs. (…) And I starved him, and then I made that person like have a lot of children" (USA_NIJA1124Dg_1). Another girl explained, "Since she was really little (…) one of the highest percentages was in art and so (…) I chose to let her do art (…) she's not very healthy and I (…) don't really know how I can change that" (USA_ANAD8009Bg_1).

When asked if he had feelings in place of his characters, a boy replied, "Yeah. I definitely do. (…) you kind of feel somethin', (…) a little sad when (…) you get whooping cough or something" (USA_SHMI4260Bb_1). A girl answered, "Yeah, (…) and I think it was actually pretty cool to be like someone different in like a whole lot different place and see how they feel" (USA_JOBA2213Ag_2). In contrast, another boy said, "A little bit. Not really that much" (USA_KASC1746Db_1) and a girl stated, "Not really" (USA_SAAJ1530Cg_1).

Several students mentioned that they knew that *RealLives* was a simulation and not real life and therefore had no deeper feelings. One boy explained, "There's no significance to my actual, my real life (…) because I know it's a game, I know it's all fake, so I don't really feel much feelings about it. I'm like 'Oh man! That's (…) bad.' [laughs]" (USA_CAPE8706Bb_1). A girl recalled, "My son got food poisoning in the second one. (…) I (…) was kind of sad in like a weird way, 'cause (…) it wasn't really happening, but still. (…) I didn't wanna die" (USA_JETO1370Ag_1). Another girl said,

> *I think it was more from a distance. (…) when things would pop up, like my Mom and Dad died, like I'd say, 'Oh, my Mom or Dad died', but (…) it's kinda just like in a game, so I didn't really feel like bad or anything. (USA_ELTI6170Ag_1)*

Yet another girl explained,

> *When it said my Dad's sick, (…) since I'm like not the character, I don't know who my Dad is. (…) I don't have feelings for the character 'cause it's like a character, (…). I think it's more like (…) just a game, but it's not like* ***as*** *like 'Whatever, it's just a game' (…) I don't get like really into it, but I'm not like (…) just like click whatever. (USA_MAJA7786Ag_1)*

One girl had even enjoyed making a character's life as bad as possible. She said,

> *I thought it was a lot of fun how like you can make decisions and [um] you can make life like really bad, like I did that one time. (…) He was an alcoholic [laughs], he smoked, he took drugs. He is (…) homeless at the end (…). And I starved him, and then I made that person like have a lot of children and adopt a lot of children. (…) they all like died from like malaria and stuff like that, which was kind of funny. (USA_NIJA1124Dg_1)*

As described earlier, students often tried to establish connections with their characters by creating characters of their own sex, in familiar places, with familiar names and similar characteristics, for example. Nevertheless, some students found it hard to find connections between themselves and their characters, as this quote shows:

> *I don't think it had many connections (…). Like some of the things are common, (…) like they weren't poor, (…) I wasn't poor (…) the ways they lived was the same, but (…) I decided a lot of stuff that I don't have in my life, 'cause I wanted to see what would happen then. So like I (sic) didn't really (…) have any things in common between us. (USA_CHDE6775Dg_2)*

Other students did find such connections and related more to their characters. One boy recalled that, like him once, his character had found a wallet. He said, "It just seems like 'Oh, that happened in real life!' I can definitely relate to that" (USA_AMMI5519Ab_2). A girl whose character suffered from pneumonia explained, "My Mom's gotten pneumonia twice. So I can kind of relate to like how that can affect [um] her happiness" (USA_ANAD8009Bg_2). She was also able to empathize with a character disowned by her parents:

> *I can kind of relate to it because my (…) second cousin (…) was actually disowned by her parents because (…) her family was very religious and she wanted to marry [um] her husband (…), who wasn't part of the religion. So her parents chose to disown her. And so like I can kind of relate to that 'cause like I heard her talk about it. (USA_ANAD8009Bg_2)*

Another girl felt a particularly strong connection with a female character in South Africa, the country she was born in. She said,

> *I was really getting into the game, like (…) I'm a real person and I could like have a connection with the game, like this (…) reminds me of my uncle, this reminds me of my grandmother, this is reminding me of my Mom and (…) this is kind of like my story. Except I'm an only child. (…) so I'm like, 'Oh my God, I have a brother!' Like I felt special. (USA_NOLU2932Cg_2)*

Several students mentioned that it was hard to think and act like an individual from a different country or culture and that they therefore often decided what they would personally do. One boy explained, "It was kind of easier for me to (…) do what an American would do in the life. (…) I was kind of trying to live like a Chinese person, but I didn't really like know the Chinese (…) culture. So it was hard" (USA_MAAN7778Db_2). Another boy said,

> *I was thinking about what a person would do. (…) sometimes it was kind of hard, though. (…) It's hard to know what other people might do (…) because it's not you. (...) I kinda guess sometimes, I kinda (…) thought what (…) they wanted, or I'll just do what I would do. (USA_TIRO5433Bb_1)*

A girl felt, "It wasn't really hard, but it wasn't like 'Oh, I know what they, what to do' when it comes up. Sometimes you don't really know. So it was **kinda** hard, not really" (USA_CHDE6775Dg_2). Another girl said about smoking, "I don't know what someone in India would do. (…) I personally would say no. [laughs] (…) I don't really think about that much, about what they would do" (USA_JOBA2213Ag_2).

A few students did try to think and act as if they were the character, although they were not always sure if their decisions were appropriate. One boy said, for example,

> *When I lived in Djibouti, I would steal lots of stuff, but then the government would take me in and they would ask me 'Do you wanna tell us the people like you were working with or do you wanna stay in prison?' and I always clicked 'Tell them, give them information.' (…) a job that was kind of mysterious (…) 'You're stealing something, but you don't know what it is.' And you get a lot of money, but you don't know what (…) will happen to you. I didn't really know what to click because I always got caught by the government, and I didn't know if there would be a choice sometimes. (…) I still went for the money (…) because I had no house, (…) I didn't give anything to charity, I had the least amount of food that you could get (…) and I (…) didn't buy any just random items. (USA_SAJE1123Cb_2)*

*Ethnorelativism*

As described in 6.1, most students were making decisions from an ego- and ethnocentric point of view. They wanted their characters to have what they personally liked and what they considered a "normal" life, above all a good education, job, and income. One boy said that in

France he went “through all education, just like normally” (USA_SAJE1123Cb_2). Another boy recalled,

> *It was very hard for me to even make an average income, to even get my character to being normal. He always had to have a bad income. So when I had to make my financial decisions, I always had to make like bad housing, bad food supply and bad shopping. (USA_TRJO1718Cb_1)*

Committing crimes and working at the age of nine were not considered normal, as these quotes show, “It was mostly just like a normal life. (…) Like I didn’t steal (…) when it gave me the chance” (USA_AMMI5519Ab_2) and “He got his first job (…) around like 15, 16, which I think is (…) kind of normal (…). But like my second person had to get his first job at nine” (USA_NIJA1124Dg_1).

Students frequently compared their *RealLives* experiences with life in the USA, which was usually better. A boy noticed,

> *The names of people were so much more different, and I couldn’t really pronounce some of them, but when I was in America, I could pronounce all of them. (…) Afghanistan’s staples was (sic) like rice and bread (…). And our staples, well, we have a lot of staples (…) I saw (…) the word hookworm a lot, but not really everyone knows in America and (…) tuberculosis, and you don’t really see hepatitis B in America. And there was a lot more diseases (…). Because they have less immunization. (USA_MAMI1895Bb_1)*

Another boy said,

> *When I was looking for some jobs in China, (…) it would say like 40% of China is (…) unemployed. (…) I think that was actually (…) very interesting ’cause (…) in the US, we, a lot of people were to have jobs, well, not all, but some, a fair amount, I guess. (USA_ AMLE6028Cb_1)*

Similarly, another boy stated, “When I was in America, (…) it said there were much more openings than there were in like Africa or like Afghanistan. (…) more job openings and (…) more opportunities” (USA_MAMI1895Bb_1). He also added, “And natural disasters. There was a lot, which kind of surprised me. (…) there was a lot in Afghanistan and a lot in India. (…) There wasn’t too many in America” (USA_MAMI1895Bb_1). Another boy summarized his lives as follows:

> *The American life was **much** easier, like became very rich, and there was hardly any problems, while in Ethiopia, life was not that successful. (…) I got a lot of money in the US lives, but in Ethiopia like you couldn’t make much money, because I couldn’t get any good jobs. I couldn’t even get an education. (…) America has like the most opportunities in education (…). I could get the best jobs there. (USA_JEJO1566Ab_1)*

He felt that through *RealLives* "you can learn about their experiences and other cultures and how America is like easier than Ethiopia and all other countries kinda. Like there's more opportunities in America. Which is good" (USA_JEJO1566Ab_1). Another boy mentioned that using *RealLives* made him appreciate his own life more. He said, "It showed me how lucky I was to be born here and go to such a great school and have parents who let me stay in school" (USA_TRJO1718Cb_1).

Several students made ethnocentric statements while using *RealLives*, for example a boy who wanted to emigrate and asked his peers to name the "second best country" after the United States (SSlab, 2009-09-24) and the girl who wanted to invite Asians to live with her because she believed that life in Asia "sucked" and people there did not have anything to eat (USA_NIJA1124Dg_1).

The fact that virtual lives in the USA were generally better than in other places reinforced students' desire to create characters there. Several students told their peers to create American characters, as they would never be kicked out of school (e.g., Study Hall, 2009-11-24). A boy explained that he usually created characters in the USA

> *'cause (…) usually, if you're born there, you get a better job (…) you get more money. (…) you're always happier for some reason. (…) I have no idea quite why, but I (…) would rather (…) live there than in (…) poverty-stricken (…) Brazil. (USA_SHMI4260Bb_1)*

Many students liked their American lives best; for example, the boy who said,

> *The American life, I made it through school, made it through vocational school, majoring in [um] criminal justice (…). Then I became a policeman [laughs], which had a pretty good pay. (…) I led a good life with that one. (…) I think the American one was the best. (…) everything just kind of worked really well. (USA_MAAN7778Db_2)*

Although preferring the USA, some students also considered life in other countries okay or even good. One boy said,

> *I don't know the normal Indian life, but (…) if you based everything on this, it would be maybe okay to a little like poorish (sic) (…) but okay, 'cause you make enough money to pay your expenses and everything. But you will (…) have to like cut down. (USA_AMST7765Ab_1)*

Another boy mentioned, "I had a China life. That was pretty good. (…) I grew up, I get (sic) [uh] full education, I got a job, (…) I didn't make a lot, but I (…) think I was pretty normal" (USA_CAPE8706Bb_2).

Several students liked their lives in China because they had a good education, job, and income, and often immigrated to the USA. One girl said her best life was

> *the China one because (…) that was the only one I went to school, so I could get more jobs, and they paid more money, and I could immigrate to the United States, and I got more money in the United States. And it was just easier than all the others. (USA_ELTI6170Ag_1)*

A boy explained,

> *I liked the one (…) when I was a girl in China because I got to go to college unlike any other one. (…) It seemed easier in a way because I had a much smaller family, because it said (…) that China was (…) cutting down on their population, so I only had a brother. And it was a lot funner (sic) when I was in school, because I got a lot better jobs and I invested in like business. I got like 2 million dollars. So it was pretty fun that way. And then I got to move to Florida, which was pretty good. (USA_KASC1746Db_1)*

Thus, despite generally preferring the USA, students also liked lives in other countries with similar opportunities.

One girl refused to classify her lives as good or bad. She said, “It didn’t seem like there’s like a bad life, it just seems like a lot different” (USA_MAJA7786Ag_1). Similarly, a boy felt, “It just shows how different some cultures are. (…) that’s interesting. It’s not a bad thing, it’s a good thing. It just shows how diverse the world is” (USA_JUWI2267Db_2).

# CHAPTER SEVEN

## DISCUSSION

The main focus of this study was the examination of students' use of and interaction with the simulation *RealLives* in three cases and the exploration of its potential to promote intercultural awareness and sensitivity. Qualitative NVivo analysis of the data obtained through observations and in-depth interviews according to the categories structuring chapters 4 to 6 educed a range of factors that played a role in how students used *RealLives* as well as to what extent and in which ways the simulation could assist their development of intercultural awareness and sensitivity. These factors can be grouped into intraindividual, interindividual, and contextual factors.

Intraindividual factors; that is, factors residing within each individual, that were identified were students' knowledge and experience, identity, existing level of intercultural competence, cognitive and affective abilities (e.g., ability to read and understand texts, reflect on experiences, empathize with others), character traits (e.g., ambitiousness, readiness to assume risks), and mood. Interindividual factors describing relationships between students and between students and teacher included friendship, trust, and support, but also animosity, distrust, and competition. They also comprised peer learning; that is, students learning with and from each other, and guided learning, which is characterized through teacher guidance and support. Contextual factors that emerged from the data were the institutional setting (e.g., school type, resources, and educational aims), the community (e.g., location, culture, families), and the characteristics of the digital simulation, including content, options, rules, and limitations. These intraindividual, interindividual, and contextual factors were integrated into a Model of Media-based and Socially Mediated (MeSo) Intercultural Competence Development, which will be introduced at the end of this chapter.

Before presenting the model illustrating the learning environments found in this study, the three main factors that were mentioned most often by participants and appeared to be crucial for students' use of the simulation *RealLives* and the development of intercultural awareness and sensitivity shall be discussed in more detail. These three factors are (1) students' knowledge and experience, (2) identity, and (3) social learning.

### 7.1 Knowledge and Experience

The first aspect that had an important influence on both the use of the simulation *RealLives* and the development of intercultural awareness and sensitivity was students' knowledge and experience. Students' use of the simulation *RealLives* was based on their knowledge of and experience with digital games and simulations. Students also linked the information and

experiences provided by *RealLives* with their existing knowledge of and experiences with diverse countries and cultures, which influenced their intercultural awareness and sensitivity. As the subsequent discussion of these aspects shows, existing knowledge and experience can facilitate the use of the simulation and the development of intercultural awareness and sensitivity, but it can also impede them.

Prior experience with *RealLives 2007* and/or other digital games and simulations allowed students to learn how to use the simulation quickly and easily in all three case studies. Students indicated in their questionnaires that they had on average five years of experience with digital games and simulations. Several students in each case study explicitly compared *RealLives* with digital games and simulations they had used before, particularly *The Sims*. This shows that students nowadays bring experience with these media into classroom learning.

Except for a few students in each case study who were slightly confused in the beginning and asked their classmates, the teacher, or the researcher what to do, students did not hesitate to get onto the computers and explore the simulation. In contrast to the results of other empirical studies with digital games (e.g., Egenfeldt-Nielsen, 2005; Squire, 2004), students in this study generally found the simulation straightforward and easy to use and did not have any major difficulties in using it. Faster and more knowledgeable students shared their experiences with others and helped them learn how to use the simulation (see section Social Learning below).

Male students, who on average had more experience with digital games and simulations than female students, were usually faster than female students in discovering how the simulation worked and in exploring and using its different functions, particularly the Character Designer and the business and investment options. They had fewer difficulties in using these more complex functions than the female students, who were sometimes confused and hesitant and asked their classmates and/or the teacher for help more often. The girls in the three case studies generally took somewhat more time using *RealLives*; they were reading the information presented on the screen more closely and considering their decisions more carefully than their male counterparts.

The open-minded and positive attitude and the ease with which students in all three case studies took to and learnt to use *RealLives* support the ideas of Aldrich (2005), Prensky (2001a), Shaffer (2007), and others that digital games and simulations are appropriate educational media for today's students. As assumed by these scholars, most students in this study had considerable experience with digital media and using them came naturally. In line with existing theory (e.g., Egenfeldt-Nielsen, 2007a), the students in this study embraced the

technology, they were persistent, and they used trial and error methods in order to discover by themselves how *RealLives* worked.

It needs to be pointed out, however, that despite students' general familiarity with digital games and simulations, some students were unable to find out on their own how particular functions of *RealLives*, such as starting a business or investing, worked. These students asked their peers, the teacher, or the researcher, or used other functions instead. Prior experience was also a hindrance for some; for instance, for the male student at the Australian school who looked for the button to advance the simulation in the wrong place because he was so used to other digital games and simulations. Thus, even when students already have knowledge and experience in using these media, help and support from a teacher or another more knowledgeable person can be necessary in some cases (see section Social Learning).

Due to the repeated use of *RealLives*, students' knowledge and experience increased over time, which influenced their use of the simulation. Students began to use more complicated functions (e.g., emigrating, starting businesses, and investing) and developed new strategies and goals (e.g., immigrating to the USA or accumulating a million dollars). Students also adjusted their playing strategies when they did not lead to expected outcomes. On *RealLives*, students were confronted with a wide range of situations, such as not being able to go to school and being affected by natural disasters or diseases, which they often had little to no knowledge about, let alone experience with. Students had to learn how to deal with these situations in order to be able to make appropriate decisions for their characters. This shows that learning processes were an inherent and essential part of using the digital simulation as proposed by Gee (2003).

Although using *RealLives* increased students' knowledge and experience over time, due to their young age, they lacked sufficient knowledge and experience in many areas of life and were not always able to adequately assess the situations in the simulation, their playing strategies, and potential outcomes. Moreover, abstract thought and hypothetical thinking are still developing in adolescents (Dupree, 2010), which might be another reason for students' difficulties in considering and assessing various possibilities and outcomes. The students in this study were 12 and 13 years old and had to make many decisions typically made by adults. Thus, using *RealLives* did not only require knowledge and experience in using digital games and simulations and intercultural knowledge and experience, it also required experience of life usually outside the capacity of 12- and 13-year-olds. Several students admitted that they did not know how bank accounts and investments worked or that they were unsure what an adult would do in a specific situation. Students also seemed to lack knowledge about what was happening in the world (e.g., natural disasters, diseases) as they rarely read newspapers and

magazines and did not always follow the news. In addition, the students at the Australian and American schools had limited experience living and traveling abroad. A girl at the Swiss school explained that on *RealLives* more things happened than what they heard about in the news while a boy at the Australian school believed that many of his classmates had no idea what was going on in the world and how good they had it in Australia compared to individuals living in other places. Other students mentioned that they had learnt something about particular countries and regions of the world in school, but that this did not include information about people's daily life. It was therefore often difficult for students to make informed decisions.

While some students in all three case studies started to take *RealLives* more seriously after some time and were reading the information more closely, using the Learn More option more often, and making decisions more carefully, others felt that they knew how the simulation worked and were going through it much faster without reading the information and without thinking about their decisions as much. At the Australian school, for example, many students first wanted to experiment and explore the options and limitations of the simulation and focused heavily on the game play elements. After the initial exploration phase, many of these students became more serious about *RealLives*; they tried to make more appropriate decisions for their characters and wanted to learn more about life in different countries. At the Swiss school, the opposite was the case: During the first round of data collection, when students had to write the comparison between lives in South America and Europe and the teacher was directing their use of the simulation to a considerable extent, students were quite serious about the use of *RealLives*. Most students followed the teacher's instructions and felt they had to make good decisions because they were supposed to learn from using the simulation. During the second round of data collection, when students had more knowledge and experience with the simulation, did not have to complete an assignment, and were not guided by the teacher as much, they were less serious about it, and several students focused more on game play elements, such as competing for the most income. This shows that greater knowledge and experience with the simulation can increase interest in intercultural issues and make players want to learn more, but it can also evoke feelings of mastery, control, and self-efficacy, and lead to a stronger focus on game play. Teacher guidance seems necessary to ensure students do not exclusively engage in game playing without paying attention to the educational content (see section Social Learning).

In this study, male students with extensive experience in using digital games and simulations and little interest in intercultural topics seemed to focus on game play the most, while female students with less gaming experience but a high interest in intercultural topics

appeared to concentrate most on the information presented on *RealLives* and on making appropriate decisions for their characters. Since students who already have an interest in intercultural topics are likely to have more intercultural knowledge and experience as well, gains in intercultural competence might be greater in students who like to use digital games and simulations but are not as interested in intercultural topics and have less intercultural knowledge and experience. As these students seem to focus on game play, their use of digital games and simulations needs to be guided to ensure they also engage with educationally valuable content.

Students' existing knowledge and experience also played a role in enhancing their intercultural awareness. As awareness is the initial cognitive reaction to a stimulus, one can only become aware of something one does not have knowledge about and has not experienced yet. Thus, students with little intercultural knowledge and experience are generally more likely to encounter more new information and experiences on *RealLives* than those who already have considerable intercultural knowledge and experience. Accordingly, the students at the Australian school, who on average had the least intercultural knowledge and experience, appeared to be most impressed by all the differences in lives and cultures they experienced on *RealLives*, and they used the word *different* frequently when describing their virtual lives. Some of these students as well as some students at the American school seemed to be almost overwhelmed by the many differences they discovered.

Although students with less intercultural knowledge and experience might generally benefit more from using *RealLives*, the simulation was also able to promote intercultural awareness in the more knowledgeable and experienced students at the Swiss school. The wide variety of lives and experiences included in *RealLives* meant that every student experienced something new and different. *RealLives* even managed to increase intercultural awareness in students who were more interested in playing the "game" than in learning about other countries and cultures, as players were presented with cultural information in pop-up windows irrespective of their approach to playing.

In all three case studies, students constantly compared their characters' lives with their personal lives and experiences, and with the "normal" lives in Australia, Switzerland, and the USA respectively, and they were looking at themselves in relation to others. Students at the American and Australian schools mentioned, for example, that using *RealLives* made them realize that what was "weird" for them as Americans or Australians was "normal" for individuals from other countries and cultures and the other way around. Leading a variety of lives on *RealLives* made students aware of how different and often difficult life can be in other parts of the world, particularly in poorer countries, which resulted in some students

appreciating their own culture and living circumstances more. Overall, students in all three case studies felt that using *RealLives* made them more aware of the diversity of cultures around the world and showed them that their culture and way of life was simply one of many.

The students at the Swiss school, who had personally lived in many of their characters' countries and were already aware of various differences in lives and cultures, noticed a range of negative aspects they themselves had not encountered while living in the respective countries, such as alcoholism in Sweden, crime in the UK, a lower life expectancy in the Czech Republic, and assault in Argentina and Costa Rica. Through *RealLives*, students realized that these things do happen there, even though they had never experienced them themselves. These findings support existing research with study abroad students and expatriates, which has shown that simply living in a different cultural environment does not make an individual aware of all aspects of the host culture and does not automatically lead to the development of intercultural competence (e.g., Moosmüller & Schönhut, 2009; Vande Berg & Paige, 2009). Many students at the Swiss school came from privileged families and had probably led more protected and secure lives than the average citizen in the respective countries. One male student, for example, mentioned that he had had a bodyguard when living in Costa Rica. These students might have developed overly positive and stereotypical ideas of the countries and cultures they used to live in. Leading a variety of lives on *RealLives* can assist students in putting their personal experiences into perspective and in developing a more balanced view.

The main aspects students in all three case studies became aware of were natural disasters and diseases (e.g., volcanic eruptions, earthquakes, hookworm, whip worm), which students had never experienced and in some cases never heard of as they do not exist in their place of residence. At the American school, students also became aware of the difficulties individuals from other countries faced when trying to immigrate to the USA. Being American citizens, they had never thought about this issue before, and some students approached the teacher because they wanted to know more about it. This shows that intercultural awareness can create curiosity and make students want to search for additional information in order to deepen their knowledge and understanding, which supports the connections between the three components of intercultural competence as postulated in the models by Fantini (2000) and Deardorff (2006b).

While most of the differences students noted were related to natural disasters, diseases, crime, and living standards (e.g., safe water, medical care, number of cars, telephones etc.), which play a major role on *RealLives*, a few students in each case study also became aware of cultural differences in a narrower sense, such as religious aspects, customs, and diets. In all

three case studies — particularly at the American school — students were shocked to see that many of their characters were not able to go to school, let alone university, and often had to work from an early age. This was something they had never considered with going to school being normal for them. Other cultural differences students became aware of were that their characters were moving out, engaging in relationships, getting married, and having children earlier than in their cultures. Moreover, families were often bigger and parents would not always approve of characters' partners for religious or other reasons. Since students were not explicitly asked to pay attention to cultural information, they mainly became aware of the aspects that impacted their characters' lives the most; that is, natural disasters and diseases.

Due to the fact that most students focused on moneymaking and having children when using *RealLives,* and because cultural issues are not as prominent in the simulation as other aspects (e.g., natural disasters, health issues), the Swiss teacher was skeptical about the simulation's potential to promote intercultural awareness. He felt that the amount of cultural information in a narrow sense, such as customs and traditions, was limited, but at the same time acknowledged that European and South American cultures did not differ as much as Asian and African cultures and wanted to see if there was more information on Asian and African cultures before making a definite statement. On the contrary, the teachers at the Australian and American schools believed that their students had become more interculturally aware by using *RealLives.* They felt that the simulation had opened up the world to their students and had shown them that for many people life was not like the middle class lives in Australia and the USA.

Another aspect where students' knowledge and experience played an important role was character selection. In all three case studies, students preferred to create characters in the country they were currently living in, had lived in previously, and in countries their families had a particular connection with (e.g., because their parents or grandparents came from there or because they had visited the country on a family vacation). Even the students at the Swiss school, who had the most intercultural experience, usually created characters in countries they themselves had lived in. Students said that they were interested in finding out whether or not the lives on *RealLives* were the same as their own lives in these countries. In some students, leading virtual lives in countries they had lived in before brought back memories and reawakened interest. Some students wanted to learn more about places they or their family members had lived in, and others mentioned that it was easier to play characters in familiar environments than in countries they did not know anything about.

Overall, students in all three case studies preferred creating characters in wealthy Western countries because they knew they would have better lives there — a tendency that

was reinforced by the statistics the simulation was based upon, and by which characters in these countries typically led longer, easier, and better lives than characters in other places. At the Swiss school, where students had to compare lives in Europe and South America and therefore had to play lives on both continents, some students felt that the simulation was biased toward Europe, and that lives in South America were portrayed as too negative and poor. At the American school, where students were not instructed to play characters in specific countries, students showed the strongest preference for their home country. In the beginning, when students had not yet discovered the Character Designer, they usually tried to immigrate to the USA because they wanted to live there.

While most students set up their characters in familiar countries, some students also created characters in countries they were interested in and had some knowledge about, but were unable to visit, such as Afghanistan, Pakistan, and, in the case of the American students, Cuba. Male students in particular were interested in experiencing life in war zones. Students wanted their virtual lives to connect with existing knowledge and experiences, and *RealLives* enabled them to "go" to these places they had heard about and wanted to learn more about. At the American school, several students set up characters in African countries to learn more about countries they had studied in school (e.g., Egypt, Djibouti, Mozambique). Although most students preferred creating characters in countries they had prior knowledge about or experience with, some students also chose to explore countries they had never been to and knew nothing about, mainly because their names sounded interesting.

While prior knowledge and experience determined student interest in particular countries and cultures, this interest also encouraged students to learn more about these places and make more simulated experiences there. Students generally believed that using *RealLives* could increase players' interest in other countries and cultures and some had already researched more information, used the Learn More option more often, or talked to the teacher to learn more about them. However, one female student at the Swiss school, who had sought more information on the countries her characters had lived in and told her family that she wanted to visit countries she had experienced on *RealLives,* raised concerns that using the simulation might only increase interest in open-minded individuals like herself and not in everyone. Other students believed that using *RealLives* could make players want to visit their characters' countries, although they might not necessarily want to live there.

Students in all three case studies overall appeared to be open-minded, and most of them were willing to accept new information and experiences provided on *RealLives*, even when these were contradictory to students' knowledge and personal experiences. Several students mentioned that using the simulation had made them even more open-minded and had

given them a better idea of life elsewhere in the world. A few students, however, were not open to such contradictory information and experiences, at least initially. One male student at the Swiss school in particular protested loudly and accused the simulation of being wrong. By using *RealLives* and reflecting on his experiences, he later realized that his own life in Costa Rica and Argentina might have been different from the average life there, and he became more open to information that contradicted his personal knowledge and experience. Thus, using a simulation like *RealLives* and reflecting on the virtual experiences can make students more open to new and contradictory information and experiences, which is an important aspect of intercultural sensitivity. These findings support the idea of an experiential learning cycle as proposed by Kolb (1984), which highlights the importance of reflecting on concrete experiences for learning.

While students' use of *RealLives* was based on prior knowledge and experience, it also provided them with new information and experiences that enhanced their openness and flexibility. In all three case studies, students believed that what they learnt on *RealLives* could facilitate intercultural communication as it presented them with basic information about other countries and cultures, which they could use in conversation with individuals from these countries and cultures. Several students mentioned that if they had the opportunity to meet individuals from the countries their characters lived in, they would be interested in asking questions. Students wanted to find out if these individuals' lives were similar or different from those of their characters. These findings show that, although *RealLives* does not include any interaction between characters, it can nevertheless facilitate intercultural interaction by providing conversation topics, reducing uncertainty, and making students want to approach and engage in conversation with individuals from other countries and cultures.

Students' knowledge and experience also played a role with regard to the possible development of stereotypes. Since some students were quick to make judgments about a whole population based on only one or two lives in a country or region, it seems advisable for students to lead the lives of several characters in the same place in order to obtain a more nuanced and true-to-life idea of a particular country and culture. By living a variety of lives, students can learn that characters can have good and happy lives in Africa and Asia as much as they can lead bad and unhappy lives in Australia, Europe, and North America. At the American school, one student who expressed rather stereotypical opinions about several countries during the first round of data collection, voiced a more differentiated option during the second round, which could be the result of increased knowledge and experience and reflection on his *RealLives* experiences. As mentioned earlier, students need to be open to conflicting information and experiences in order to develop a more differentiated opinion. If

they simply ignore or reject information and experiences contradicting their existing knowledge and experiences, they cannot achieve this. Comparing experiences with other students, debriefings, classroom discussions, and other guided activities could also be useful in avoiding the development of overgeneralizations and stereotypical images (see section Social Learning).

Another aspect of intercultural sensitivity influenced by students' knowledge and experience was empathy. When students had more knowledge of and experience with life in a particular country and culture, they were able to identify with their characters more and showed more empathy. This was particularly evident in students like the female student at the American school who was born in and had grown up in South Africa. She strongly connected and empathized with her female South African character, and she was able to engage in role-playing since she knew what a female person living in South Africa would do. Such empathy and role taking was much harder for students who did not have the necessary knowledge and experience (see section Identity).

One male student at the American school said he had tried to put himself into his character's shoes and make decisions as if he was a poor man in Djibouti. He had even engaged in criminal activities against his personal beliefs to allow his character to "earn" money. This student mentioned, however, that he was unsure whether or not he had made appropriate decisions, as he did not know what a Djiboutian would do. Another female student showed great empathy with all her characters and analyzed their situation carefully before making the choices she considered best for each character in a particular situation. Even though this student had never lived in any of the countries her characters were living in, she tried to make appropriate decisions by taking into account all the information provided by *RealLives* (e.g., in the pop-up windows and Learn More boxes). Not all of her decisions resulted in an improvement of her characters' lives, but she tried to analyze why they did not work and adapt her strategies.

The findings show that in all three case studies, students were able to relate to their characters to some extent and to experience emotional empathy. They were smiling and laughing, cheering, putting their hands in the air and shouting, "Yes!" and "Yeah!" for example, when good things happened in their characters' lives. Students were disappointed, sad or frustrated, complaining, hitting the table, pulling their hair, pretending to cry and shouting "(Oh) no!" and "What the?!" for instance, when bad things happened on *RealLives*. Several students mentioned that using *RealLives* allowed them to feel what an individual would feel in a particular situation. However, only a few students in each case study actively tried to take on the roles of their characters, to distance themselves from their personal beliefs,

and to think and act as if they were a different person. Students in all three case studies mentioned that developing empathy in the form of role taking and alternating perceptions (cf. Bruneau, 2000) was harder and required more knowledge and skills than relating to the characters and connecting with them by putting part of themselves into them. This corresponds to research results by MacCallum-Stewart & Parsler (2008), who found that even in so-called massively-multiplayer online role-playing games like *World of Warcraft*, only a small proportion of players actively engaged in role-playing as it is a demanding form of playing and requires knowledge of and reflection on the role.

It seems as though for some students the information obtained through *RealLives* was insufficient to enable them to engage in role-playing, particularly considering the fact that many students did not read the pop-up boxes and the more extensive texts in the Learn More option. Students might have also lacked cognitive and affective skills to empathize more with their characters. After all, the participants in this study were young adolescents whose abstract thought, hypothetical thinking, and metacognition were still developing (cf. Dupree, 2010). Whereas a simulation like *RealLives* presented a platform for students to apply their knowledge and practice these skills, other educational measures might be required to equip them with necessary information and relevant skills.

The findings of the three case studies make it clear that the development of empathy as one part of the affective component of intercultural competence does not happen independently of the development of the cognitive and behavioral components. As proposed in Fantini's (2000) and Deardorff's (2006b) models of intercultural competence, the components are interconnected and develop in relation to each other. Moreover, the findings support Deardorff's (2006b) classification of empathy as an internal outcome based on pre-requisite attitudes (e.g., openness, curiosity, and discovery), intercultural awareness, knowledge, and skills, and not as a basic element of intercultural competence. Without these prerequisites, the participants in this study were unable to truly empathize with their characters, particularly to engage in role-playing.

## 7.2 Identity

The second factor that emerged from the findings as having an important influence on students' use of *RealLives* as well as their intercultural awareness and sensitivity was identity. Identity development is the main developmental task for adolescents, including the student participants in this study (Swanson, 2010). It is characterized by an exploration of various roles (e.g., gender, professional, cultural) and a temporary commitment to them, which allows individuals to see which roles suit them best (cf. Konijn & Nije Bijvank, 2009). Based on

research by Valkenburg, Schouten, & Peter (2005), Dupree (2010) states that new technologies, (e.g., digital games and simulations) allow adolescents to experiment with a variety of identities that can be similar or different from themselves and therefore constitute contexts of human development. This was supported by the findings of this study. Considering the wide range of characters that players can choose from when using *RealLives*, the simulation provided a wealth of opportunities for identity development, including the development of a cultural identity. However, not all students made use of these opportunities to the same degree.

The ways in which the participants in this study used *RealLives* were the result of a negotiation between different roles and identities of the participants and characters in the physical and the game world. First of all, participants had to negotiate their own role between being a student and being a player of a digital simulation. While some students did not care much about the fact that they were using the simulation in school and were given a particular task, others felt they had to take the simulation seriously, read all the information, and make good choices for their characters because they were using *RealLives* in school and were supposed to learn from it. All students said that using the simulation was a mix of playing and learning, but they weighted these aspects differently.

Some students were mainly players, who were developing goals and strategies to reach these goals and competing with themselves, the simulation, or their classmates, for example. For these students, the characters in the simulation were a means to carry out actions and to achieve their goals. These students' emotions were mainly a result of their success (or failure) in reaching their goals; their identification with and empathy for characters were low. Students who largely remained in this player role were found in all three case studies. At the American school, several students explicitly mentioned that they were well aware of the fact that *RealLives* was a simulation and not reality and said this was the reason why they did not have any deep feelings for their characters. One female student at the American school, for instance, explained that she enjoyed ruining her characters' lives and did not feel sorry for them.

Many of the students particularly interested in the game play aspect of *RealLives* preferred to set their characters' points to the maximum of 100, which gave them a better chance of having a long and successful life. They also favored characters in Europe, North America, and Australia, as lives were better and easier there with more opportunities and choices. Manipulating character attributes in this way was particularly common at the Australian and American schools, where students did not receive many instructions from their teacher. At the Swiss school, the teacher explicitly told the students to only select their

characters' location and name, to alternate between male and female characters and not to change character attributes, since he wanted the students to experience average lives. Students followed these instructions, except for a few boys who nevertheless optimized their characters' attributes, as they wanted to be more successful.

Experiencing success as players and mastering challenges can positively contribute to adolescents' identity by promoting feelings of power, control, self-efficacy, pride, and self-esteem. It can motivate players to put more effort into the simulation and can lead to more identification with characters. As students at the Swiss school explained, they identified more with their characters when they were leading successful lives, wishing they were the character and feeling a stronger connection. Although a strong focus on game play is usually not desirable when students are to learn from a simulation, it can support the development of intercultural sensitivity, if it causes players to identify more strongly with culturally diverse characters.

Most students did not simply remain players but established stronger connections with their characters. Using their characters as an extension of themselves in *RealLives*, students put part of themselves into the characters and made them resemble themselves to some extent. They preferred creating characters in familiar places and favored characters of their own sex, with some students even refusing to play characters of the opposite sex and restarting the program until they were given a matching character. In addition, some students set their characters' attributes (e.g., musicality, athleticism) to their personal qualities. Creating characters similar to themselves allowed students to immerse themselves in the game world, to replay personal experiences, and/ or to experience what their own future might be like (e.g., if they chose to make a particular decision, got a particular job, or immigrated to a particular country), and to learn from these experiences. For some students, replaying past experiences seemed to be a form of coping; one girl at the Swiss school explicitly mentioned this. [19]

Comparable with existing theory (e.g., Egenfeldt-Nielsen, 2007a; Gee, 2009), all students developed their own goals and strategies while using *RealLives*, even during the more regulated and guided activities at the Swiss school. In all three case studies, students mainly made decisions for their characters from their personal point of view and wanted their characters to have what they considered normal in their own life, country, and culture. The

[19] An alternative explanation why students might have been interested in creating "familiar" characters could be the human tendency to minimize cognitive dissonance by avoiding anything that contradicts one's own knowledge and attitudes (Festinger, 1957). Studies have found that media users avoid content that can cause cognitive dissonance and instead select content that reinforces their own knowledge and attitudes (Zillmann, 1988). Thus, students might have preferred creating familiar characters and places to avoid confrontation with information and experiences contradicting their existing knowledge. Since such processes usually do not take place consciously, one cannot expect media users to mention them when asked about their reasons for choosing a particular type of medium or specific media content.

most common goal, particularly for male students, was to earn as much money as possible. This goal was connected with the aim of finding a well-paid job. Other common goals were having a family, getting a good education, and — in the American case — immigrating to the USA. Most students looked at their characters' attributes (particularly their health) and tried taking these into account to some extent, but their decisions were mostly based on their personal beliefs, values, norms, opinions, and preferences. For example, students usually selected leisure time activities they personally enjoyed, and some chose their characters' university courses and jobs according to their personal preferences. Students also generally refused to smoke, drink alcohol, take drugs, and engage in criminal activities — these decisions were considered bad, silly, or stupid. However, in each case study, there were also students who enjoyed doing such "forbidden" activities in their virtual lives, as this did not involve any real-life risk. Overall, students' ideas of life reflected Western cultural beliefs, values and norms, including individualist and materialist tendencies. They also reflected typical gender roles, with female students being more caring and more interested in relationships and family and male students being more competitive and more interested in business and finance issues.

Making decisions from an egocentric perspective is considered normal for adolescents as "adolescents are assumed to be much more egocentric compared to those in other stages of development" (Dupree, 2010, p. 66). On the one hand, making decisions from their own point of view was easier for students than thinking about what someone else would do. On the other hand, it allowed them explore what might happen in their own future, should they decide to make particular decisions. At the Australian school, the teacher explicitly encouraged his students to think about what they would do and to make decisions they would make in their own lives. It is therefore not surprising that students were making egocentric decisions.

Several students mentioned that using *RealLives* was interesting for them because they could adopt an older age, which allowed them to make adult decisions and see their outcomes. The simulation enabled students to try a range of potential career paths, such as becoming a lawyer, a professional athlete, or a musician, and to explore countries they might want to visit, or even live in, in the future. Using *RealLives* in this way enabled students to experience situations they might encounter in the future and to feel what a person might feel in such situations. Students mentioned that they had been sad or upset when someone in their character's family had died or had been robbed, disappointed when they had been unable to find a boyfriend, or relieved when they had managed to overcome a difficult situation, for example.

Playing characters similar to themselves also provided students with an opportunity to learn more about their own culture. As one of the White American students mentioned, he had never really thought about his own culture and aspects like the typical American diet, for instance. This corresponds with Harris & Rockquemore's (2010) comments that members of majority ethnic groups in particular often do not question or reflect on their cultural identity. Thus, *RealLives* can be a stimulus to encourage students to think about their own cultural background and in doing so support the development of a cultural identity.

Instead of putting part of themselves into their characters and using them as an extension of themselves, a few students in each case study tried to actively engage in role-playing by leaving behind their personal identity and taking on that of their character. Role-playing can be regarded as a more demanding form of empathy, in which a player does not only relate to and understand another individual's actions and feelings, but attempts to think, feel, and act as if s/he was someone else. At the Australian school, for example, a girl mentioned that she actively engaged in role-playing and attempted to think, feel, and act like a Chinese person. Likewise, a female student at the American school was playing the role of a Muslim woman in Yemen who was disowned by her family because she married a man of a different religion, and a male student at the American school was playing the role of a poor man in Djibouti. He had to steal in order to survive, although this was against his personal beliefs. Such "wishful identification" (Konijn & Nije Bijvank, 2009, p. 186) allowed students to experience what it would be like to be someone else and to explore different identities.

From an intercultural competence point of view, having students take on the roles of various characters from a range of countries and cultures presents the most desirable form of engagement with the simulation. It enables students to better understand and relate to individuals from other countries and cultures, which can promote tolerance, respect, and a more ethnorelative view. However, it also seems to be the most difficult level of player-character interaction to achieve. It requires commitment to the characters and their roles and to the game world as well as knowledge about the roles (Konijn & Nije Bijvank, 2009; MacCallum-Stewart & Parsler, 2008). Several students explained that it had been difficult for them to identify with their characters since the virtual lives were so different from their own. It seems that some degree of similarity was required for students to relate to the characters and not to overwhelm them.

One indicator of students' identification with their characters — either by putting part of themselves into the character or by taking on the character's identity — was the fact that most students in all three case studies spoke about their *RealLives* experiences using the first person singular. They sometimes used the third person singular for their characters when

talking about themselves as the player of the simulation in order to distinguish between player and character, but most of the time they referred to their characters as "I". This shows that students connected with their characters and made "as if" experiences *in lieu* of their characters. It should be noted here that the different player roles and ways of relating to characters were not mutually exclusive and varied depending on player mood, the character, and influence by peers, for example. Immersion and a player's sense of presence usually fluctuate during game play (Ritterfeld, 2009), which is why students cannot be classified as one type of player or another.

Another connection between the use of *RealLives* and students' identity was the simulation's appeal to a wide range of personal interests, which allowed students to do what they were personally interested in and to learn more about issues that were relevant to them. These interests ranged from people's lifestyles, food and traditions, to history, geography, and economics. Based on their personal interests, students were using *RealLives* in potentially unique and personally meaningful ways, choosing particular actions, and focusing on information they were interested in learning more about.

Since interest is a very personal factor, it is practically impossible to know upfront which information students will want to learn more about while using a simulation like *RealLives*. The students themselves might not even know this, as they could become interested when something pops up that they have never heard of before. This means that each student can learn about different issues when using an interactive medium like *RealLives*, which can be problematic in school settings, where curricular goals must be met. For players, however, this interactivity and the way in which it connects each player with the game or simulation is one of the main reasons why using digital games and simulations is so enjoyable (Klimmt, 2009; Lieberman, 2006).

Several students in the study believed that *RealLives* was particularly suitable for open-minded individuals who were already interested in life in other countries and cultures and thought the simulation reinforced existing interests rather than created new ones. Thus, *RealLives* might work best in combination with other educational strategies that encourage open-mindedness and arouse interest in intercultural topics in students. Since students who already have an interest in intercultural topics are likely to have more intercultural knowledge and experience as well, learning outcomes and progress in intercultural competence development might be greater in students who like to use digital games and simulations, but are not as interested in intercultural topics and have less intercultural knowledge and experience. This makes guidance by a teacher and additional activities to increase students' interest all the more important.

The findings of the study indicate that using the simulation *RealLives* alone was insufficient to create interest in all students. Accordingly, additional activities and resources seem to be necessary in order to stimulate students' interest in intercultural issues. The relationships between experience with digital games and simulations, interest in intercultural topics, and educational outcomes need to be explored further to determine the best preconditions for the educational use of a simulation like *RealLives*.

### 7.3 Social Learning

The third aspect that played an important role in students' use of and interaction with *RealLives,* as well as with regard to their intercultural awareness and sensitivity, was social learning. Compared to the two intraindividual factors of knowledge and experience, and identity, social learning is an interindividual factor that includes peer learning and guided learning by a teacher. As postulated in Vygotsky's (1978) Social Learning Theory, interaction with others, such as peers and teachers, has an important impact on learning. Most importantly, learning together with more knowledgeable others allows learners to achieve more than they would be able to on their own (Ebbeck & Waniganayake, 2010b; Yelland, 2005).

The findings of the study show that students in all three cases preferred being active and in control of their virtual lives as well as their learning. Apart from a few students, who simply reacted to the developments on *RealLives*, students generally used the Actions page frequently to influence and change their lives the way they wanted to. This corresponds to the idea of today's youth being a "twitch-speed generation" (Egenfeldt-Nielsen, 2007a, p. 34) that likes to be active and in control. By giving agency to the students and allowing them to be autonomous and in control of their learning to some degree, the use of *RealLives* corresponded to contemporary learning theories and instructional designs, which consider learners to be actively engaged in the learning process, autonomous, and in control of their learning to some extent. Supporters of these theories appreciate the fact that new media, such as digital games and simulations, allow for "self-paced, self-motivated and self-evaluated exploration and learning" (Dupree, 2010, pp. 70-71).

In this study, social learning influenced students' use of *RealLives* in several ways. When students were learning how to use the simulation, faster and more knowledgeable students shared their knowledge and experience with others and showed them how to use *RealLives*. This was particularly important at the American school, where students had no teacher support. While most students managed to learn how to use the basic functions on *RealLives* quickly and without help based on prior experience with digital games and

simulations, some functions, such as the Character Designer and the business and finance options, proved to be more difficult. For these functions, students often asked their peers for help. At the Swiss school in particular, some male students had become experts in moneymaking and were consulted by others who also wanted to know how to become millionaires. The more knowledgeable students enjoyed being treated as experts and showing off their knowledge and skills. At the Swiss and Australian schools, some students also asked the teacher when they did not know how to do something on *RealLives*, and at the American school students sometimes asked the researcher.

Despite the different contexts and activities with *RealLives* in the three case studies, interaction with peers and — to a lesser extent — the teacher, were crucial. All students needed to share their experiences with others; they wanted to hear what was going on in other students' virtual lives and commented on others' experiences. Students sought advice from peers when making decisions for their characters, although they did not necessarily follow it. Students also asked peers when they did not understand words or concepts used in *RealLives*. Although students in all three case studies engaged in peer learning while using *RealLives*, not all students were able to find and understand all the functions and information provided by the simulation — another reason why guidance and support from a teacher are necessary.

At the Swiss school, where the teacher pointed out important information to the students and repeatedly reminded them to use particular pages and the Learn More option, students generally read more of the educationally valuable information and seemed to understand better what it meant. For example, the students at the Swiss school were better able to understand the information on the Country page and the graphs on the Stats page, and they used these pages more often than students in the other case studies. These students also understood the usefulness of this information for their lives (in the simulation and in the physical world) and seemed to remember more of it. At the other schools, students did not understand this information as thoroughly and did not use it for their decision-making as much; some students did not even know it existed.

Another concern was that, when relying on peer learning alone, students can provide each other with incorrect information, which happened in all three case studies. At the American school, for example, a male student told his classmates that a vocational school was a school one attended in order to become a priest or a nun. Whilst the teachers at the Australian and Swiss schools were in the classroom with the students and therefore able to intervene and give just-in-time talks when students were sharing incorrect information, the students at the American school were left to themselves. They sometimes asked the researcher, who was trying to keep a distance as much as possible, however, and only

engaged with students when absolutely necessary. Hearing the students talk about their *RealLives* experiences, the teacher at the American school noticed that some of the information students were exchanging was not correct, but he felt that he could not do much about it as he did not have time to talk to each student about their experiences and was unable to integrate the use of *RealLives* into his classroom teaching. Some students at the American school approached the teacher after class to find out more about particular issues they had become interested in but had not fully understood.

The above-mentioned aspects show that whereas peer learning might be preferred by students due to the freedom and control it provides, guided learning and support from a teacher are essential, if one wants to exploit the full educational potential of a medium like *RealLives*. However, teachers need to be careful when intervening, as openly correcting students in front of the whole class could negatively impact students' self-esteem, relationships between students, and the classroom atmosphere. In this study, students and teacher seemed to learn from and with each other best at the Swiss school, where students were working in small groups and the teacher was walking around the classroom, often talking to students individually, identifying problems, and giving just-in-time talks on important issues to the whole class. This also helped other students to better understand the simulation and the information provided and corrected misconceptions. It needs to be pointed out here that not all students were always paying close attention to the teacher; some were too caught up in their use of the simulation or were talking to classmates.

Peer learning was also important from a creative point of view. As students wanted to share and compare their lives with their peers, they were using the simulation in ways that allowed them to do this; they also borrowed ideas from their classmates. Students used the same actions on the Actions page, for example, immigrated to the same countries, used the Self page to check their characters' levels of health, happiness, and so forth, or the number of children, cars, or TVs on the Family page. This information served as the basis for decision-making while at the same time giving students something they could compare with their friends. Some students were also aging at the same time and comparing what was happening in their lives. Other students set up characters in the same place and pretended to be family members. These examples show how social learning had an influence on individual students' use of the simulation *RealLives*.

Competition can be a powerful factor in using digital games, even in using digital simulations like *RealLives*, where there is no multiplayer mode or direct competition and the focus is more on exploration than on winning. As the example of the students at the Swiss school who focused almost exclusively on moneymaking during the second round of data

collection shows, such competition can develop even in formal educational environments guided and controlled by a teacher. It can overpower other aspects of the simulation, including the educationally desirable ones, and distract students from their task. For *RealLives* in particular, this danger could be even greater when using the simulation with older students, who might have more knowledge of businesses and investments and might not be put off by the complexity of these options. Since these options cannot be disabled in the simulation, teachers will need to find ways to keep students from focusing on them too much.

With regard to the development of intercultural awareness and sensitivity, social learning can be useful in a variety of ways. Sharing and comparing information with peers can make students aware of aspects that do not appear in their own characters' lives or that they might not have noticed. Hearing about other students' experiences can also create curiosity in students and make them want to play in these countries or search for more information on them. Comparing experiences with other students in debriefings, classroom discussions, or other guided activities can help avoid the development of overgeneralizations and stereotypical images as students can base their opinions not only on their personal experiences but also on those of their peers. Learning about other students' experiences can assist students in putting their own experiences in perspective and in developing a more differentiated opinion. When comparing experiences in the classroom, the teacher can also point out important similarities and differences and provide additional information, if necessary.

The case of the male student at the Swiss school who complained about the simulation being wrong because it did not match his personal knowledge and experiences showed how discussion with others can lead to reflection and more openness in students. By talking to the researcher during his interview and reflecting on his personal and virtual experiences, this student realized that his personal life might have been more protected than the average life in Argentina and Costa Rica. As a result of this reflection on these contradictory experiences, this student became more open and receptive to information and experience that did not match his knowledge and experiences and developed a more differentiated picture of life in Argentina and Costa Rica.

Playing in groups and sharing characters on *RealLives* also required openness to other peoples' beliefs and ideas, flexibility, and willingness to compromise. This openness and flexibility and the negotiation and teamwork skills students develop by engaging in such group play could help students cope with unfamiliar situations in the physical world — including intercultural encounters — and to react to them more appropriately. It needs to be pointed out here however, that not all students in the study were sufficiently open and flexible and willing to cooperate with others when doing group work. As the experiences at the

Australian and Swiss schools showed, some students were unable to cooperate and reach a compromise and either relinquished their characters' lives to other players or split up as a group and continued leading individual lives. In order to enhance students' openness and flexibility, teachers need to assist students in such situations and help them overcome their difficulties so that all students can profit from the group experience and learn collaboratively.

Social dynamics played a crucial role for students in this study. In all three case studies, peers, particularly friends, were highly important for students. As described by Rodriguez & Walden (2010), peers – together with family – are the "primary socializing agents" (p. 302) during adolescence. While the teachers liked to create diverse groups consisting of dissimilar students, the students themselves preferred playing with their friends, who had similar ideas and opinions and with whom they would not argue. This corresponds with Kao & Turney's (2010) reflections that "adolescents, like adults, have friends who are similar in terms of race, ethnicity, class, and interests (Clark & Ayers, 1992; Crosnoe, 2001; Giordano, 2003; McPherson, Smith-Lovin & Cool, 2001)" (pp. 196-197). It was particularly important for students to share with their friends what was happening in their characters' lives, and their friends' actions and opinions, in turn, influenced their own behavior. Students said, for example, that they wanted to immigrate to a country because their friends had done so, or that they wanted to set up characters in the same place as their friends and play together as a family. As typical for young adolescents, same-sex friends were particularly common and influential in all three case studies (cf. Kao & Turney, 2010).

Kao & Turney (2010) stress the fact that "friends and peers can provide either positive or negative influences on youth and it is likely that the influence of friends is most intensely felt during adolescence" (p. 197). Both positive and negative influences of friendship were found in this study. While students were helping their friends to master the simulation and showing them how to use particular functions, some students also incited their friends to shut other students' tablets down or to create characters in countries they were not supposed to choose (e.g., the two male students at the Swiss school who played the lives of "pirates" in Somalia, although they were supposed to lead lives in Europe and South America only). Such dynamics need to be managed by a teacher for they can be counterproductive with regard to the desired learning outcomes and distract other students.

As the findings of the three case studies show, peer learning provided a variety of opportunities for students to be active and in control, to learn from each other, and scaffold each other, which allowed them to achieve more than they could have achieved on their own. Nevertheless, the presence and support of a teacher seems crucial when peers are unable to provide help. A teacher can also guide students, point them in the right direction, and

intervene when they are sharing incorrect information or engaging in counterproductive behavior. While teacher intervention can be boring for students, as it reduces them to passive recipients of information, relying solely on peer learning bears the risk of incomplete or incorrect information and the development of peer dynamics that might not be desirable from an educator's point of view. Digital games and simulations should therefore be used in a social learning environment with peers and teachers (or other adults), some of whom should be more knowledgeable and able to guide and scaffold students' learning and development in appropriate ways.

## 7.4 A Model of Media-based Socially Mediated (MeSo) Intercultural Competence Development

As described in the beginning of this chapter, the analysis of observation and interview data resulted in the identification of several factors that appeared to have an impact on student use of the digital simulation *RealLives* and its potential for the development of intercultural awareness and sensitivity. In addition to the three key factors explained in sections 7.1 to 7.3 — knowledge and experience, identity development, and social learning — other interindividual (e.g., students' existing levels of intercultural competence, cognitive and affective abilities, character traits, and mood), intraindividual (e.g., friendships, animosities, (dis)trust, support, competition), and contextual (e.g., school type, resources, educational aims, location, culture, families, characteristics of the medium) factors also played a role. It was the combination of these factors that determined to a large extent students' approaches towards the digital simulation *RealLives*, the goals they wanted to pursue, and the use of the medium.[20]

Figure 7.1 illustrates the various influential factors in a social learning environment with interactive digital games or simulations. In this figure, smaller circles represent individuals with less knowledge, experience, and intercultural competence; larger ones represent more knowledgeable, experienced, and interculturally competent individuals. These more knowledgeable others are particularly important for social learning. Students close to each other are friends, the others other peers. The arrows in the diagram show the direction of interactions, with thicker arrows representing more influence than thinner ones.

[20] These factors also influenced the teacher's use of the simulation, but since this study focused on students, this aspect is not discussed here.

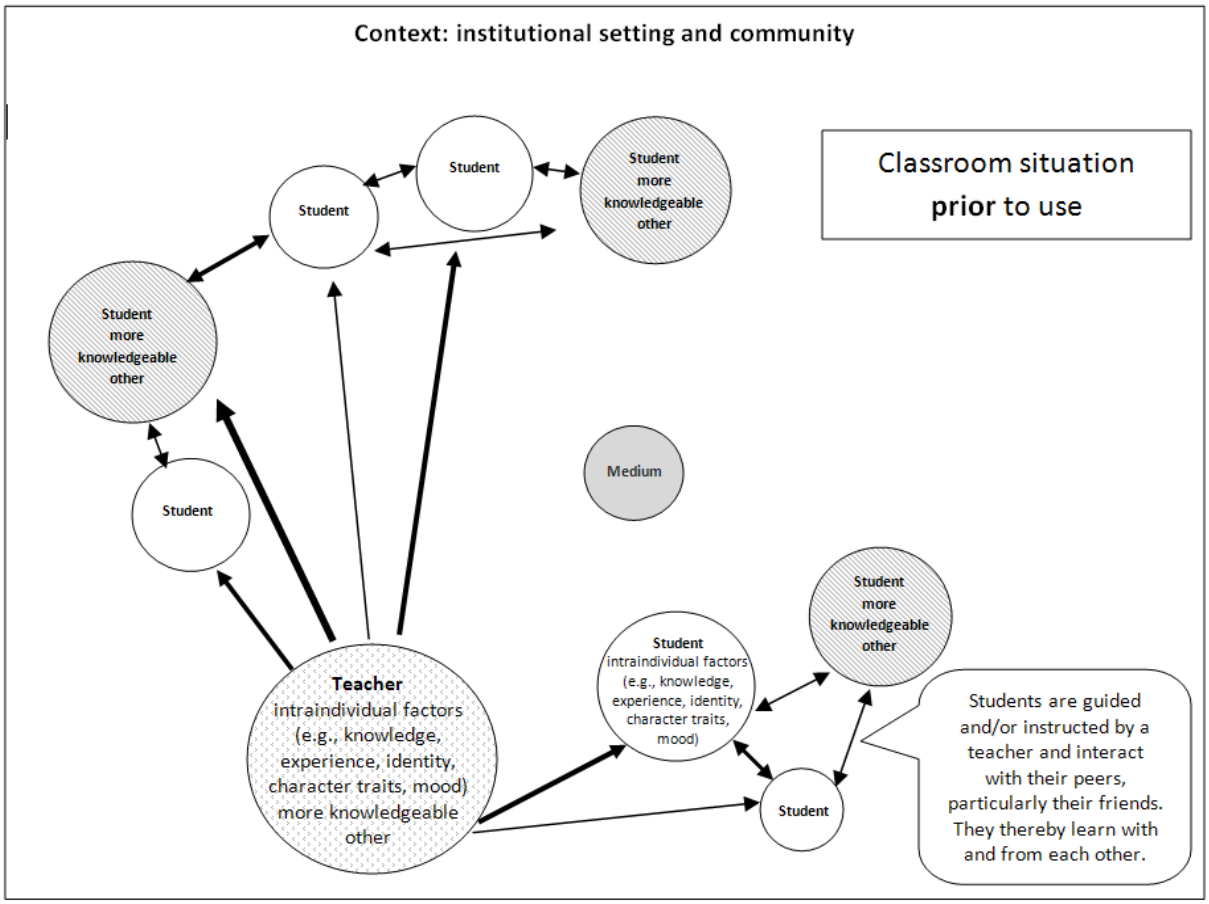



*Figure 7.1*. Model of Media-based and Socially Mediated (MeSo) Intercultural Competence Development — Prior to Use

When using a digital game or simulation in a particular educational context, each student can approach, interpret, and use the digital game or simulation in a way that is personally meaningful and potentially unique (Figure 7.2). The medium will therefore "look" different for each student. In the social learning environment, each student can be influenced by peers — particularly friends and more knowledgeable others — and the teacher. While some students might be part of peer groups, others might have only a few or no friends; thus, interaction with peers and peer learning can differ between students. The influence of the teacher can also vary, with some students paying more attention to the teacher than others, and the teacher supporting individuals and groups of students in different ways.

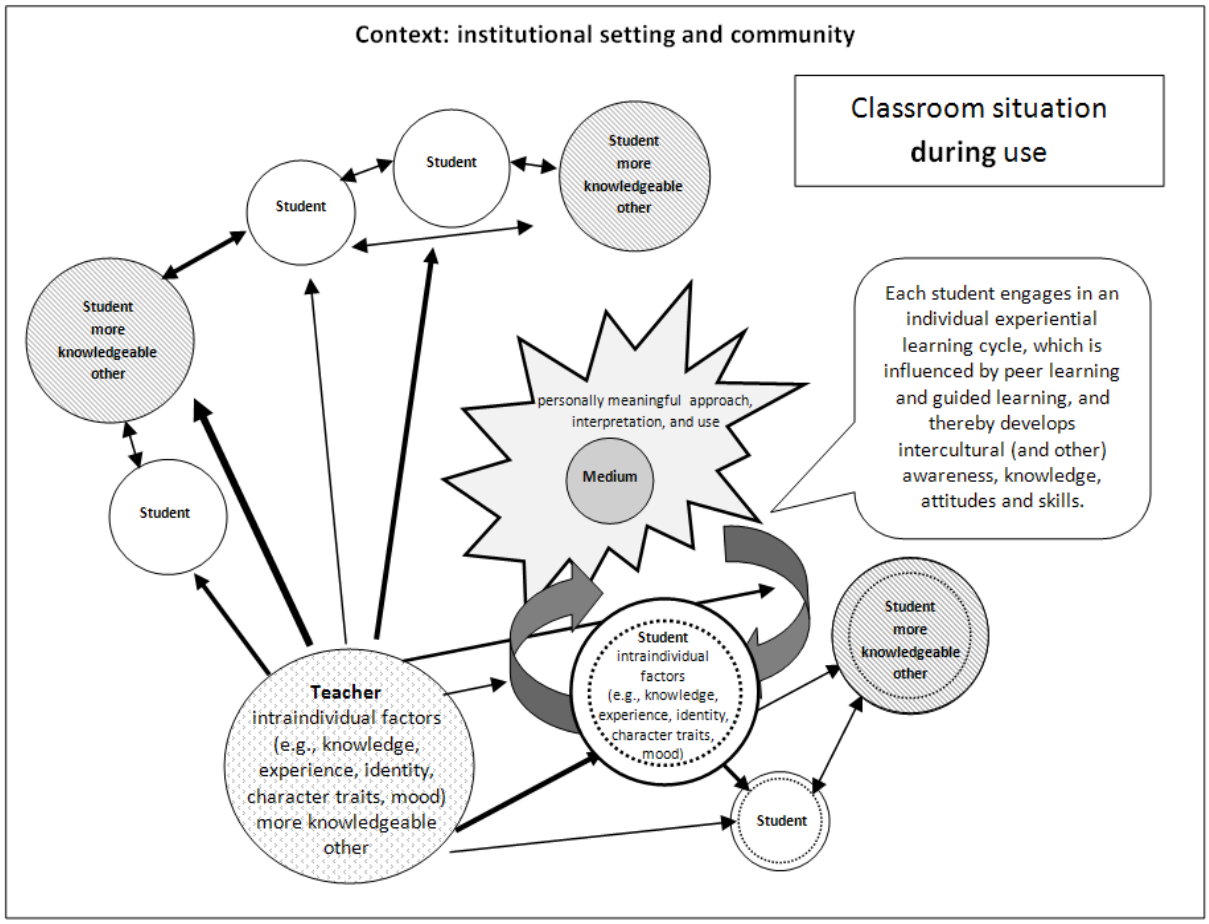



*Figure 7.2.* Model of Media-based and Socially Mediated (MeSo) Intercultural Competence Development — During Use

Based on the models proposed by Kolb (1984) and Deardorff (2006b), Figure 7.2 also illustrates how each student can engage in an experiential learning cycle by making concrete (albeit virtual) experiences when using the digital game or simulation, reflecting on these experiences, and further developing intercultural awareness, knowledge, attitudes, and skills. New knowledge is subsequently tested and revised through interaction with the medium. In social learning environments, such as school classrooms, an individual student's experiential learning cycle is not separated from those of other students and the teacher, but exists and evolves through interactions between them. This allows students to learn from more knowledgeable others (peers or adults) as well as from the experiences made through the use of the digital game or simulation.

While using an interactive digital medium in the social learning environment, students become more knowledgeable, experienced, and interculturally competent (illustrated by greater circles). The educational gains differ among students, depending on their use of the medium, peer learning, and guidance and support from the teacher. Although the teacher also

engages in learning processes through interaction with the medium and the students, this is not the focus of this model and therefore not included in this discussion.

This model extends existing models of intercultural competence by including a digital interactive medium as a stimulus and a virtual environment in which students can find intercultural information and make concrete experiences to learn from. It also includes interindividual aspects, such as social relationships and dynamics and social learning, as well as the context of all interactions.

Since this model emerged from the three case studies included in this study, it needs to be tested and refined further to determine the most important aspects, those that vary depending on the medium and context, and potential additional aspects that might need to be included so that this model can be applied in diverse institutional and socio-cultural contexts.

# CHAPTER EIGHT

## CONCLUSION

Using an interpretivist, exploratory approach, this thesis examined the potential of the digital simulation *RealLives* for the promotion of intercultural awareness and sensitivity in 12- and 13-year-old students in three International Baccalaureate schools in Australia, Switzerland, and the USA. Combining observations, in-depth interviews, and questionnaire surveys, the study investigated the use of and interaction with *RealLives* by students and teachers and the connections between students' *RealLives* experiences and their intercultural awareness and sensitivity with the aim to explore the simulation's potential to encourage the development of these components of intercultural competence in young adolescents in classroom environments. In this last chapter, the key findings of this study (8.1), its limitations (8.2), and opportunities for future research (8.3) are presented.

### 8.1 Key Research Findings

With regard to the first research question about the use and interaction with the digital simulation *RealLives*, the study found that the three teachers employed the simulation in different ways, ranging from a separate activity in the library for groups of four students without any teacher support at the American school to an integration into Social Studies lessons combined with an assignment for all students at the Swiss school. Despite these differences, similar patterns and strategies of use and similar social dynamics emerged among students and students and teacher.

Comparable with earlier studies on the educational use of digital games and simulations (e.g., Squire, 2004; Tsikalas, 2008b) and in accordance with Gee's (2009) idea of unique trajectories and blends of players/characters, the findings show that students used *RealLives* in potentially unique personally meaningful ways. Students' use of the simulation and its opportunities for the development of intercultural awareness and sensitivity were the result of an interplay of various intraindividual and interindividual factors — particularly knowledge and experience, identity, and social learning. Knowledge of and experience with other digital games and simulations as well as intercultural knowledge and experience influenced students' use of *RealLives* and determined the educational potential of the simulation for each student. Students also negotiated their identity as a game player *versus* learner, their cultural identity, gender, and potential professional roles when using *RealLives*.

In addition, students' use of the simulation and its opportunities to encourage the development of intercultural awareness and sensitivity were influenced by peer communication and peer learning, particularly with friends and more knowledgeable others in

the classroom. The findings of this study support the idea of computers as "catalysts for positive social interaction" (Clements & Sarama, 2003, p. 4, cited in McCarrick & Xiaoming, 2007; cf. Yelland, 2005; Yelland, 2006) and highlight the importance of social learning even when students are using computers individually. In line with similar studies (e.g., de Freitas, 2006b; Egenfeldt-Nielsen, 2005), the results demonstrate that student players need to discuss and reflect on their experiences to be able to thoroughly understand and learn from them. These and other intraindividual, interindividual, and contextual factors identified in the three case studies were integrated into a Model of Media-based and Socially Mediated (MeSo) Intercultural Competence Development, which illustrates how a medium like *RealLives* can be used to promote intercultural competence in a social learning environment.

Addressing the second and third research questions concerning the connections between students' use of *RealLives* and their intercultural awareness and sensitivity and the simulations intercultural educational potential, the results provide evidence that using *RealLives* in a school environment can promote intercultural awareness in student players — even in students who are already more interculturally competent or focus on game play rather than learning. It can also advance the development of intercultural sensitivity by creating/reinforcing curiosity in cultural issues, encouraging openness and flexibility through confrontation with new information and unfamiliar situations, and by providing a wealth of opportunities for identification with characters and role-playing, which can promote empathy and a more ethnorelative view. Thus, it can be concluded that using the simulation *RealLives* can be a useful strategy to promote the development of intercultural awareness and sensitivity in student players.

As the findings of the study show, the digital simulation *RealLives* was received largely positively as a learning and teaching tool by the participants in this study. However, although students enjoyed being active and in control when using *RealLives* and were learning largely independently and through peer learning, the findings point out that guidance and support from a teacher are essential for students to fully exploit the educational potential of the simulation. In this study, many teachable moments were missed because the teachers had not integrated the use of *RealLives* thoroughly into their teaching, did not encourage reflection and discussion, and were not guiding and supporting students sufficiently. As postulated by Graesser et al. (2009), student comments clearly indicated that, without teacher support, they were "prone to settle for shallow learning" (p. 95). Thus, teacher involvement seems indispensable to guide students' use of the simulation, remind students of their tasks, and highlight and discuss educationally relevant aspects. Only then can the educational potential of *RealLives* be better exploited.

The findings of the study show that it was not easy for teachers to thoroughly prepare and integrate the use of *RealLives* into their regular classroom activities, mainly due to limited time and resources, dense curricula, and technical difficulties. With regard to an early childhood context, Yelland (2006) points out, "We need a bold new approach to curriculum which encapsulates a notion of design and opportunities for children to explore and investigate in ways that were not possible without the new technologies" (p. 12). This seems to be true for the middle schools in this study as well. Although *RealLives* provided many educational opportunities for Social Studies and other subjects, teachers were unable to thoroughly integrate the use of the simulation in the curriculum so as to maximally exploit its educational potential. When used in a thoroughly integrated manner together with complementary learning activities and in a social learning environment, the use of *RealLives* seems to be able to promote intercultural awareness and sensitivity, while at the same time appealing to students of the "Games Generation" (Prensky, 2001a, p. 46). It also aligns with contemporary constructivist notions of learning, according to which learners are active and in control and learn through exploration, discovery, situated experiences, peer learning and scaffolding by more knowledgeable others (cf. Bruner, 1967; Kolb, 1984; Lave & Wenger, 1991; Vygotsky, 1978). It can be concluded that the use of a digital simulation like *RealLives* for the promotion of intercultural awareness and sensitivity can be an enjoyable and worthwhile but at the same time intricate undertaking, which requires thorough planning and preparation so as to integrate the medium into teaching as well as continued guidance and support from a knowledgeable teacher during use.

## 8.2 Limitations of the Study

Due to the way this study was designed, it had some limitations, which need to be taken into account when considering its findings. It should be pointed out again that the findings of case studies cannot simply be generalized and transferred to other cases. All schools included in the study were private International Baccalaureate Schools, which strongly support the use of technology in teaching and value intercultural competence. Despite these favorable conditions, *RealLives* was only integrated thoroughly into regular classroom activities in one of the three schools (the Swiss school), and even in this school there was room for improvement. Moreover, technical problems occurred in all three schools, and IT staff were not always able to solve them. As the integration of a medium like *RealLives* into classroom teaching can be expected to be even more difficult for teachers in schools with less favorable conditions, further research needs to determine to the extent to which the use of such media is actually feasible in different school types.

In addition to the study's focus on IB schools, all three schools included in this study were located in wealthy industrialized countries and catering to children from predominantly Western cultures. This limitation is particularly relevant with regard to the development of an ethnorelative worldview. Since *RealLives* is based on official statistics, characters in countries like Australia, Switzerland, and the USA usually have better and longer lives than characters in less industrialized countries and non-Western cultures, which can reinforce ethnocentric tendencies in players from these countries and/or hinder the development of a more ethnorelative view. Although *RealLives* is only available in English and can therefore only be studied in English-speaking environments, it does not necessarily need to be studied in wealthy industrialized countries and Western cultures. Schools in Asia or Africa, in countries such as India, the Philippines, Namibia or Ghana — where English is an official language and is widely spoken — could provide an interesting contrast and complement the case studies included in this study.

Another limitation of this study was the inclusion of 12- and 13-year-old students only. This age group of young adolescents can be considered a special age group for several reasons. Firstly, studies have shown that the use of digital games and simulations is often greatest among young adolescents (e.g., Feierabend, Karg, & Rathgeb, 2010; Lenhart, et al., 2008). The use of these media in school might therefore be perceived particularly favorably by this age group. Secondly, young adolescents are in the process of developing their identity and naturally explore different gender, professional, and cultural roles. While they might have some experience with and knowledge of other countries and cultures, their ideas are likely to be less rigid than in older students, and they might be more open to exploration and diverse experiences as provided by *RealLives.* Thirdly, friends are often the most influential factor for human beings during adolescence (Kao & Turney, 2010), which could be one of the reasons why interaction with friends while using *RealLives* was so crucial in this study. While in this study — typical of early adolescents (Kao & Turney, 2010) — same-sex friends were most important, and mixed groups argued the most, this is likely to differ in studies with older students, among which mixed groups of friends usually prevail (Swanson, et al., 2010). Further studies with different age groups are required to determine the most appropriate age group for particular ways of using *RealLives*.

The selection of the digital simulation *RealLives* can in itself be considered a limitation of this study. On the one hand, *RealLives* only provides a single player mode and does not include any interaction between characters, which limits players' opportunities to apply intercultural awareness, knowledge, and sensitivity and to exhibit interculturally competent behavior. On the other hand, *RealLives* is not a "deep serious game" (Gee, 2009, p.

68) for the promotion of intercultural competence. It does not require players to carefully read and understand the cultural information provided, and players do not need to act in interculturally competent ways in order to progress in the simulation. Although characters might have better lives and players might be more successful when taking their character's culture into account and acting in an interculturally competent manner, players do not have to do so and can develop other playing strategies and goals and focus on other aspects when using *RealLives*. These considerations reinforce the importance of teacher guidance and support when using digital media in the classroom for an educational purpose, such as intercultural competence development.

## 8.3 Opportunities for Future Research

Based on the limitations discussed in the previous section, future research could investigate the use of the digital simulation *RealLives* and/or other digital games and simulations that can promote intercultural competence in other school types, diverse cultural contexts, and with students of different age groups.

Since there existed no school subjects on intercultural competence development, the use of *RealLives* had to be integrated in a related subject, such as Social Studies and English. Considering that digital games and simulations are usually quite complex — particularly commercially available titles that are not tailored to educational requirements — they are especially suitable for interdisciplinary use, which would also allow for a more natural way of learning compared to focusing on a single topic or subject at a time. However, such interdisciplinary use requires several teachers to invest time and effort in familiarizing themselves with the digital game or simulation, integrating it into their teaching, and communicating with each other to coordinate their activities. Examination of how the use of *RealLives* could be linked with different school subjects and integrated in an interdisciplinary manner was beyond the scope of this study; it could be an interesting topic for future research.

In addition, future studies could assess intercultural competence development in players over time and thereby further investigate, test, and refine the components of the *MeSo Model* of media-based and socially-mediated intercultural competence development proposed in Chapter 7. Such an investigation could also include intercultural knowledge and skills, which were not part of this study, and investigate the transfer of knowledge, attitudes, and skills to related situations in the physical world. For example, students could be confronted with intercultural scenarios where openness, flexibility, empathy, and/or an ethnorelative view must be applied, to examine whether or not they draw on the information and

experiences provided by *RealLives* and to what extent their intercultural knowledge, attitudes, and skills are promoted through their use of the simulation.

Considering that the development of intercultural competence is a long-term process and that, in this study, students' use and perceptions of the simulation changed over time, longer-term studies seem inevitable. Although students can initially be very excited to use digital games and simulations in the classroom, the results of this study show that even these new media can become boring for students, particularly when they are not given clear instructions or tasks to complete. While a simulation like *RealLives* needs to be used repeatedly to allow students to have a variety of experiences in diverse cultures and to prevent overgeneralizations and stereotyping, overuse may be counterproductive. Future research should therefore investigate the use of digital games and simulations over a longer period of time to assess what factors sustain students' interest and engagement.

The differences between male and female students' use of *RealLives* and digital games and simulations in general appear to be another interesting topic for further examination. Similar to the differences in game genre preferences found in previous studies (e.g., Hartmann & Klimmt, 2006), male and female students in this study used the same software in different ways. In line with girls' preference for simulations, the female students in this study were generally more interested in exploring *RealLives* and reading the information and in family and relationships, while the male students were more interested in game play and competing in businesses and moneymaking. This suggests that using a simulation like *RealLives* for the promotion of intercultural competence might benefit female students more than male students, or rather that boys might require more guidance and support from a teacher to exploit the simulation's educational potential. Female students' interest in relationships and family issues and their greater struggles with business and investment options compared with their male counterparts indicate that male and female students have different interests and levels of knowledge about particular issues, which result in their focusing on different aspects of the simulation and impact on the possibilities to promote intercultural awareness and sensitivity.

The difficulties some students had in reading and understanding longer texts, unknown words, and graphs, point out that a digital game or simulation like *RealLives* is not equally suitable for students of all abilities. While digital games and simulations are often regarded as particularly appropriate for lower ability students due to their motivational qualities, this study shows that they can be problematic in other ways. As proposed by Malone & Lepper (1987, cited in Egenfeldt-Nielsen, 2007a), the right level of challenge is crucial for motivation and engagement as well as for feelings of enjoyment and in achieving specific learning outcomes. Further research could investigate the particular characteristics and requirements of

students with different ability levels when using digital games and simulations for classroom learning and explore how these can best be accommodated.

Another aspect that could be examined further is the identification of *RealLives* users with their characters and their engagement in role-playing and how these phenomena can encourage the development of empathy and a more ethnorelative view. The results of this study show that most students sought and established connections with their characters and experienced emotional empathy to some degree. Only a few students, however, actively took on the roles of their characters and attempted to think, feel, and act as if they were the characters, which required knowledge about the character's roles and willingness to distance oneself from one's own cultural beliefs, values, and norms. Most students preferred creating characters in familiar places and based their decisions largely on their own cultural beliefs, values, and norms and their personal preferences and aspirations. As Linser (2004) points out, sociologists and social psychologists, particularly in the area of Symbolic Interactionism (which was one of the underpinnings of this study), have "placed great emphasis on the reciprocal process of 'taking the attitude of the other' as the basis for our ability to understand others and create the intersubjective world in which we live" (heading Evaluation results and discussion, para. 5; cf. Mead, 1934). While the educational value of such role playing has been known for some time, digital games and simulations like *RealLives* provide a wealth of new opportunities to engage in such forms of playing and to actively explore issues, beliefs, values, and norms players might have not encountered otherwise (Linser, 2004). Since role-playing seems crucial for the development of empathy and for reaching the ethnorelative adaptation stage, in which individuals adapt their behavior to the respective cultural context (Bennett, 1993), future studies could investigate what exactly is required for players to engage in role-playing and how it can best be employed for the promotion of intercultural sensitivity.

The development of respect and appreciation for other cultures can also be worth exploring further in the future. In this study, the use of the simulation *RealLives* increased players' awareness of differences in lives and cultures around the world, but it did not encourage respect and appreciation for these differences much. As an interculturally competent individual should not only accept but appreciate cultural diversity, future research could investigate if and how this can be achieved by using digital games or simulations like *RealLives,* and which other or additional strategies might be necessary to accomplish this.

There has been a heightened interest in the educational value of digital games and simulations and these media have become more common in schools (see e.g., Sandford, et al., 2006). However, data on the potential of digital games and simulations to promote social competences, particularly intercultural competence, is still sparse. This study provides

empirical evidence that a digital game or simulation like *RealLives* can encourage the development of intercultural competence, if used appropriately. The findings of this study highlight the importance of intraindividual and interindividual factors — above all, knowledge and experience, identity, and social learning — of guidance and support by a knowledgeable teacher, and of thorough integration into classroom teaching, to enhance the educational potential of a digital simulation like *RealLives*. Given the largely positive experiences and opinions students and teachers in this study had, it can be concluded that further investigation into learning and teaching with digital games in general and the development of intercultural competence through the use of such media in particular, seems to be a worthwhile undertaking in preparing future generations for life in a globalized world.

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# APPENDIX A

## CONSENT FORMS

[Parent's Copy]

# Information and Consent Form

Name of Project: The Use of Electronic Games and Simulations for Learning in School

Investigator: Anika Struppert, M.A., Macquarie University, Sydney, Australia,
(phone: 0432738628, e-mail: anika.struppert@students.mq.edu.au)

Dear Parent/ Guardian,

Your child has been invited to take part in a pretest assessing the suitability of a questionnaire on intercultural sensitivity, that is, attitudes towards diversity, cultural differences and intercultural encounters, for children aged 12 to 14. The questionnaire, called the Intercultural Sensitivity Scale, is to be used in a PhD project examining the use of electronic games and simulations for intercultural learning in middle schools. It was developed by G.-M. Chen and W. Starosta in the year 2000 for the use with adults and needs to be tested and possibly modified before it can be used with children in the PhD project. Your child's ideas and opinions will help the researcher identify difficulties in understanding and other problems children might have with this questionnaire, so that it can then be amended and tailored to the younger age group.

The study is being conducted by Anika Struppert, M.A., Centre for International Communication, Macquarie University, Sydney, Australia, in order to meet the requirements for the degree of Doctor of Philosophy under the supervision of Dr. Qin Guo (phone: +61-2-9850-8110), Manjula Waniganayake, PhD (both Macquarie University), and Prof. Dr. Friedrich Krotz (University of Erfurt, Germany).

If you give your permission and your child wishes to participate, your child will be given the Intercultural Sensitivity Scale questionnaire with 24 questions about attitudes towards other cultures and feelings in intercultural encounters and interactions. Your child will be asked to answer the questions, comment on the questionnaire and discuss it with approximately four other children of the same age and with the researcher. The researcher will take notes and ask questions in order to find out which parts of the questionnaire might be problematic for children aged 12 to 14 and need to be modified. The pretest and discussion should take no longer than 30 minutes.

Any information or personal details gathered in the course of the study are strictly confidential. Only the researcher and her supervisors will have access to the data. No individual will be identified in any publication of the results. The results will be published in the researchers doctoral thesis and might also be used for journal articles, book chapters and conference presentations. If you or your child wish to receive feedback on the outcomes of the study, please contact the researcher who will provide you with a summary of the results.

If your child decides to participate, s/he is free to withdraw from further participation in the research at any time without having to give a reason and without consequence.

*Please see the consent form overleaf.*

**Consent Form**

I, _____, have read and understood the information on the previous page, and any questions I have asked have been answered to my satisfaction. I give permission to my child to participate in this research, knowing that s/he can withdraw from further participation in the research at any time without consequence. I have been given a copy of this form to keep.

Parent's/ Guardian's Name: _____
(block letters)

Parent's/ Guardian's Signature: _____ Date:

Investigator's Name: Anika Struppert, M.A.
(block letters)

Investigator's Signature: _____ Date:

The ethical aspects of this study have been approved by the Macquarie University Ethics Review Committee (Human Research). If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Ethics Review Committee through its Secretary (phone: +61-2-9850-7854; e-mail: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

This research is supported by Macquarie University with an MQRES co-tutelle scholarship and by the German Academic Exchange Service (DAAD) with a one-year scholarship for PhD candidates.

[Participant's Copy]

# Information and Consent Form

**Name of Project:** **The Use of Electronic Games and Simulations for Learning in School**
**Investigator:** **Anika Struppert, M.A., Macquarie University, Sydney, Australia, (phone 0432738628, e-mail: anika.struppert@students.mq.edu.au)**

Dear Participant,

You are invited to take part in a group discussion on a questionnaire assessing intercultural sensitivity, that is, attitudes towards diversity and cultural differences and feelings when encountering people from different cultural backgrounds. The questionnaire you will be discussing with approximately four other participants was developed for adults but is to be used with school children aged 12 to 14 in a doctoral thesis study on the use of electronic games and simulations for intercultural learning. It therefore needs to be tested with children of this age group and possibly modified. Your impressions and opinions will help the researcher identify problems and difficulties younger people might have with this questionnaire.

If you decide to participate in this group discussion, you will be given a questionnaire called the Intercultural Sensitivity Scale (developed by G.-M. Chen and W. Starosta in 2000), which consists of 24 questions about attitudes towards diversity and cultural differences and feelings when encountering people from different cultural backgrounds. You will be asked to read this questionnaire thoroughly, try to answer the questions and then discuss the questionnaire and any problems or difficulties you might have with it with the other participants and the researcher. The researcher will take notes and ask you questions regarding your opinion about the questionnaire. The group discussion should take no longer than 30 minutes.

The study is being conducted by Anika Struppert, M.A., Centre for International Communication, Macquarie University, Australia, in order to meet the requirements for the degree of Doctor of Philosophy under the supervision of Dr. Qin Guo (e-mail: qin.guo@mq.edu.au, phone: +61-2-9850-8110), Manjula Waniganayake, PhD (both Macquarie University) and Prof. Dr. Friedrich Krotz (University of Erfurt, Germany).

Any information or personal details gathered in the course of the study are strictly confidential. No individual will be identified in any publication of the results. Only the researcher and her supervisors will have access to the data. If you are interested in the outcomes of the study, please ask your parents or guardian to contact the researcher in order to obtain a summary of the results.

If you decide to participate, you are free to withdraw from further participation in the research at any time without having to give a reason and without consequence.

*Please see the consent form overleaf.*

**Consent Form**

I, _____, have read and understood the information on the previous page, and any questions I have asked have been answered to my satisfaction. I agree to participate in this research, knowing that I can withdraw from further participation in the research at any time without consequence. I have been given a copy of this form to keep.

Participant's Name: _____
(block letters)

Participant's Signature: _____ Date:

Investigator's Name: Anika Struppert, M.A.
(block letters)

Investigator's Signature: _____ Date:

The ethical aspects of this study have been approved by the Macquarie University Ethics Review Committee (Human Research). If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Ethics Review Committee through its Secretary (phone: +61-2-9850-7854; e-mail: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

This research is supported by Macquarie University with an MQRES co-tutelle scholarship and by the German Academic Exchange Service (DAAD) with a one-year scholarship for German PhD candidates.

MACQUARIE UNIVERSITY

**Faculty of Arts**
Department of Media, Music and Cultural Studies
MACQUARIE UNIVERSITY NSW 2109 AUSTRALIA
**Phone** +61 (0) 2 9850 9688
Fax +61 (0) 2 9850 9689
Email mmcs@mq.edu.au

[Principal's Copy]

**Information and Consent Form**

**Name of Project:** **The Use of Electronic Games and Simulations for Learning in School**
**Investigator:** **Anika Struppert, M.A., Macquarie University, Sydney, Australia (phone +61-432738628, e-mail: anika.struppert@students.mq.edu.au)**

Dear Principal,

Your school has been selected to take part in a study of the use of electronic games and simulations for learning in school. The purpose of the study is to find out how students and teachers use the electronic life simulation *RealLives* in the classroom and what children can learn from using such a simulation, especially with regard to their intercultural competence.

The study is being conducted by Anika Struppert, M.A., Centre for International Communication, Macquarie University, Sydney, Australia, in order to meet the requirements for the degree of Doctor of Philosophy under the supervision of Dr. Qin Guo (e-mail: qin.guo@mq.edu.au, phone: +61-2-9850-8110), Manjula Waniganayake, PhD (both Macquarie University), and Prof. Dr. Friedrich Krotz (University of Erfurt, Germany).

With your permission, a group of Year-7 students and their teacher will be observed and videotaped over the course of one to two weeks whenever they use the life simulation *RealLives* in the classroom during regular lessons. The students and their teacher will also be interviewed about their experiences with electronic games and simulations and the potential of such media as learning and teaching tools. The interviews, which will last approximately 30 minutes, will be audiotaped. This study will be repeated after approximately three months. If the students wish to do so, they can also participate in half-hour group discussions on electronic games and simulations in the second round.

Any information or personal details gathered in the course of the study are strictly confidential. Only the investigator and her supervisors will have access to the data. No individual will be identified in any publication of the results. The results will be published in the researcher's doctoral thesis and might also be used for journal articles, book chapters and conference presentations. A summary of findings will be e-mailed to you upon completion of the project. Please make this document available to participating teachers, students and their parents, if requested.

If you decide for your school to participate, you are free to withdraw from further participation in the research at any time without having to give a reason and without consequence.

**Consent Form**

I, _____, have read and understood the information above, and any questions I have asked have been answered to my satisfaction. I agree for my school to participate in this research, knowing that I can withdraw from further participation in the research at any time without consequence. I have been given a copy of this form to keep.

Principal's Name: _____
(block letters)

Principal's Signature: _____ Date:

Investigator's Name: Anika Struppert, M.A.
(block letters)

Investigator's Signature: _____ Date:

The ethical aspects of this study have been approved by the Macquarie University Ethics Review Committee (Human Research). If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Ethics Review Committee through its Secretary (phone: +61-2-9850-7854; e-mail: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

This research is supported by Macquarie University with an MQRES co-tutelle scholarship and by the German Academic Exchange Service (DAAD) with a one-year scholarship for German PhD candidates.

MACQUARIE UNIVERSITY

**Faculty of Arts**
Department of Media, Music and Cultural Studies
MACQUARIE UNIVERSITY NSW 2109 AUSTRALIA
**Phone** +61 (0) 2 9850 9688
Fax +61 (0) 2 9850 9689
Email mmcs@mq.edu.au

[Teacher's Copy]

## Information and Consent Form

**Name of Project: The Use of Electronic Games and Simulations for Learning in School**
**Investigator: Anika Struppert, M.A., Macquarie University, Sydney, Australia**
**(phone: +61-432738628, e-mail: anika.struppert@students.mq.edu.au)**

Dear Teacher,

You are invited to take part in a study of the use of electronic games and simulations for learning in school. The purpose of the study is to find out how students and teachers use the electronic life simulation *RealLives* in the classroom and what children can learn from using such a simulation, especially with regard to their intercultural competence.

The study is being conducted by Anika Struppert, M.A., Centre for International Communication, Macquarie University, Sydney, Australia, in order to meet the requirements for the degree of Doctor of Philosophy under the supervision of Dr. Qin Guo (e-mail: qin.guo@mq.edu.au, phone: +61-2-9850-8110), Manjula Waniganayake, PhD (both Macquarie University), and Prof. Dr. Friedrich Krotz (University of Erfurt, Germany).

If you decide to participate, your *RealLives* activities with your students in the classroom during regular lessons will be observed and videotaped over the course of one to two weeks. You will also be interviewed about your experiences with electronic games and simulations in your teaching and the potential of such media as learning tools. This interview, which will last approximately 30 minutes, will be audiotaped with your consent. The study will be repeated after approximately three months.

Any information or personal details gathered in the course of the study are strictly confidential. No individual will be identified in any publication of the results. The results will be published in the researcher's doctoral thesis and might also be used for journal articles, book chapters and conference presentations. Only the investigator and her supervisors will have access to the data. A summary of findings will be available through your school upon completion of the project. Please contact the school if you wish to receive a copy.

If you decide to participate, you are free to withdraw from further participation in the research at any time without having to give a reason and without consequence.

*Please see the consent form overleaf.*

**Consent Form**

I, _____, have read and understood the information on the previous page and any questions I have asked have been answered to my satisfaction. I agree to participate in this research, knowing that I can withdraw from further participation in the research at any time without consequence. I have been given a copy of this form to keep.

Teacher's Name: _____
(block letters)

Teacher's Signature: _____ Date:

Investigator's Name: Anika Struppert, M.A.
(block letters)

Investigator's Signature: _____ Date:

The ethical aspects of this study have been approved by the Macquarie University Ethics Review Committee (Human Research). If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Ethics Review Committee through its Secretary (phone: +61-2-9850-7854; e-mail: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

This research is supported by Macquarie University with an MQRES co-tutelle scholarship and by the German Academic Exchange Service (DAAD) with a one-year scholarship for German PhD candidates.

[Parents' Copy]

# Information and Consent Form

**Name of Project:** **The Use of Electronic Games and Simulations for Learning in School**
**Ethics Reference:** **HE27FEB2009-D06349**
**Investigator:** **Anika Struppert, M.A., Macquarie University, Sydney, Australia, (phone:+61-432738628, e-mail: anika.struppert@students.mq.edu.au)**

Dear Parent/ Guardian,

Your child has been invited to take part in a study of the use of electronic games and simulations for learning in school. The purpose of the study is to find out how students and teachers use the electronic life simulation *RealLives* in the classroom and what children can learn from using such a simulation, especially with regard to their awareness and understanding of cultures.

The study is being conducted by Anika Struppert, M.A., Centre for International Communication, Macquarie University, Sydney, Australia, in order to meet the requirements for the degree of Doctor of Philosophy under the supervision of Dr. Qin Guo (phone: +61-2-9850-8110), A/Prof. Manjula Waniganayake, PhD (both Macquarie University), and Prof. Dr. Friedrich Krotz (University of Erfurt, Germany).

If you give your permission and your child wishes to participate, s/he will be playing *RealLives* during regular lessons at school. Over the course of one to two weeks, these activities will be videotaped. Your child might also be interviewed outside of the classroom about his/ her playing and learning experiences. The interview, which will be audiotaped with your child's consent, will last approximately 30 minutes. Before the interview, your child will be asked to fill in a brief questionnaire about his/ her media use, opinion about other cultures and personal background. This should take no longer than 15 minutes. If your child wishes, s/he may also participate in a half-hour videotaped group discussion about the use of electronic games and simulations in schools in the second phase of this research, which will take place approximately three months after the first one.

Any information or personal details gathered in the course of the study are strictly confidential. Only the researcher and her supervisors will have access to the data. No individual will be identified in any publication of the results. The results will be published in the researcher's doctoral thesis and might also be used for journal articles, book chapters and conference presentations. If you wish to receive feedback on the outcomes of the study, please contact your child's school. A summary of the findings will be made available to the school upon completion of the project.

If your child decides to participate, s/he is free to withdraw from further participation in the research at any time without having to give a reason and without consequence.

*Please see the consent form on the back of this page.*

# Consent Form

I, _____ (name), have read and understood the information above, and any questions I have asked have been answered to my satisfaction. I give permission to my child to participate in this research, knowing that he/ she can withdraw from further participation in the research at any time without consequence. I have been given a copy of this form to keep.

Parent's/ Guardian's Name: _____
(block letters)

Parent's/ Guardian's Signature: _____ Date:

Investigator's Name: Anika Struppert, M.A.
(block letters)

Investigator's Signature: _____ Date:

The ethical aspects of this study have been approved by the Macquarie University Ethics Review Committee (Human Research). The reference number is HE27FEB2009-D06349. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Ethics Review Committee through its Secretary (phone: +61-2-9850-7854; e-mail: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

This research is supported by Macquarie University with an MQRES co-tutelle scholarship and by the German Academic Exchange Service (DAAD) with a one-year scholarship for PhD candidates.

[Student's Copy]

# Information and Consent Form

**Name of Project:** **The Use of Electronic Games and Simulations for Learning in School**
**Ethics Reference:** **HE27FEB2009-D06349**
**Investigator:** **Anika Struppert, M.A., Macquarie University, Sydney, Australia, (phone +61-432738628, e-mail: anika.struppert@students.mq.edu.au)**

Dear Participant,

You are invited to take part in a study of the use of electronic games and simulations for learning in school. The purpose of the study is to find out how children and teachers use the electronic life simulation *RealLives* in the classroom and what children can learn from using such a simulation, especially with regard to their awareness and understanding of cultures.

The study is being conducted by Anika Struppert, M.A., International Communication, Department of Media, Music and Cultural Studies, Macquarie University, Australia, in order to meet the requirements for the degree of Doctor of Philosophy under the supervision of Dr. Qin Guo (e-mail: qin.guo@mq.edu.au, phone: +61-2-9850-2158), A/Prof. Manjula Waniganayake, PhD (both Macquarie University) and Prof. Dr. Friedrich Krotz (University of Erfurt, Germany).

If you decide to participate in this study, you will be playing the life simulation *RealLives* during your lessons at school, and a video camera will record those activities in the classroom over the course of one to two weeks whenever you use *RealLives*. You might also be interviewed outside of the classroom about your playing and learning experiences. The interview, which will be audiotaped, will last approximately 30 minutes. Before the interview, you will be asked to fill in a brief questionnaire about your media use, your opinion about other cultures and your personal background. This should take no longer than 15 minutes. If you wish, you may also participate in a half-hour videotaped group discussion about the use of electronic games and simulations in schools in the second phase of this research, which will take place approximately three months after the first one.

Any information or personal details gathered in the course of the study are strictly confidential. No individual will be identified in any publication of the results. Only the investigator and her supervisors will have access to the data. A summary of findings will be available through your school upon completion of the project. Please contact your school if you wish to receive a copy.

If you decide to participate, you are free to withdraw from further participation in the research at any time without having to give a reason and without consequence.

*Please see the consent form on the back of this page.*

## Consent Form

I, _____ (name), have read and understood the information above, and any questions I have asked have been answered to my satisfaction. I agree to participate in this research, knowing that I can withdraw from further participation in the research at any time without consequence. I have been given a copy of this form to keep.

Participant's Name: _____
(block letters)

Participant's Signature: _____ Date:

Investigator's Name: Anika Struppert, M.A.
(block letters)

Investigator's Signature: _____ Date:

The ethical aspects of this study have been approved by the Macquarie University Ethics Review Committee (Human Research). The reference number is HE27FEB2009-D06349. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Ethics Review Committee through its Secretary (phone: +61-2-9850-7854; e-mail: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

This research is supported by Macquarie University with an MQRES co-tutelle scholarship and by the German Academic Exchange Service (DAAD) with a one-year scholarship for PhD candidates.

# APPENDIX B

## INTERVIEW GUIDELINES

Interview Guidelines Students

- How many times have you played RealLives? (or since when)
- Where have you played RealLives? (e.g., classroom, library, at home)
- Do you like playing RealLives?
- What do you like best/least?
- Please, tell me about your character and what happened while you were playing RealLives today/this week.
- How did you find out how to play the simulation?
- How did you solve problems while playing?
- How much did you know about the country your character was living in before?
- How much do you know now?
- How real (authentic), do you think, was the life you were playing?
- Did playing RealLives make you more interested in your character's culture/ other cultures in general?
- Would you call playing RealLives in the classroom learning? Why (not)?
- What do you think people can learn from playing RealLives?
- What do you, in general, think of using computer games and simulations in schools?
- What is the difference between playing RealLives and using other material (e.g., textbooks) in the classroom?
- Would you like to play RealLives again? Why (not)?

Interview Guidelines Teachers

- How would you describe RealLives?
- What do you personally think of RealLives?
- What do you believe your students think of RealLives?
- For how long have you been using RealLives?
- What was your intention for using RealLives in class? What did you want the students to learn?
- In this particular course, what do you think the children learnt from playing RealLives?
- Which problems, if any, did you and/or your students have while using RealLives?
- Have you used any other electronic games or simulation in the classroom before? If so, which?
- What experiences (positive or negative) have you made with using new technology in the classroom?
- How, do you think, is learning and teaching with games and simulations different from other learning and teaching methods?
- What are the advantages and disadvantages of using such technology in the classroom?
- How does using an electronic game or simulation in the classroom influence your work (incl. preparation) and your role as a teacher?
- Do you think that electronic games and simulations are more suitable than other learning tools for today's children? Why (not)?

# APPENDIX C

## INTERVIEWEES

# Interview Participants

| Participant Code | School | Gender | Interview Date | Duration (rounded) |
|---|---|---|---|---|
| AUS_AIPE4017b_1 | AUS | Male | 11/08/2009 | 15 min |
| AUS_AIPE4017b_2 | AUS | Male | 11/11/2009 | 18 min |
| AUS_BISH0811b_1 | AUS | Male | 11/08/2009 | 11 ½ min |
| AUS_BISH0811b_2 | AUS | Male | 11/11/2009 | 16 min |
| AUS_BRKA0000b_1 | AUS | Male | 17/08/2009, continued on 18/08/2009 | 18 min |
| AUS_BRKA0000b_2 | AUS | Male | 11/11/2009 | 10 mins |
| AUS_CHCH5287b_1 | AUS | Male | 17/08/2009 | 17 min |
| AUS_CHCH5287b_2 | AUS | Male | 11/11/2009 | 16 ½ min |
| AUS_DEJE5130g_1 | AUS | Female | 14/08/2009 | 15 min |
| AUS_DEJE5130g_2 | AUS | Female | 13/11/2009 | 12 min |
| AUS_FRJO1239g_1 | AUS | Female | 17/08/2009 | 17 ½ min |
| AUS_FRJO1239g_2 | AUS | Female | 13/11/2009 | 12 min |
| AUS_JADA9653b_1 | AUS | Male | 11/08/2009 | 10 min |
| AUS_JADA9653b_2 | AUS | Male | 13/11/2009 | 20 min |
| AUS_JAGU9837b_1 | AUS | Male | 18/08/2009 | 15 min |
| AUS_JAGU9837b_2 | AUS | Male | 11/11/2009 | 15 min |
| AUS_JOMA6335b_1 | AUS | Male | 17/08/2009 | 11 ½ min |
| AUS_JOMA6335b_2 | AUS | Male | 13/11/2009 | 19 min |
| AUS_NOMI0551g_1 | AUS | Female | 14/08/2009 | 13 min |
| AUS_NOMI0551g_2 | AUS | Female | 16/11/2009 | 15 min |
| AUS_SBCB8808b_1 | AUS | Male | 11/08/2009 | 12 ½ min |
| AUS_SBCB8808b_2 | AUS | Male | 11/11/2009 | 12 min |
| AUS_THGE2222b_1 | AUS | Male | 18/08/2009 | 16 min |
| AUS_THGE2222b_2 | AUS | Male | 13/11/2009 | 15 min |
| AUS_WEHO2197g_1 | AUS | Female | 17/08/2009 | 13 ½ min |
| AUS_WEHO2197g_2 | AUS | Female | 13/11/2009 | 19 min |
| AUS_Teacher_1 | AUS | Male | 18/08/2009 | 28 min |
| AUS_Teacher_2 | AUS | Male | 10/11/2009 | 28 min |
| SWI_ALAN0000Ab_2 | SWI | Male | 15/12/2009 | 11 ½ min |
| SWI_ASSE8469Eb_2 | SWI | Male | 16/12/2009 | 12 min |
| SWI_CLMO7733Eb_1 | SWI | Male | 11/09/2009 | 9 min |
| SWI_CLSI0075Ab_2 | SWI | Male | 15/12/2009 | 11 ½ min |
| SWI_DEAL0120Ag_1 | SWI | Female | 10/09/2009 | 13 ½ min |
| SWI_DENI7370Cb_1 | SWI | Male | 10/09/2009 | 12 ½ min |
| SWI_EDRA4822Dg_1 | SWI | Female | 11/09/2009 | 12 min |
| SWI_ELAL4346Cg_2 | SWI | Female | 16/12/2009 | 11 ½ min |
| SWI_EVTA6734Ag_1 | SWI | Female | 15/09/2009 | 14 min |
| SWI_EWGR8796Cb_1 | SWI | Male | 10/09/2009 | 10 ½ min |
| SWI_JIMA3557Gg_2 | SWI | Female | 17/12/2009 | error |
| SWI_JIMA7266Gg_1 | SWI | Female | 11/09/2009 | 8 min |
| SWI_JODA8530Dg_2 | SWI | Female | 16/12/2009 | 10 ½ min |
| SWI_JUGL0000Ag_1 | SWI | Female | 10/09/2009 | 14 min |
| SWI_KALE4865Eg_2 | SWI | Female | 16/12/2009 | 11 ½ min |
| SWI_LAJE4386Dg_1 | SWI | Female | 11/09/2009 | 11 min |
| SWI_MACA9821Dg_2 | SWI | Female | 16/12/2009 | 9 min |
| SWI_MORA0000Cb_1 | SWI | Male | 16/09/2009 | 12 min |
| SWI_SAJO7622Eb_1 | SWI | Male | 11/09/2009 | 8 ½ min |

| | | | | |
|---|---|---|---|---|
| SWI_SAWE6698Gb_2 | SWI | Male | 17/12/2009 | error |
| SWI_TADU0065Cb_2 | SWI | Male | 16/12/2009 | 11 ½ min |
| SWI_TESC0986Gb_1 | SWI | Male | 11/09/2009 | 16 min |
| SWI_TIAN3811Cg_1 | SWI | Female | 17/09/2009 | 12 ½ min |
| SWI_Teacher_1 | SWI | Male | 16/09/2009 | 24 min |
| SWI_Teacher_2 | SWI | Male | 18/12/2009 | 32 ½ min |
| USA_AMLE6028Cb_1 | USA | Male | 28/09/2009 | 14 ½ min |
| USA_AMMI5519Ab_2 | USA | Male | 30/11/2009 | 17 ½ min |
| USA_AMST7765Ab_1 | USA | Male | 28/09/2009 | 16 ½ min |
| USA_ANAD8009Bg_1 | USA | Female | 25/09/2009, continued on 28/09/2009 | 19 ½ min |
| USA_ANAD8009Bb_2 | USA | Female | 01/12/2009 | 45 min |
| USA_CAPE8706Bb_1 | USA | Male | 28/09/2009 | 15 min |
| USA_CAPE8706Bb_2 | USA | Male | 30/11/2009 | 12 ½ min |
| USA_CHDE6775Dg_1 | USA | Female | 30/09/2009 | 23 min |
| USA_CHDE6775Dg_2 | USA | Male | 02/12/2009 | 21 min |
| USA_CHST0127Ab_1 | USA | Male | 30/09/2009 | 17 ½ min |
| USA_DAKE9181Dg_2 | USA | Female | 30/11/2009 | 14 min |
| USA_ELTI6170Ag_1 | USA | Female | 01/10/2009 | 24 min |
| USA_JAMA5531Cg_2 | USA | Female | 30/11/2009 | 11 min |
| USA_JEJO1566Ab_1 | USA | Male | 28/09/2009 | 23 min |
| USA_JETO1370Ag_1 | USA | Female | 01/10/2009 | 18 ½ min |
| USA_JETO1370Ag_2 | USA | Female | 01/12/2009 | 14 min |
| USA_JOBA2213Ag_2 | USA | Female | 01/12/2009 | 18 min |
| USA_JUWI2267Db_2 | USA | Male | 30/11/2009 | 17 ½ min |
| USA_KASC1746Db_1 | USA | Male | 28/09/2009 | ??? check |
| USA_MAAN7780Db_2 | USA | Male | 01/12/2009 | 21 min |
| USA_MAJA7786Ag_1 | USA | Female | 01/10/2009 | 25 min |
| USA_MAMA2525Bb_2 | USA | Male | 30/11/2009 | 8 min |
| USA_MAMI1895Bb_1 | USA | Male | 28/09/2009 | 17 min |
| USA_NIJA1124Dg_1 | USA | Female | 25/09/2009 | 14 min |
| USA_NOLU2932Cg_2 | USA | Female | 30/11/2009 | 13 min |
| USA_SAAJ1530Cg_1 | USA | Female | 28/09/2009 | 18 min |
| USA_SAJE1123Cb_2 | USA | Female | 01/12/2009 | 22 min |
| USA_SHMI4260Bb_1 | USA | Male | 28/09/2009 | 17 min |
| USA_SHMI4260Bb_2 | USA | Male | 01/12/2009 | 19 min |
| USA_TIRO5433Bb_1 | USA | Male | 30/09/2009 | 15 ½ min |
| USA_TRJO1718Cb_1 | USA | Male | 28/09/2009 | 16 min |
| USA_VAGE1928Cb_2 | USA | Male | 02/12/2009 | 29 min |
| USA_Teacher_1 | USA | Male | 01/10/2009 | 32 min |
| USA_Teacher_2 | USA | Male | 03/12/2009 | 34 ½ min |

*Note.* Participant code = country code (three letters) _ first two letters of mother's and father's first name + last four digits of phone number) + group (where applicable) + b (boy) or g (girl) _ 1 (round 1 of data collection) or 2 (round 2 of data collection)

# APPENDIX D

## QUESTIONNAIRES

# RealLives Questionnaire

(Ethics Reference: HE27FEB2009-D06349)

This questionnaire contains some questions about your media use, your opinion of the simulation RealLives and your background. Please answer all questions from your personal point of view. There are no right or wrong answers. It is your personal opinion that is important. Of course, all your answers will be kept private and anonymous. If you don't understand a question, feel free to ask the researcher. Thank you very much for your help.

---

**Please select how often you use the following media:**

| | Never | Seldom | Sometimes | Often | Very Often |
|---|---|---|---|---|---|
| Television | | | | | |
| Radio | | | | | |
| Computer | | | | | |
| Newspapers | | | | | |
| Magazines | | | | | |
| Mp3 player/ iPod | | | | | |
| Internet | | | | | |
| Computer games (PC/ Mac) | | | | | |
| Video games (console) | | | | | |
| Electronic simulations (on computer or console) | | | | | |
| Books | | | | | |
| Mobile/ Cellular phone | | | | | |

Other media I frequently use: _____

I play computer and video games and simulations approximately _____ hour(s) per week.

I like to play the following computer/ video games or simulations: _____

_____

_____

_____

With regard to computer and video games and simulations, I see myself as a(n)

☐ beginner. ☐ advanced user. ☐ expert.

I have been playing computer/ video games or simulations for approximately _____ year(s).

**Please check the box that best describes your opinion:**

| | Strongly agree | Agree | Uncertain | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| I enjoy playing RealLives. | | | | | |
| RealLives is interesting. | | | | | |
| The information presented in RealLives is true. | | | | | |
| Playing RealLives is fun. | | | | | |
| I have learnt something by playing RealLives. | | | | | |
| Playing RealLives makes me want to learn more about other countries and cultures. | | | | | |
| I prefer playing RealLives to other learning methods. | | | | | |
| I can identify with the characters in RealLives. | | | | | |
| I have applied knowledge from RealLives in real life. | | | | | |
| Playing RealLives increases my knowledge about other countries and cultures. | | | | | |
| I think I will apply knowledge from RealLives in real life situations in the future. | | | | | |
| I think RealLives is a good way to learn about other countries and cultures. | | | | | |
| RealLives is engaging. | | | | | |
| Simulations like RealLives should not be used in school. | | | | | |
| Playing RealLives motivates me. | | | | | |

**Again, for each sentence, please check the box that best describes your character or opinion:**

| | Strongly agree | Agree | Uncertain | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| I enjoy interacting with people from different cultures. | | | | | |
| I think people from other cultures are **not** open minded. | | | | | |
| I am sure of myself in interacting with people from different cultures. | | | | | |
| I find it hard to talk in front of people from different cultures. | | | | | |
| I know what to say when interacting with people from different cultures. | | | | | |

| | Strongly agree | Agree | Uncertain | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| I can be as sociable as I want to be when interacting with people from different cultures. | | | | | |
| I don't like to be with people from different cultures. | | | | | |
| I respect the values of people from different cultures. | | | | | |
| I get upset easily when interacting with people from different cultures. | | | | | |
| I feel confident when interacting with people from different cultures. | | | | | |
| I don't judge people from different cultures straight away. | | | | | |
| I lose my courage when I'm with people from different cultures. | | | | | |
| I am open-minded to people from different cultures. | | | | | |
| I pay attention when interacting with people from different cultures. | | | | | |
| I feel useless when interacting with people from different cultures. | | | | | |
| I respect the ways people from different cultures behave. | | | | | |
| I try to learn as much as I can when interacting with people from different cultures. | | | | | |
| I would not accept the opinions of people from different cultures. | | | | | |
| I pay attention to hidden meanings when interacting with people from different cultures. | | | | | |
| I think my culture is better than other cultures. | | | | | |
| I give positive responses when interacting with someone from a different culture. | | | | | |
| I avoid situations where I have to deal with people from different cultures. | | | | | |
| When interacting with people from different cultures, I show my understanding through words and gestures. | | | | | |
| I enjoy differences between people from other cultures and myself. | | | | | |

**Please briefly describe your personal background:**

I am ☐ male ☐ female

I was born in _____ (place) in _____ (year)

My nationality is _____

My mother tongue is _____

I also speak the following languages: _____

_____

I have lived in the following countries _____

_____

I have visited the following countries: _____

_____

_____

I have ☐ no ☐ a few ☐ many friends from other cultures.

I'd describe my own cultural background as follows: _____

_____

_____

_____

_____

_____

_____

**Thank you very much for answering all questions.**

**Your opinion is very important.**

# RealLives Questionnaire II

(Ethics Reference: HE27FEB2009-D06349)

This questionnaire is a follow-up to the one you already completed a few months ago. It contains questions about your use of electronic games and simulations, the simulation RealLives and your attitudes toward people from other countries and cultures. Please answer all questions from your personal point of view. There are no right or wrong answers. It is your personal opinion that is important. All answers will be kept private and anonymous. If you don't understand a question, please feel free to ask the researcher. Thank you very much.

**Personal code:**

---

**Please indicate how often you use the following electronic games and simulations:**

- Computer games (games on PC/ Mac, including online games): approx. _____ hours/ week.
- Video games (games on Playstation, Wii, XBox etc.): approx. _____ hours/ week.
- Handheld games (games on Game Boy, Nintendo DS etc.): approx. _____ hours/ week.
- Simulations (e.g., RealLives or The Sims on any platform): approx. _____ hours/ week.

**Please check the box that best describes your opinion about RealLives:**

| | Strongly agree | Agree | Uncertain | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| Playing RealLives is fun. | | | | | |
| I have learnt something by playing RealLives. | | | | | |
| RealLives is interesting. | | | | | |
| The information presented in RealLives is true. | | | | | |
| I can identify with the characters in RealLives. | | | | | |
| Playing RealLives makes me want to learn more about other countries and cultures. | | | | | |
| I prefer playing RealLives to other learning methods. | | | | | |
| I enjoy playing RealLives. | | | | | |
| RealLives is engaging. | | | | | |
| Playing RealLives increases my knowledge about other countries and cultures. | | | | | |
| I have applied knowledge I got from RealLives in real life. | | | | | |
| Playing RealLives motivates me. | | | | | |
| I think I will apply knowledge from RealLives in real life situations in the future. | | | | | |
| Simulations like RealLives should **NOT** be used in school. | | | | | |
| RealLives is a good way to learn about other countries and cultures. | | | | | |

**Please answer the following questions and tick all answers that apply:**

I have played RealLives: ☐ in school during class ☐ in school during free time ☐ at home.

Before playing RealLives 2010, I had already played an earlier version: ☐ Yes. ☐ No.

Until today, I have played RealLives approximately _____ times altogether (all versions).

Playing RealLives, I have lived lives in the following countries: _____

_____

_____

**Again, for each sentence, please check the box that best describes your character or opinion:**

| | Strongly agree | Agree | Uncertain | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| I respect the values of people from different cultures. | | | | | |
| I find it hard to talk in front of people from different cultures. | | | | | |
| I am sure of myself in interacting with people from different cultures. | | | | | |
| I enjoy interacting with people from different cultures. | | | | | |
| I get upset easily when interacting with people from different cultures. | | | | | |
| I can be as sociable as I want to be when interacting with people from different cultures. | | | | | |
| I am open-minded to people from different cultures. | | | | | |
| I don't like to be with people from different cultures. | | | | | |
| I think people from other cultures are **NOT** open minded. | | | | | |
| I lose my courage when I'm with people from different cultures. | | | | | |
| I feel confident when interacting with people from different cultures. | | | | | |
| I don't judge people from different cultures straight away. | | | | | |
| I know what to say when interacting with people from different cultures. | | | | | |

| | Strongly agree | Agree | Uncertain | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| I enjoy differences between people from other cultures and myself. | | | | | |
| I pay attention when interacting with people from different cultures. | | | | | |
| I think my culture is better than other cultures. | | | | | |
| I feel useless when interacting with people from different cultures. | | | | | |
| I pay attention to hidden meanings when interacting with people from different cultures. | | | | | |
| I try to learn as much as I can when interacting with people from different cultures. | | | | | |
| I would **NOT** accept the opinions of people from different cultures. | | | | | |
| I respect the ways people from different cultures behave. | | | | | |
| I give positive responses when interacting with someone from a different culture. | | | | | |
| When interacting with people from different cultures, I show my understanding through words and gestures. | | | | | |
| I avoid situations where I have to deal with people from different cultures. | | | | | |

**If you wish to make any comments about RealLives, please use the space provided below:**

_____

_____

_____

_____

_____

_____

**Thank you very much for answering all questions.**

**Your opinion is very important.**

**E-mail Questionnaire for Teachers Using *RealLives***

Dear Teacher,

You are invited to participate in a study on the promotion of intercultural competence and understanding through computer games and electronic simulations. This questionnaire contains some questions about your experiences with games and simulations and your personal opinion on this topic. Please try to answer all questions. Your personal experiences and opinions are very important to us. Please be assured that your responses to the survey will be kept in the strictest confidence to the research team. Your answers will be treated as anonymous, and, in any reporting of this study, individual participants will not be identified.

Thank you very much for assisting us with this study.

---

**Experiences with Electronic Games and Simulations**

**Please answer the following questions:**

1. Do you play video or computer games or simulations in your **leisure time**?

☐ Yes. ☐ No. (If No, please go directly to question 4.)

2. Which platform do you use to play games or simulations in your leisure time?

☐ PC/ Laptop ☐ Console (e.g., Playstation, XBOX, Wii)

3. Which games or simulations do you play in your leisure time? Please provide some examples.

4. Which computer games or simulations have you used **in your teaching**? Please indicate for how long you were or have been using them, e.g., Game A (6 months).

5. How would you rate yourself with regard to using electronic games and simulations? Please indicate your level of experience.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| novice | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | highly experienced |

**My Experiences with *RealLives***

**Please complete the following sentences:**

6. In my teaching, I have been using the software program *RealLives* since _____ .
   (month and year that you started to use it)

7. I have used the *RealLives* software program in teaching a unit within the following curriculum/ subject area(s) Please select as many as applicable to you.
   ☐ Geography ☐ History ☐ English ☐ Social Science
   ☐ Other (please specify) _____

8. I have used the *RealLives* software program with children within the ages of
   ☐ 0 to 3 years. ☐ 4-7 years. ☐ 8-11 years. ☐ 12-15 years. ☐ 16 years and older.

9. I have used the *RealLives* software program for teaching the following concepts and/ or skills:

10. With regard to teaching children intercultural competence and understanding, my satisfaction with the *RealLives* software program is
    ☐ very low. ☐ low. ☐ average. ☐ high. ☐ very high. ☐ I don't know.

    My reasons for this selection are:

11. In my opinion, the *RealLives* software is best suited to teach intercultural understanding and competence to children within the ages of
    ☐ 0 to 3 years. ☐ 4-7 years. ☐ 8-11 years. ☐ 12-15 years. ☐ 16 years and older.

    My reasons for selecting this age range are:

12. I would describe the interactions in the classroom that took place whilst using the *RealLives* software program as follows:

**Attitudes Toward Teaching with Computer Games and Simulations**

**13. Please place a √ in the appropriate cell for each sentence, to show the extent to which you agree/ disagree with the following statements:**

| **I believe using computer games and simulations in regular classroom work…** | **Strongly disagree** | **Disagree** | **Undecided** | **Agree** | **Strongly agree** |
|---|---|---|---|---|---|
| EXAMPLE: is exciting. | | | | √ | |
| is fun. | | | | | |
| is motivating. | | | | | |
| is an effective teaching strategy. | | | | | |
| enhances children's learning. | | | | | |
| changes the role of the teacher. | | | | | |
| can teach students things other teaching methods cannot. | | | | | |
| is easy for students. | | | | | |
| can create a creative learning atmosphere. | | | | | |
| supports autonomous learning . | | | | | |
| supports peer learning. | | | | | |
| is effective in teaching social competencies. | | | | | |
| is effective in teaching intercultural competence. | | | | | |
| should be strongly encouraged. | | | | | |
| requires special training for the teachers. | | | | | |

**Please tick the box that best describes your personal opinion:**

14. All in all, my experiences with computer games and simulations in school have so far been
☐ entirely positive. ☐ mostly positive. ☐ mixed. ☐ mostly negative. ☐ entirely negative.

15. I would recommend using computer games and simulations to my teacher colleagues.
☐ Yes. ☐ No.

My reasons for this recommendation are:

| |
|---|
| |

16. I believe computer games and simulations should be used in teaching children within the ages of Please tick all that apply.
☐ 0 to 3 years. ☐ 4-7 years. ☐ 8-11 years. ☐ 12-15 years. ☐ 16 years and older.

17. I believe computer games and simulations can be useful for teaching social competencies.

☐ Yes. ☐ No.

My reasons for this selection are:

18. I believe computer games and simulations can be useful for teaching intercultural understanding and competence.

☐ Yes. ☐ No.

My reasons for this selection are:

19. I believe that, on average, children are ready to play and learn with computer games or simulations at the age of _____ .

My reasons for selecting this age are:

20. As a school teacher, I believe that the following issues are barriers in teaching and learning with computer games and simulations in schools: (Please tick all that apply.)

| | |
|---|---|
| ☐ | Lack of age-appropriate games/ simulations. |
| ☐ | Limited competence in using technology-based tools by classroom teachers. |
| ☐ | Lack of interest by classroom teachers in using technology-based teaching/ learning tools. |
| ☐ | Lack of interest/ support by the school in using technology-based teaching/ learning tools. |
| ☐ | Limited technology resources at the school. |
| ☐ | Other. Please comment: |

**School Philosophy on Intercultural Understanding & Using Technologies for Teaching/ Learning**

**Please answer the following questions:**

21. The promotion of intercultural competence and understanding is… (Please tick all that apply.)

☐ part of my school's philosophy. ☐ part of the government education policy in my country.

☐ neither of the two.

22. The integration of games and simulations is... (Please tick all that apply.)

☐ part of my school's philosophy. ☐ part of the government education policy in my country.

☐ neither of the two.

23. The following teaching/ learning activities or strategies are used at our school to promote intercultural competence and understanding. Please comment or provide some examples:

24. Have students' parents been involved in any of those activities?

☐ Yes. ☐ No.

If yes, please explain how parents have been involved:

25. Do you have any other comments about the use of technology in teaching and learning?

**<u>Sociodemographic and Teaching Background</u>**

**Please complete the following sentences:**

26. I am… ☐ male. ☐ female.

27. My age sits within the following age range:

☐ under 21 years. ☐ 21 – 25 years. ☐ 26 – 30 years. ☐ 31 – 35 years.

☐ 36 – 40 years. ☐ 41 – 45 years. ☐ 46 – 50 years. ☐ over 50 years.

28. The highest degree qualification I hold is _____.

29. The children I currently teach are within the ages of

☐ 0 to 3 years. ☐ 4-7 years. ☐ 8-11 years. ☐ 12-15 years. ☐ 16 years and older.

30. My main curriculum/ subject area of teaching is _____.

**Thank you very much for taking your time and answering all questions.**

**Your opinion is highly appreciated.**

**Questionnaire Intercultural Sensitivity Scale (Chen & Starosta, 2000)**

Below is a series of statements concerning intercultural communication. There are no right or wrong answers. Please work quickly and record your first impression by indicating the degree to which you agree or disagree with the statement. Thank you for your cooperation.

| | Strongly disagree | Disagree | Uncertain | Agree | Strongly agree |
|---|---|---|---|---|---|
| I enjoy interacting with people from different cultures. | | | | | |
| I think people from other cultures are narrow-minded. | | | | | |
| I am pretty sure of myself in interacting with people from different cultures. | | | | | |
| I find it very hard to talk in front of people from different cultures. | | | | | |
| I always know what to say when interacting with people from different cultures. | | | | | |
| I can be as sociable as I want to be when interacting with people from different cultures. | | | | | |
| I don't like to be with people from different cultures. | | | | | |
| I respect the values of people from different cultures. | | | | | |
| I get upset easily when interacting with people from different cultures. | | | | | |
| I feel confident when interacting with people from different cultures. | | | | | |
| I tend to wait before forming an impression of culturally-distinct counterparts. | | | | | |
| I often get discouraged when I am with people from different cultures. | | | | | |
| I am open-minded to people from different cultures. | | | | | |
| I am very observant when interacting with people from different cultures. | | | | | |
| I often feel useless when interacting with people from different cultures. | | | | | |
| I respect the ways people from different cultures behave. | | | | | |
| I try to obtain as much information as I can when interacting with people from different cultures. | | | | | |
| I would not accept the opinions of people from different cultures. | | | | | |
| I am sensitive to my culturally-distinct counterpart's subtle meanings during our interaction. | | | | | |
| I think my culture is better than other cultures. | | | | | |
| I often give positive responses to my culturally-distinct counterpart during our interaction. | | | | | |
| I avoid those situations where I will have to deal with culturally-distinct persons. | | | | | |
| I often show my culturally-distinct counterpart my understanding through verbal or nonverbal cues. | | | | | |
| I have a feeling of enjoyment towards differences between my culturally -distinct counterpart and me. | | | | | |

# APPENDIX E

## SAMPLE TRANSCRIPT PAGE

**bold** = emphasized
*italics* = overlap
[…] = pause
[um], [laughter] etc. = paraverbal expressions
[hm], [hmh] = Yes. I see. I'm listening.
[???] = inaudible/ not understandable

**Interview 1 - AUSb1 (AUS_AIPE4017b_1) (15:08)**

I: The first thing I want you to tell me is a little bit about the character that you were playing or living today. So who were you, what were you doing and what are the main things that you remember?
AUSb1: I was born in India. I was a girl. I had a Dad and a Mum [uh...] three sisters, I got married, I had a young boy named Ram, a young girl named Summer. My Dad died at age 55 from a heart attack. Mum died at age 51 from an unknown disease. [um…] I moved out, my whole family moved out. I had, I got a job many times. I had a boyfriend many times. [um...] Yeah, that's all.
I: So how was it? How did you feel? Did you feel anything *when these things happened?*
AUSb1: *I was, I was*, I was very surprised that I can get so many jobs for so many years. I was surprised I wasn't shot down at my job when I asked for a raise. [um...]
I: Was it different types of jobs?
AUSb1: Yeah. Yeah. I tried out for different types of jobs but - I was qualified for them all - but they weren't in my area so it meant I couldn't get them. I had to be careful of how much I spent and what I spent it. [um...] Yeah.
I: So how was your living situation? Did you have a good life?
AUSb1: I, I did have a very good life considering I had [...] a father and mother for the majority of my life, a good life, I lived to age 56, and I had to turn the computer off
I: [laughs]
AUSb1: [um…] I did not die, I did not immigrate – cause I died the last time I tried to immigrate [um...] Yeah.
I: What did you learn about the country you were living in? I mean you were living in India, *as you said.*
AUSb1: *Oh.*
I: Was there anything
AUSb1: *Yeah*
I: *you can* think about?
AUSb1: You get a lot more diseases than you do in Australia. You're not always certain
I: [hm]
AUSb1: of [...] how life is gonna go or when people are gonna die in life. Like in Australia you sort of have an idea like men are 75 years and women are 80. I died at 45 last time, Dad died at 55, Mum died at 51, so it was very amazing. I got taken out of school at least 2 or 3 times, so did my kids and my sisters and my Mum and Dad, so yeah.
I: Did you have to work then?
AUSb1: *I did.*
I: *Or did* your character have to work?
AUSb1: I did. I did. Yeah. I had to work from the age of 14 and I quit my job many times to find a bit more money.

# APPENDIX F

## SAMPLE CODING SHEET

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **Tape** | **Length** | **School** | **Date** | **Period** | **Class** | **Set-up** | **Time** | **Activities** | **Student (inter)actions** | **Teacher (inter)actions** | **Instructions** | **Classroom Atmosphere** | **Questions/** | **Other/ General Observations** |
| 2 | SWIR1Sept 10A_1, SWIR1Sept 10A_2, | 17:12 mins; 52: 53 mins (tape 2 starts ca. 40 seconds later) | SWI | 10/09/2009 | 2 | A | students playing in small groups of 2 to 4 people, 2 opposite each other, one alone, boys sitting together and girls sitting together, all have their own tablets, notebooks and geography books on the table, European music | 0:00 | RL in Europe 3rd and last lesson | starting computers, talking about the lives they had last time | gives instructions, explains that this is last lesson for European lives, next week South America, asks Swiss students if they watched soccer the night before, discusses soccer with students | Pick some of the countries just mentioned (in repetition with geography software), if you're Swiss play in Latvia (because SWI played Latvia in soccer the night before) | | | |
| 3 | | | | | | | | 1:15 | | one student has 7 kids; male student complains "How can you have 7 kids?!", he only has a few; one student says you can pick your gender | reminds students what to do | Go into Character Designer, pick European life, pick city, name, rest random, or try to do both male and female | relatively quiet, students listening to teacher, only a few talk briefly | | |
| 4 | | | | | | | | 1:50 | | students ask if they can play their old lives or have to start a new one | tells students it's up to them if they want to continue or start over | if you quit and start a new one, make comparisons | | | |
| 5 | | | | | | | | 3:00 | | start playing RL | helps a student who missed a class to catch up | | | | |
| 6 | | | | | | | | 3:30 | | starting RL, students concentrating on their screens, female student shows her neighbor what' s written on her screen, seems happy about it, takes notes | asks students if anyone still needs to register, helps last student of this group register the 2010 version | | very quiet, only teacher talking to student | still need to register one student | |
| 7 | | | | | | | | 4:30 | | | tells students he's putting some European music on in the background | Figure out what country it's from | | | |
| 8 | | | | | | | | 5:10 | | female students whispering, male student happy: "I'm in Denmark!" | | | | | |
| 9 | | | | | | | | 5:15 | | female student shocked: "I died!", other student asks "You died?", other student replies she was murdered at 59; another student can't open file, asks teacher, knows where it is, but cannot open it; other students answered they did not know how to save or open it; one student explains how she opened it; other student asks if he has to save it and where, others say it doesn't matter as long as he knows where it is; some students raise hand to show they saved and opened lives | tells student the file is where the student saved it; asks if anyone else opened a saved life; asks student who did it to explain it | Listen to her! She'll tell you how she did it. | | Students don't know how to save their lives and open them again. Saved lives need to be opened from within RL! | |
| 10 | | | | | | | | 6:00 | | still talking about saving and opening lives | talking to student who missed a class and explaining what to do | | | | |
| 11 | | | | | | | | 6:55 | | concentrating on screen, taking notes every now and then | tells students they'll go over save etc. together today; walks around | If you weren't able to save your life yesterday, start a new one. | | | |

# APPENDIX G

# FINAL ETHICS APPROVAL

MACQUARIE UNIVERSITY

**Research Office**
Research Hub, Building C5C East
MACQUARIE UNIVERSITY NSW 2109

**Phone** **+61 (0)2 9850 8612**
Fax +61 (0)2 9850 4465
Email ro@vc.mq.edu.au

**Ethics**
**Phone** **+61 (0)2 9850 6848**
Email ethics.secretariat@vc.mq.edu.au

4 May 2009

Ms Anika Struppert
Centre for International Communication
Faculty of Arts

**Reference: HE27FEB2009-D06349**

Dear Ms Struppert

**FINAL APPROVAL**

**Title of project:** Developing intercultural competence through playing electronic games and simulations – A study of the use of the electronic life simulation RealLives in US, Australian and Swiss Middle school classrooms

Thank you for your recent correspondence. Your response has addressed the issues raised by the Ethics Review Committee (Human Research) and you may now commence your research.

Please note the following standard requirements of approval:

1. Approval will be for a period of twelve (12) months. At the end of this period, if the project has been completed, abandoned, discontinued or not commenced for any reason, you are required to submit a Final Report on the project. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. The Final Report is available at: http://www.research.mq.edu.au/researchers/ethics/human_ethics/forms

2. However, at the end of the 12 month period if the project is still current you should instead submit an application for renewal of the approval if the project has run for less than five (5) years. This form is available at http://www.research.mq.edu.au/researchers/ethics/human_ethics/forms. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report (see Point 1 above) and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

3. Please remember the Committee must be notified of any alteration to the project.

4. You must notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that might affect continued ethical acceptability of the project.

5. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University http://www.research.mq.edu.au/researchers/ethics/human_ethics/policy

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide Macquarie University's Research Grants Officer with a copy of this letter as soon as possible. The Research Grants Officer will not inform external funding agencies that you have final approval for your project and funds will not be released until the Research Grants Officer has received a copy of this final approval letter.

Yours sincerely

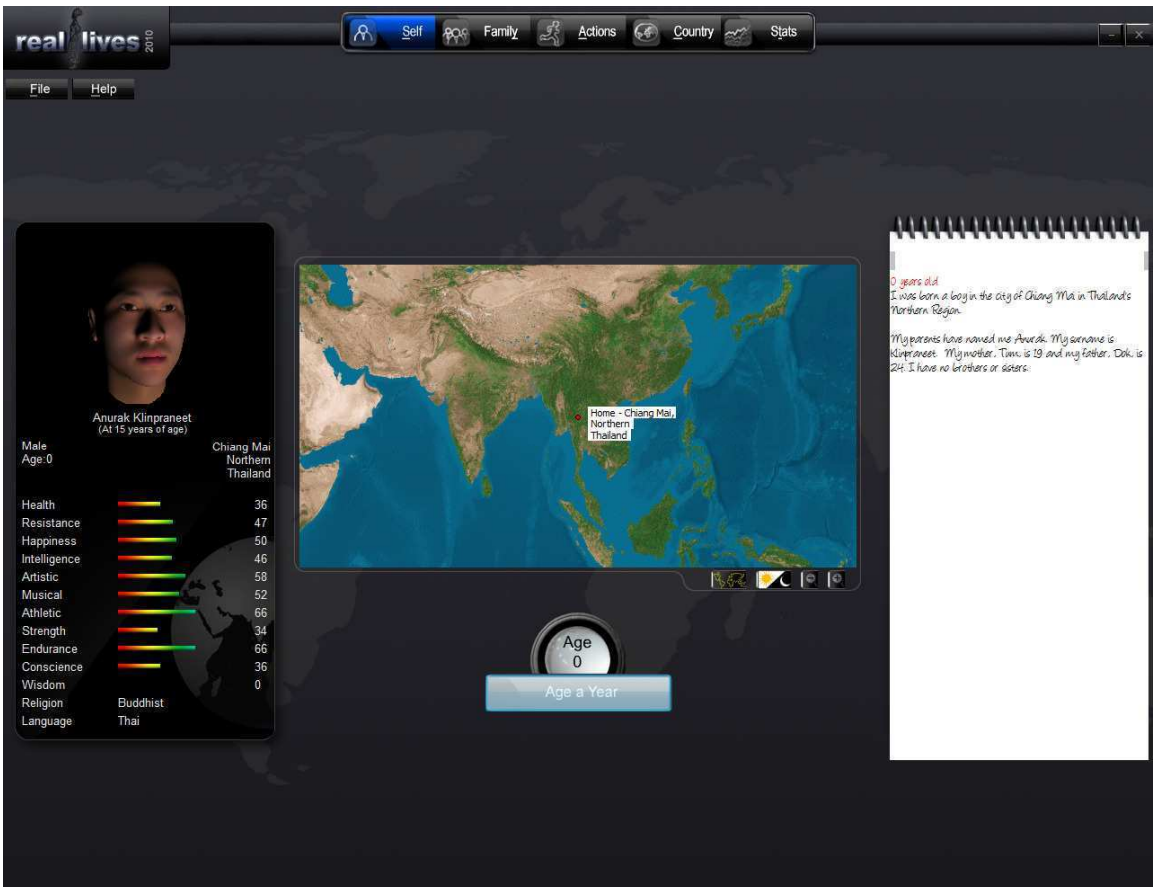
pp

Ms Karolyn White
Director of Research Ethics
Chair, Ethics Review Committee (Human Research)

**Cc. Dr Qin Guo, Centre for International Communication, Faculty of Arts**

# APPENDIX H

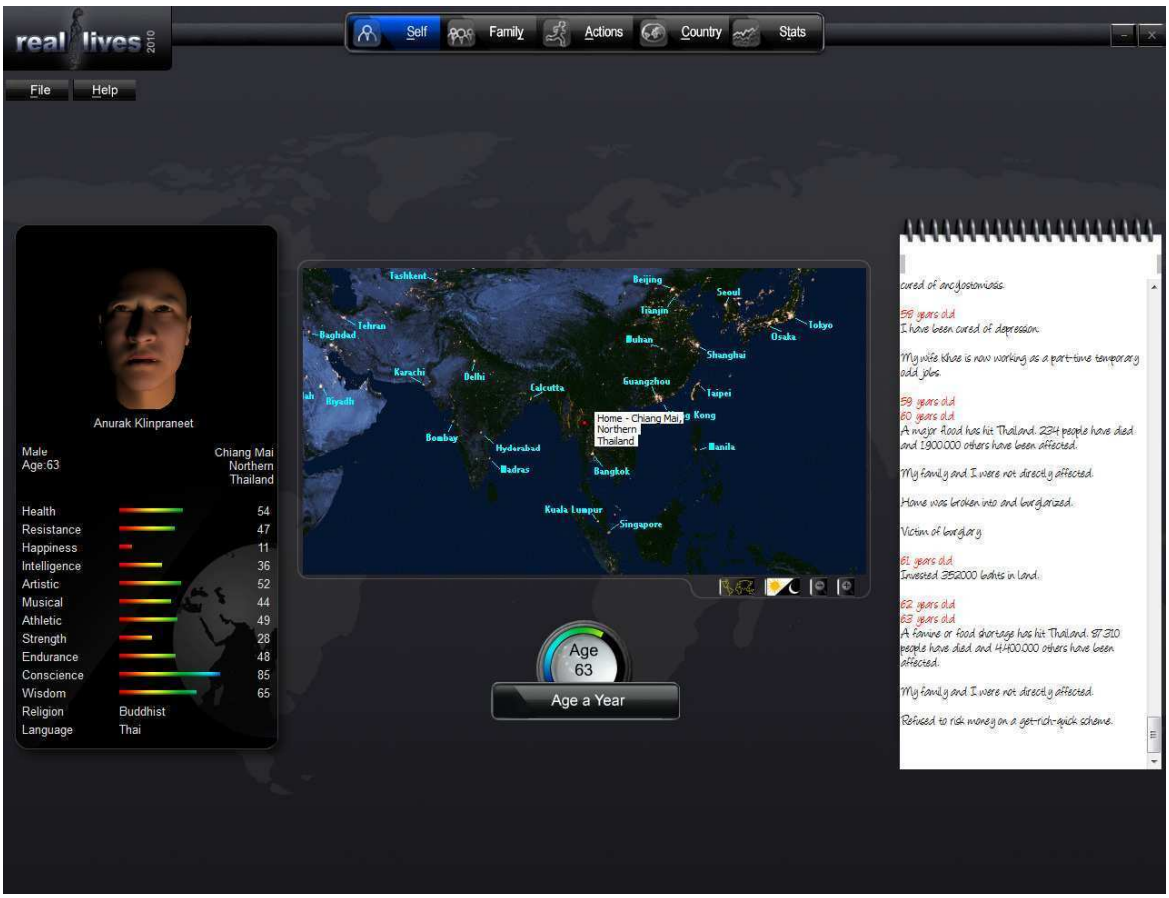
# SCREENSHOTS REALLIVES 2010



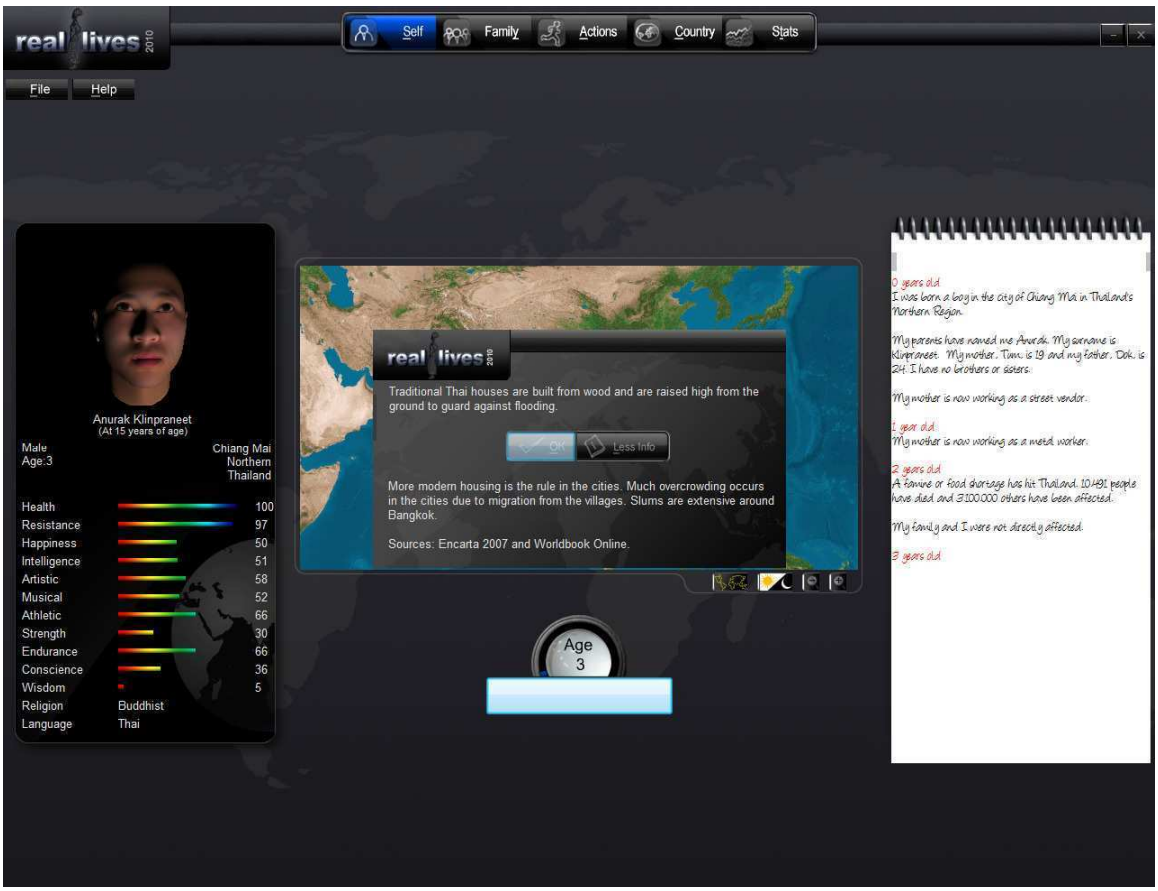

Screenshot *RealLives 2010* Self page (default page), day view


Screenshot *RealLives 2010* Self page, day view with country names


Screenshot *RealLives 2010* Self page, night view

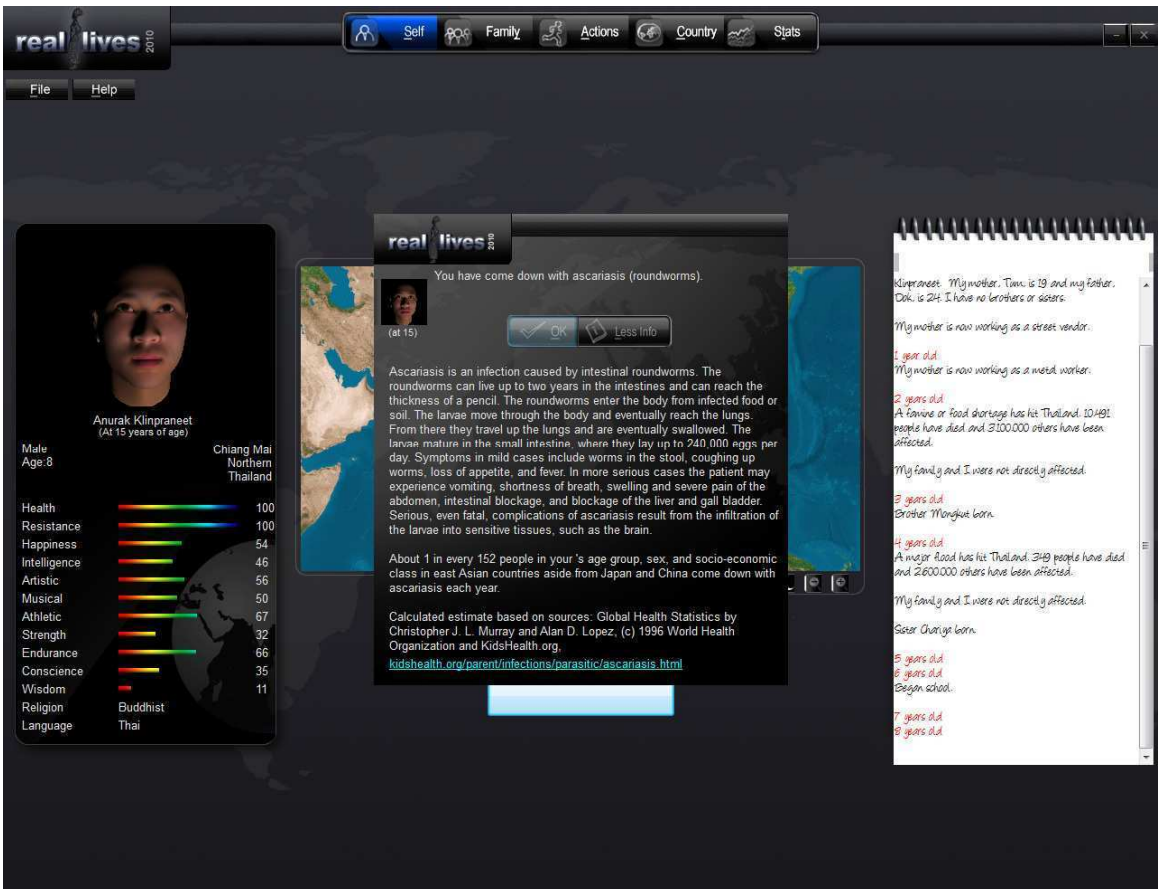



Screenshot *RealLives 2010* Self page, night view with city names



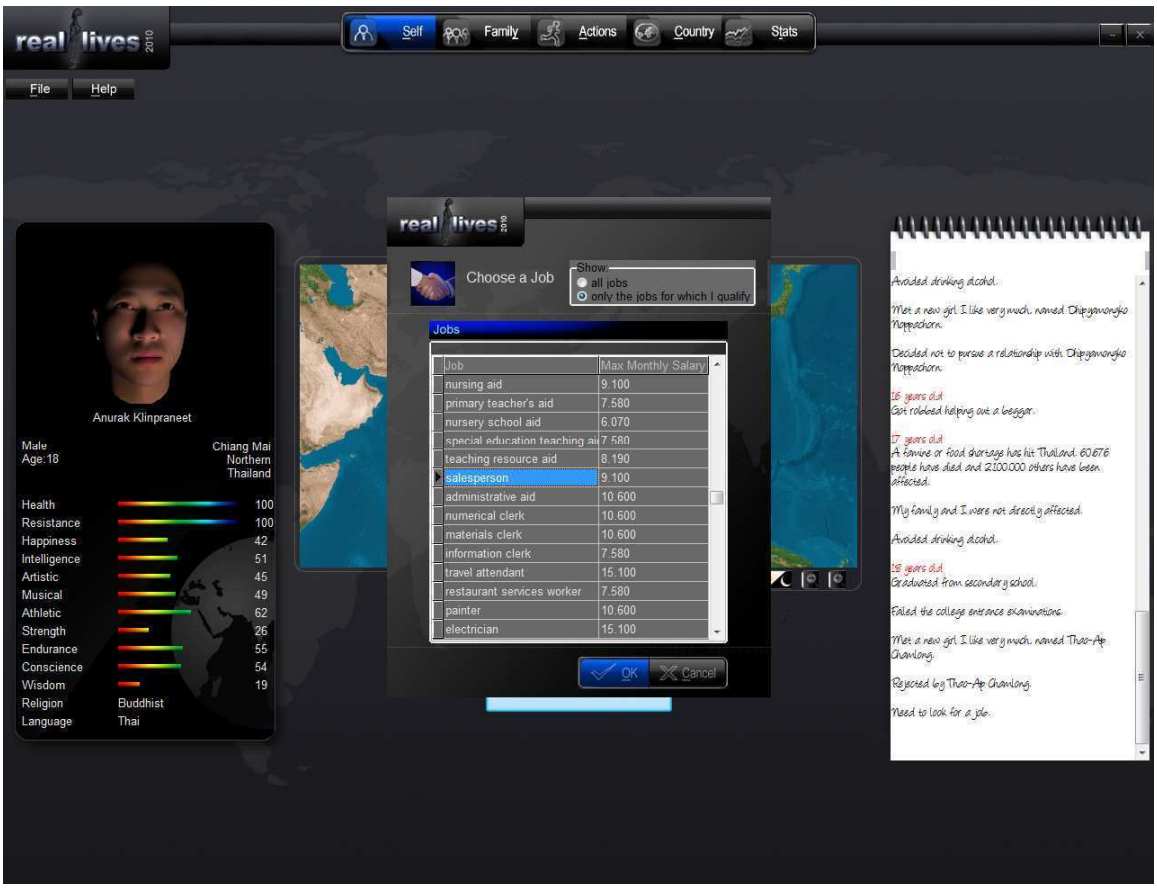

Screenshot *RealLives 2010* Self page with pop-up window traditional homes (Learn More)


Screenshot *RealLives 2010* Self page with pop-up window religion (Learn More)




Screenshot *RealLives 2010* Self page with pop-up window disease (Learn More)

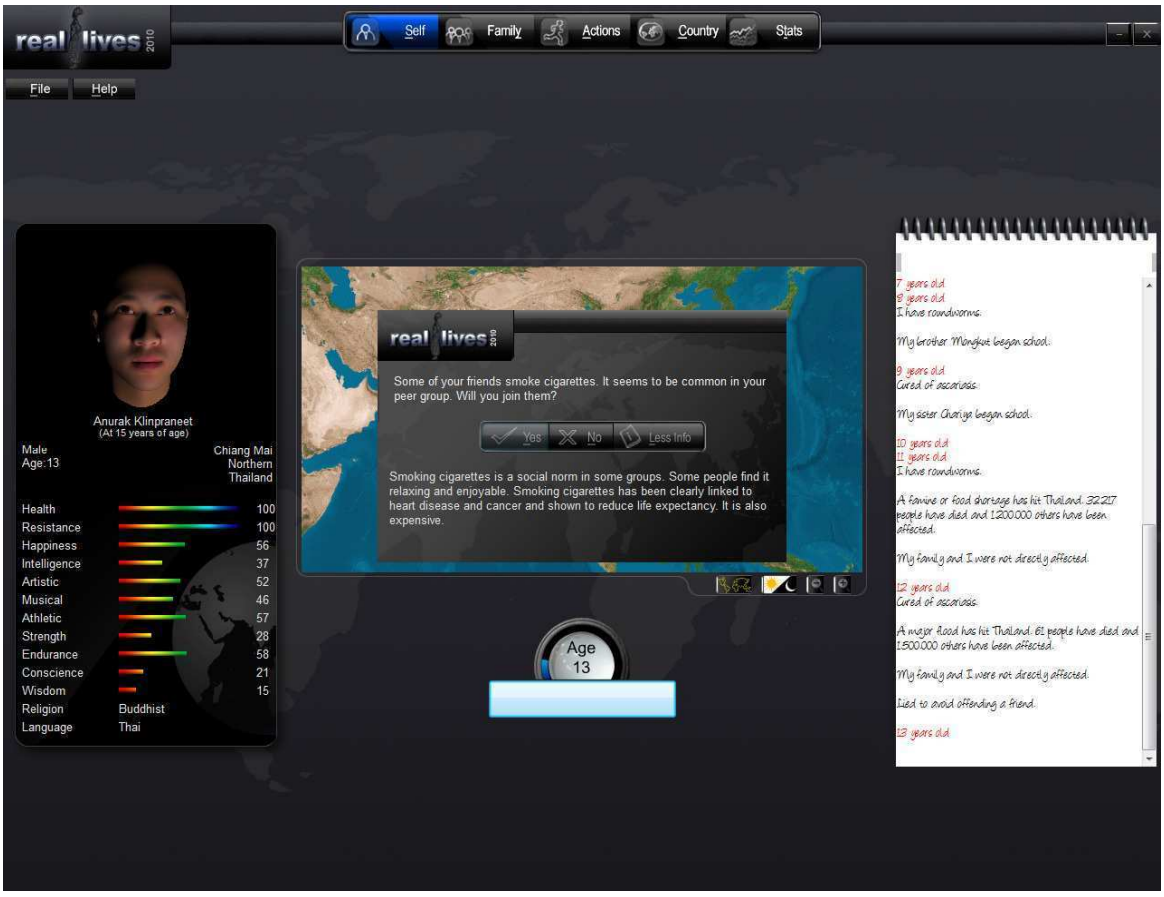

Screenshot *RealLives 2010* Self page with pop-up window school education (Learn More)




Screenshot *RealLives 2010* Self page with pop-up window job


Screenshot *RealLives 2010* Self page with pop-up window relationship (Learn More)


Screenshot *RealLives 2010* Self page with pop-up window lying (Learn More)



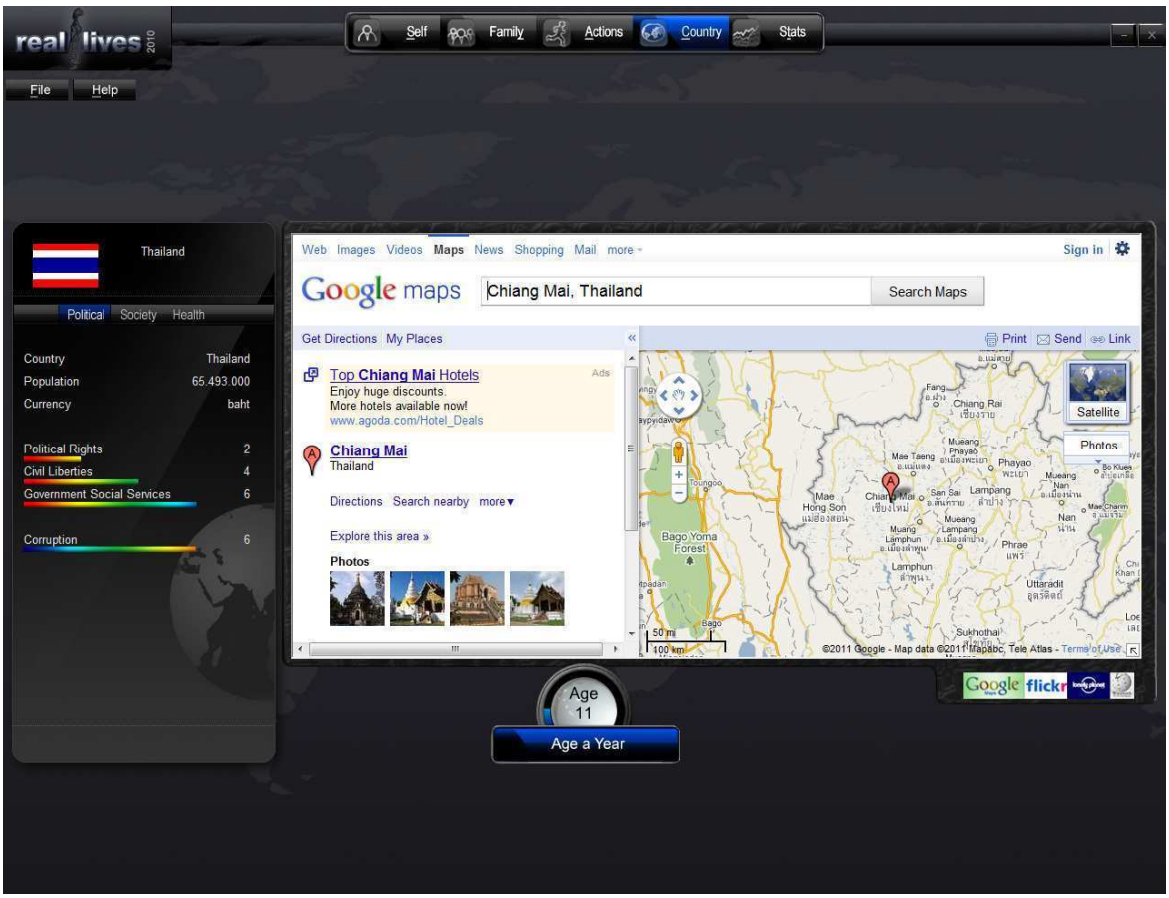

Screenshot *RealLives 2010* Self page with pop-up window smoking (Learn More)


Screenshot *RealLives 2010* Self page with pop-up window death of son (Learn More)

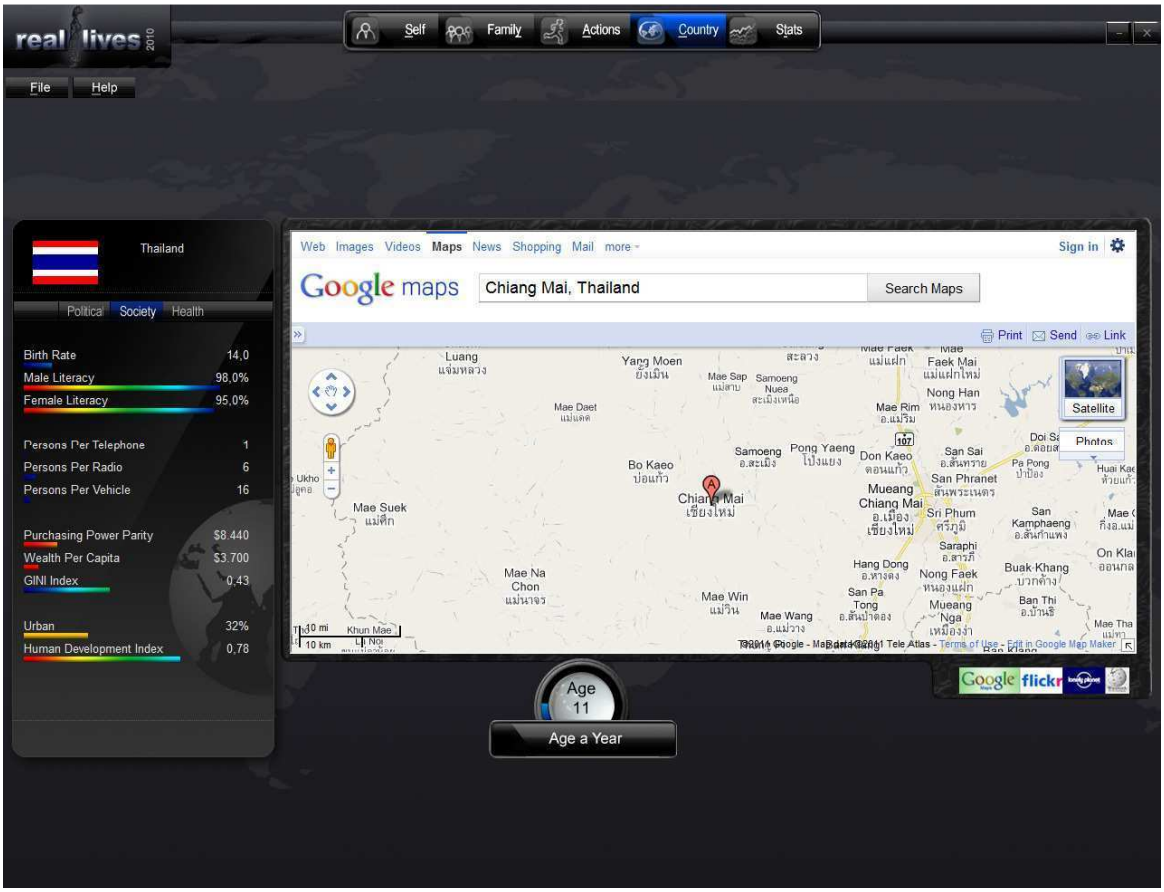

Screenshot *RealLives 2010* Self page with pop-up window character obituary (Learn More)


Screenshot *RealLives 2010* Family page, living at home

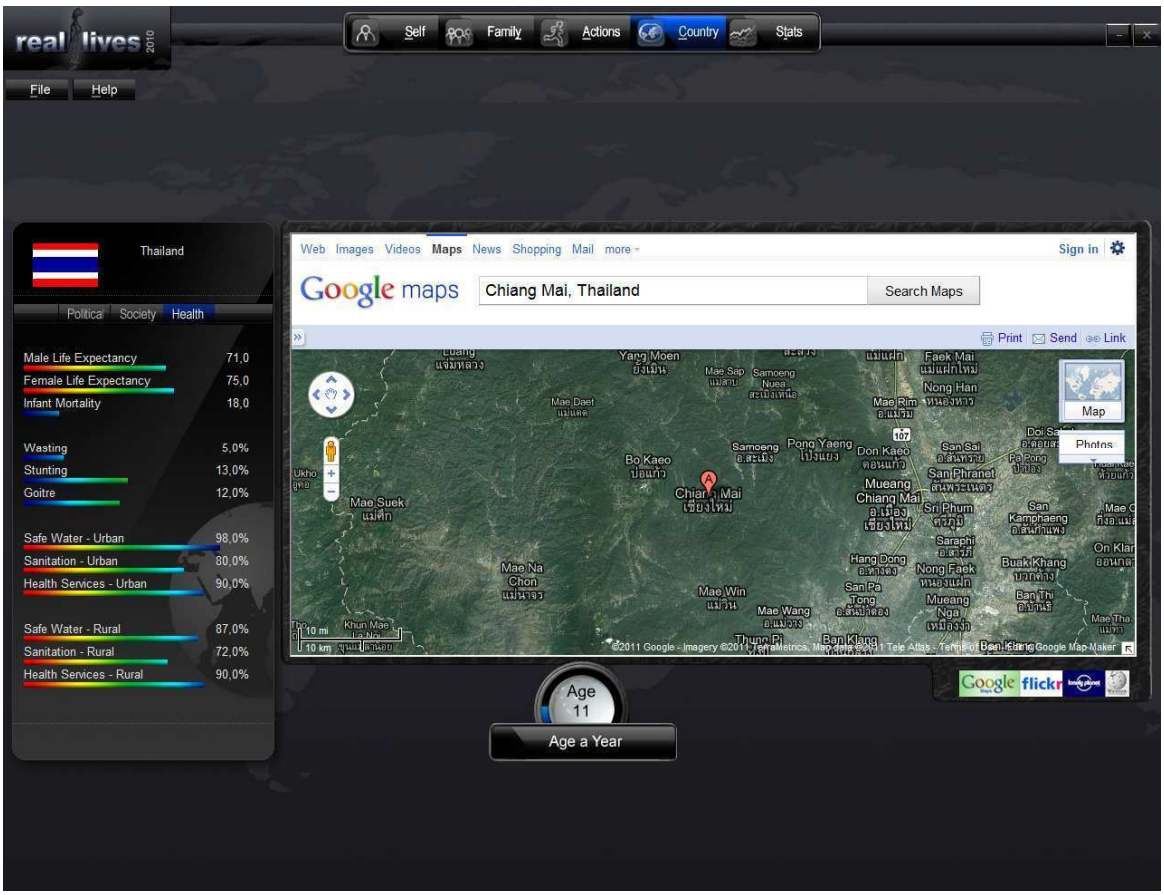

Screenshot *RealLives 2010* Family page, living with wife and daughter (orange)




Screenshot *RealLives 2010* Country page, political statistics and map




Screenshot *RealLives 2010* Country page, society statistics and map




Screenshot *RealLives 2010* Country page, health statistics and satellite picture


Screenshot *RealLives 2010* Actions page


Screenshot *RealLives 2010* Actions page, Borrow or Invest


Screenshot *RealLives 2010* Stats page


Screenshot *RealLives 2010,* Character Designer


Screenshot *RealLives 2010,* Configure Issues screen