Ethics, Environment and Problem-based Learning: How Role-playing Video Games Embody Cross-Curricular Themes of Finnish Upper Secondary School Curriculum

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Abstract

Learning and video games have been studied for a while now as a possible learning asset. However, this research is largely generalized, and does not examine specific curricula and how they could employ video games. This study will examine how the cross-curricular themes found in the *National Core Curriculum for General Upper Secondary Schools* (Finnish National Board of Educations, 2016) are fulfilled by two role-playing video games, *Star Wars: Knights of the Old Republic* (BioWare, 2003) and *Baldur's Gate: Enhanced Edition* (Beamdog, 2012). The study employs qualitative research methods in order to conduct a cross-case analysis of the two games, examining them from a sociocultural, cognitive, and ecological theoretical point of view. The study shows that most of the cross-curricular themes listed were present in the games, and their objectives of instructions were met. The games examined created problem-based learning experiences both in familiarizing the player with the game as well as creating learning experiences that aligned with the cross-curricular themes examined. Especially themes that relied on and promoted empathy were heavily employed in the games. On the other hand, some contradictions could be found in the games, which could be used to affect a deeper learning according to cognitive theories.

Abstrakti

Oppiminen ja videopelit ovat olleet tutkimuksen kohteena viime aikoina laajalti. Kuitenkaan tarkkaa opetussuunnitelmiin kohdistuvaa tutkimusta ei ole suoritettu video pelien osalta, vaan tutkimukset ovat keskittynyt oppimiseen yleisellä tasolla. Tämä pro gradu-työ tarkastelee kuinka videoroolipeli *Star Wars: Knights of the Old Republic* (BioWare, 2003) sekä *Baldur's Gate: Enhanced Edition* (Beamdog, 2012) toteuttavat aihekokonaisuudet Lukion opetussuunnitelman perusteissa (Finnish National Board of Education, 2015). Tutkimus käyttää kvalitatiivisia metodeja vertailevan tapaustutkimuksen toteuttamiseen sosiokulttuurisesta, kognitiivisesta sekä ekologisesta näkökulmasta. Tutkimus osoitti, että useimmat aihekokonaisuudet löytyivät peleistä ja että niiden tavoitteet toteutuivat peleissä. Pelit loivat ongelmakeskeisiä oppimiskokemuksia sekä tutustuttaakseen pelaajan pelin maailmaan että luodakseen opetussuunnitelman aihekokonaisuuksien mukaisia oppimiskokemuksia. Erityisesti teemat, jotka nojautuivat ja kannustivat empatiaan, olivat peleissä laajalti käytössä. Toisaalta pelit sisälsivät tiettyjä ristiriitoja, joita on mahdollista käyttää hyödyksi syvemmän oppimisen luontiin kognitiivisten teorioiden mukaisesti.

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1. Introduction

In recent years, learning through video games has become an emerging question in the world of education. Gamification, or in other words the game-like approach to designing learning exercises has become a popular method. Educational games have been employed in education for a while. However, commercial video games as learning resources have been ignored by the larger pedagogical community. There has been a movement towards proving that learning in commercial video games can be beneficial in general education, and that they employ learning and teaching methods difficult to replicate in the classroom.

While a lot of research has already been conducted on the possibilities of commercial video games as a whole, the research lacks studies in more focused areas. This study examines how two role-playing video games, *Star Wars: Knights of the Old Republic* (BioWare, 2003) and *Baldur's Gate: Enhanced Edition* (Beamdog, 2012) align with the cross-curricular themes of *The National Core Curriculum for Upper Secondary Schools* (Finnish National Board of Educations, 2016) employed in the Finnish education system. The purpose of the study is to examine how the underlying values of the Finnish education system are reinforced or undermined by these two role-playing video games, as well as examining how or if these findings can be generalized to other role-playing video games. In order to accomplish this, the study examines the history of learning theories as well as the history of role-playing games. The study uses a cross-case analysis in order to examine the similarities and differences between the two games in how they conduct problem-based learning, how they employ semiotic domains, how they present ethical and environmental issues as well as how they employ identity creation in creating learning experiences. The study employs several learning theories, namely cognitive, sociocultural theories, as well as ecological learning theory.

The study found that role-playing video games create simulated experiences, which are as effective in creating learning experiences as similar real world experiences would be. In addition, role-playing video games examined encouraged the player to become an active part of communities they inhabit, both in the virtual world and online communities dedicated to them. The games promoted the development of personal learning strategies, and they required researching material online in a way similar to the approach university students take while researching for a paper. The games had complex moral

dilemmas, that the player received immediate feedback on, and they tended to reward environmental preservation in the virtual worlds. One of the most important findings was that the games seemed to create problem-based learning of empathy through identity creation. However, the games had contradicting values: while they promoted inclusion and empathy, they had underlying structures that could be viewed as colonialist. Similarly, the environmentalist agenda was driven by an anthropocentric utilitarian motivation, instead of ecocentric motivation. These contradicting values can, however, be used as cognitive learning tools, and will not necessarily majorly undermine the core values of the curriculum.

2. Theoretical Framework

This section examines the cross-curricular themes that create a basis for upper secondary school education, as well as various learning theories and their history. This section also examines the history of computer games, different genres of games, how learning can occur while playing games, how role-playing games differ from other games and why computer role-playing games can be effective tools for learning.

2.1 Transversal Competencies and Cross-Curricular Themes

The National Core Curriculum for Upper Secondary Schools defines the general objectives of education according to the Finnish Government Decree (942/2014) "so as to enable the student to grow into an educated member of the society, acquire knowledge and skills required by the changing operating environment, and improve his or her capabilities for lifelong learning" (Finnish National Board of Educations, 2016, p. 34). This is accomplished through cross-curricular themes, which are essentially "transversal competence areas crossing the boundaries of individual subjects" (Finnish National Board of Educations, 2016, p. 35). All cross-cultural themes include for the student to:

- "observe and analyse contemporary phenomena and operating environments,

- understand the interactions, interconnections, interactive relationships and interdependencies between things as well as to analyse extensive entities in a manner that crosses the boundaries of and links different fields of knowledge and skills,

- get opportunities for sharing competence, peer learning, forming ideas for solutions and producing them in collaboration with others as well as creative problem-solving and thinking,

- present well-argumented ideas of desirable changes and find courage to act for a good future" (Finnish National Board of Educations, 2016, p. 35).

The first theme common to all upper secondary schools is active citizenship, entrepreneurship and the world of work (Finnish National Board of Educations, 2016, p. 35). Its goal is to "strengthen the students' willingness and ability to be active citizens and to increase their knowledge of the world of work and entrepreneurship" (Finnish National Board of Educations, 2016, p. 36). It requires the students to take initiative, be entrepreneurial, cooperate with others and engage in constructive and knowledge-based critical thinking. While upper secondary education does not require the students to aim at entrepreneurship themselves, they should have a basic understanding of the world of entrepreneurship and operating principles, as well as future prospects, of the economy. Whether the students are interested in entrepreneurship or not, they should gather experiences of agency in the civic society, work and business as well as finding their own interests and channels for acting. They should develop and use their language, communication and interaction skills, as well as other skills required by the society and the world of work. They should also be able to use their freedom of speech and have contemporary examples of the limits of their freedom of speech (Finnish National Board of Educations, 2016, p. 36). This is quite important in bringing up active citizens: if they have no interest in voicing their opinions, or they use their voice irresponsibly, their opinion will not count towards societal impact. The students should also develop their competence in planning their activities and be able to assess varied situations and risks as well as take moderate risks and face disappointment and failure. In order to strive for active citizenship, the student should also gain confidence in generating and voicing their ideas, sparking discussions, and taking initiative. The students should explore and discover their strengths and interests as well as be able to make choices concerning their studies and work judiciously. The learning environment should support the students' endeavours at becoming active citizens and introduce a representation of entrepreneurship and the world of work in their studies (Finnish National Board of Educations, 2016, p. 36).

The second theme common to all upper secondary schools is well-being and safety. This theme includes assessing the "mental, social, physical, societal, and cultural factors that influence well-being, health, and safety" (Finnish National Board of Educations, 2016, p. 36). The students should learn life management skills and self-knowledge, as well as be encouraged towards a physically active lifestyle complimented with factors that protect mental health and risk recognition. The student must be able to describe all forms of well-being and understand human diversity and the needs it accompanies. They must also recognize factors that impact or decrease well-being, and consider how to sustain safety and protect themselves from harassment and exclusion. They should be able to deal with conflicts constructively, know when to seek mediation and if necessary, take advantage or guide others to take advantage of the service system available. They should be able to act for the good of their own or other people's well-being and safety, whether in school, community or wider society as well as know the means with which to promote the well-being and safety in society (Finnish National Board of Educations, 2016, p. 37). Thus, the student will have to learn active citizenship in order to promote well-being in their school, local community and society, and on the other hand be able to promote the well-being and safety of themselves and others in order to be an active citizen, as the themes complement each other. Well-being and safety is a theme that emphasises togetherness and empathy (Finnish National Board of Educations, 2016, p. 37).

The third theme common to all upper secondary schools is sustainable way of life and global responsibility. The goal is to teach the students how they can adopt a lifestyle that is sustainable and guarantees the opportunities of good life on local, regional and global levels both at present and for future generations. They must learn the different factors, ecological, economical, social and cultural dimensions, and how they all count towards a sustainable future. They must be able to analyze the changes in environments and have confidence to act on them. The student must understand how climate change and globalization affect the biodiversity, poverty and inequality, how human activity is factoring into them and what means they have to affect them. They should be able to recognize how sustainable life, production and consumption habits and political decisions are interlinked and how they can promote sustainability and fair development by cooperating with various actors. It is also important that the students protect natural and cultural heritage across generations in a global world. Implementing the themes requires that the students are presented with opportunities to contribute to a sustainable way of life as well as changes that have already been made. They must also be made aware of their own responsibility and impact on the environment and the global community in their everyday life (Finnish

National Board of Educations, 2016, pp. 37-38). The theme requires the students to be able to become active citizens that drive the sustainable agenda in their community within their abilities, and they must be made aware of the well-being of themselves compared to people from other areas or future generations. They must be aware of how their actions may affect the well-being of others, and through empathy be encouraged to act towards improving their well-being. Thus, the theme ties to both active citizenship and well-being and safety.

The fourth theme common to all upper secondary schools is knowledge of cultures and internationality. It promotes the students' increasing knowledge of cultures and plurilingualism and seeks to present the students with a worldview in which multiple identities, languages, religions, and worldviews coexist and interact. The theme seeks to familiarize the students with human rights and how they can be promoted in different cultures and philosophically diverse communities. It strives for the students to learn about their own culture and strengthen their cultural identity, while exploring other cultures and how their culture interacts with other cultures. The students must learn how they view the world from a certain point of view due to their cultural heritage and how others view the world differently, thus becoming proficient in cultural interpretation. They should also strengthen their language awareness, plurilingualism, and multiliteracy in order to be able to operate in culturally diverse operating environments (Finnish National Board of Educations, 2016, p. 38). These topics are handled in "authentic and multilingual learning environments when possible" (Finnish National Board of Educations, 2016, p. 38). The theme requires the students to examine different cultures and put themselves in the place of the people native to those cultures, to the best of their abilities. This understanding will be needed when it comes to helping people from these cultures to take care of their well-being or seek the help of the service system. In addition, understanding their own culture is vital when it comes to being an active citizen: the student should understand when their opinion might be affected by their cultural heritage, and might not apply to people from other cultures. By learning of their cultural heritage as well as the cultural heritage of others, the students help ensure that these cultures survive for future generations. Thus, this theme is tied to all three former themes.

The fifth theme common to all upper secondary schools is multiliteracy and media. Multiliteracy is defined as "the skills of interpreting, producing, and assessing texts in different forms and contexts. Media literacy is part of multiliteracy" (Finnish National Board of Educations, 2016, p. 39). The students should develop their interpretation, production, and assessment of diverse texts, develop their

information acquisition skills, such as seeking, selecting, using and sharing diverse text materials, as well as interaction and involvement skills through their shared media production competence in communication environments. The students should be able to view media critically by acknowledging different factors that sway media as well as analyze ethical and aesthetic questions related to the media. They should also be able to use multiliteracy in self-expression and interaction responsibly while producing, using and sharing contents (Finnish National Board of Educations, 2016, p. 39). Media literacy is essential in the world of today, as media such as Twitter have become official channels for politicians and companies. In addition, cyber bullying has been known to be conducted through social media, forcing the schools and students to adopt new precautions online. Media can also be used to preserve, or conversely attack, different cultures or ways of life that promote sustainability. Thus, being multiliterate is necessary to separate fact from fiction. Multiliteracy links to all former themes discussed.

The sixth and last theme common to all upper secondary schools is technology and society. The world of today is deeply affected by technology, and students should be aware of the interaction between technological and societal development. Creativity, problem-solving, functionality and a sustainable future are ideas that guide technological development that the students should be made aware of. In order to make the impact of technology to society clearer, the students should be presented with historical, topical and future-oriented materials on technology. After upper secondary school, the student should be able to apply transversal competence in evaluating different aspects of technology and the impact of technological innovation, as well as future developments of technology. They should also be able to reflect on the relationship between people and technology and the importance of technology in society, ways of living and its environmental impact. Students should have the confidence to apply their potential, creativity and problem-solving skills to practical problems and perceive errors as experience in creative process. Students should be reasonable citizens and consumers when it comes to technology, and they should understand the relationship between technology, economy and politics, in addition to acknowledging the development of workplaces and employment due to technology. Technology must be understood to have ethical and economic dimensions, and to have an effect on well-being and safety (Finnish National Board of Educations, 2016, pp. 39-40).

The six themes are strongly interlinked, and one can say that the underlying goal is to have students learn about critical thinking and the technological and entrepreneurial world of today, in which they act independently, use their problem-solving skills and seek answers to ethical, environmental, economical

and political problems in both their own lives and society, keeping in mind the cultural diversity and history as well as the well-being and safety in their own and other people's lives.

2.2 Learning Theories

Views on learning have shifted multiple times in the past, and teaching practices have adjusted accordingly. One example of such earlier learning theories is behaviorism, a theory that considers learning as creating a stimulus-response. Learners were thought of as blank slates, on which the teachers created behavior patterns through positive and negative reinforcement (Driscoll & Barneveld, 2015, p. 4). As Jarvis, Holford and Griffin note, this means that behaviorist teaching methods do not focus on knowledge, attitudes, values or beliefs, but on measurable behavioral outcomes of learning (Jarvis, Holford, & Griffin, 2003, p. 25). While these outcomes may be easy to evaluate, they do not answer to the themes the national curriculum discusses or uphold its values, nor do they prepare the student to the everchanging world of today. Kalantzis and Cope divide this change in society into work, civics and personal life. In early industrial society work was predictable and stable, needing only moderately or unskilled work force. Citizens were largely homogenous and passive, while on a personal level they did not question authority and they conformed to the norm in their family and gender relations (Kalantzis & Cope, 2010, pp. 201-202). This society welcomed a behaviorist approach to teaching, as the society did not require more. Behavioristic views on learning persist in aspects of teaching, whether conscious to the teacher or not. Even the national curriculum for upper secondary schools from 2015 the learning outcomes are specified in behavioral terms: compare Jarvis, Holford and Griffin's sentences: "At the end of the lesson, students will be able to do…" or "At the end of the lesson, students will know…" (Jarvis, Holford, & Griffin, 2003, p. 30) to "The objective is that the student…" (Finnish National Board of Educations, 2016, p. 37) or "Specific objectives if the teaching and learning in the different syllabi in English are that the student…" (Finnish National Board of Educations, 2016, p. 117). Interestingly, the theory is mostly based on research conducted on animals, and the results have been claimed to apply – on the basis of dubious logic – to humans (Jarvis, Holford, & Griffin, 2003, p. 27). While stimulus-response learning can work on humans as well, the resulting learning outcome does not correspond to

the modern world, that requires innovative problem-solving instead of learning a single solve to a specific problem.

Emerging after behaviorist theories the cognitive theories – such as Piaget's stage theory (Jarvis, Holford, & Griffin, 2003, p. 33) – gained popularity. Later cognitive theorists – such as Bruner (Bruner, 1968) and Allman (Allman, 1984) – thought that Piaget's theory was too focused on children and that his view on cognitive development was too relatively discrete. In contrast to Piaget, they have also proposed that mental growth has sudden leaps, and stage theories have been built according to this view. Piaget's focus on biological age in mental development was also challenged by Vygotsky, who thought that it was reductionist to overlook the wider world and teaching (Jarvis, Holford, & Griffin, 2003, p. 34). Kohlberg further created a model of moral development, which was divided into stages, but not tied to biological age (Jarvis, Holford, & Griffin, 2003, p. 35). Kohlberg went as far as to say that some people never achieve the higher stages of morality, illuminating that people's "conceptual level contains a mixture of different stages of development" (p. 34). The moral development requires that an earlier level of moral development has been achieved, but the mixture of stages present in the moral development may include stages from various levels.

Vygotsky's idea of mental functions was the result of developmental cycles. However, this process was twofold: actual development was determined by independent problem solving and potential development by assisted problem solving. Vygotsky, while studying the actual development, pointed that the potential of an individual when assisted is far more interesting and exciting. By observing how children learn by imitating others, and how it is impossible to imitate beyond the zone of one's proximal development at a time, Vygotsky saw that learning has a fundamental social aspect and children grow into their intellectual surroundings. Human development is a two-step program: learning process pushes the zone of proximal development further, and development process follows behind, as it cannot extend past the zone of proximal development (Jarvis, Holford, & Griffin, 2003, p. 37). Vygotsky found that in order for true learning to occur, the learner must imitate someone within their proximal zone of development, as those outside it would be impossible to imitate. This is similar to Piaget's optimal mismatch: the content to be learned had to match the level of the child's cognitive development (Jarvis, Holford, & Griffin, 2003; Pass, 2004). Vygotsky, however, thought that by pushing to the edge of the learner's proximal zone of development, through the aid of another, they could achieve higher learning than they could by themselves. Pass explains that Bruner was the first to coin a term for this phenomenon touched upon by

both Vygotsky and Piaget: Scaffolding (Pass, 2004). According to Pass, Piaget's idea of an optimal classroom would have "the highest challenging point for a student's chronological stage of development so that, with effort, a child can move, if the child successfully internalizes the problem, through equilibration to the top of that child's stage of development" (p. 90). Vygotsky was also one of the first researchers to highlight the importance of meaning in learning. He thought that true communication was only possible if the person receiving the message not only understands the words, but thoughts and motivation as well (Jarvis, Holford, & Griffin, 2003, p. 38).

Jack Mezirow focused on meaning in his cognitive theory of learning. While his definition of "the process of using a prior interpretation to construe a new or revised interpretation of the meaning of one's experience as a guide to future action" (Mezirow, 2000, p. 5) is a narrow one, he explores the importance of meaning in learning in a profound way. His view is that true learning comes from being aware of one's own assumptions, and critically assessing them. He implements this idea to Habermas' communicative learning. Understanding communication requires us to examine whether the person giving us information is a professional, or someone unqualified passing the time or driving their own agenda (Mezirow, 2000, pp. 8-9). He explains that our assumptions that come from past experience give us a frame of reference, which we use to structurally examine the world. This frame of reference is divided into two dimensions: habit of mind and point of view. Habit of mind are the socially constructed assumptions people have of the universe (Bush, 2015). When expressed, a habit of mind becomes a point of view (Mezirow, 2000). It comprises clusters of meaning schemes that subtly affect our way of interpreting a specific situation and our judgement, usually without our awareness (Mezirow, 2000, pp. 17-18). Mezirow then elaborates on his view on learning and the transformative learning theory he proposes: "Learning occurs in one of four ways: by elaborating existing frames of reference, by learning new frames of reference, by transforming points of view, or by transforming habits of mind" (Mezirow, 2000, p. 19). Jarvis et al. consider Mezirow's theories on communicative learning to depend on ideal conditions for perfect communication, which the reality lacks (Jarvis, Holford, & Griffin, 2003, p. 40).

In summary, cognitivist theories focus on human development, and each have their merits and drawbacks. While the theory of Piaget is limited by its focus on biological age, it has been instrumental in the development of more thorough models. Vygotsky's views on proximal development are widely applauded and will merit further notations in this thesis as well. Mezirow's ideas on points of view and frames of reference can be seen to have influenced the national curriculum, as the curriculum seeks to

promote students to critically examine both the world and its different aspects as well as themselves and their predetermined assumptions.

Social learning theories examine learning as a sociological, rather than psychological concept. As Vygotsky noted, while learning assisted instead of individually the child's development was more profound. This social aspect of learning is undeniable, and a lot of research has been conducted into how the social world can help or hinder learning. Jarvis et al. go so far to say that learning is, in a sense, socially constructed, and that an individual's social, historical, and cultural contexts determine their content, style and methods of learning. They continue to note that the contexts "determine the meaning and significance of knowledge and learning for individuals according to their location in society" (Jarvis, Holford, & Griffin, 2003, p. 43). This brings to mind Mezirow's idea of frame of references: the socially constructed assumptions and their expressions affect our way of viewing situations. Mezirow considers that learning occurs when we update or internalize new contexts, creating new frames of references. While Jarvis et al. consider knowledge to be contingent upon circumstances – and absolute knowledge to be non-existent – they also propose learning to be a process which directly reflects this knowledge (Jarvis, Holford, & Griffin, 2003, p. 43). Social constructivist theories consider the learning to center around the meaning and significance of the learners constructing knowledge for themselves, and the disciplinary-based accumulation of information enforced by a teacher or promise of a better grade is considered inferior (Jarvis, Holford, & Griffin, 2003, p. 43). The developed world has moved away from the early industrial society and closer to what Kalantzis and Cope call the "knowledge society". In this society value has moved from fixed capital to human skills and relationships, organizational knowledge and service values. Work requires ongoing creativity, innovation and initiative. Citizens are active, aware and multicultural. They take responsibility in multiple levels, from local community to global levels of governance, and have various types of families, multilayered identities, active social networks, have various ethical codes and are tolerant and responsible (Kalantzis & Cope, 2010, pp. 201-202). This type of society seems to meet most of the objectives for the national curriculum themes discussed.

Vygotsky's work has been instrumental to the development of sociocultural theory used in language education today. By connecting learning to social activity, Vygotsky began to highlight the cultural connection of all learning. While Vygotsky's approach was cognitivist, Kozulin underlines that "at the heart of Vygotsky's theory lies the understanding of human cognition and learning as social and cultural rather than individual phenomena" (Kozulin, 2003, p. 1).

Due to the change in the society and the workplace, learning had to change as well. As workers became independent and creative resources instead of a necessary nuisance, work-related learning became ongoing and more problem-based. Problem-based learning established itself as a theory in academic world as well. Courses designed according to these ideas would start with problems, and during the course the students would seek out the resources they needed through a staged sequence of problems with the assistance of their teachers (Jarvis, Holford, & Griffin, 2003, p. 135).

In 2011 Kuure, Keisanen and Riekki conducted a study on children's genuine participation. The study had prospective teachers plan and implement a course for children between ages 11 and 13, using problem-based participatory process (Kuure, Keisanen, & Riekki, 2013, p. 260). After being given an introduction to participatory design and the project goals the students were given time to plan activities for the children. After conducting a theme week with activities for the children, students used their experience and ideas for future technologies of language learning to create concepts for the future, as well as wrote their final reports. The participants – the students – were exposed to real-life experiences in authentic settings (Kuure, Keisanen, & Riekki, 2013, p. 264).

The course the students were taking had had the same problems for years: students felt the instructions were too vague. They had not grasped the concept of problem-based learning conducted in the course. However, during the study the researchers found that by introducing this problem to the students at the start of the course, and possibly the feedback given to the students by other students who had completed the course, students were more prone to deviate from the teacher-led task-definition. While this goal was achieved easier than anticipated by the researchers, the students had trouble creating tasks that would have involved the children to participate genuinely and actively, resorting to the teacher-led task-definition they themselves were able to break away from. However, by having the children use technological tools, such as *Photoscreen,* and conduct the workshop in a special spatial seating arrangement the students were able to produce an environment where multimodal and collaborative negotiation could take place. The children were given guidance in the workshops by glancing at other children working and being given guidance by the teacher (Kuure, Keisanen, & Riekki, 2013, pp. 269-270).

The study found that while the students reverted to the traditional way of teaching, there were many positive revelations. These were the students' willingness to break away from the traditional way of teaching, if only for the part where they were not in the role of the teacher, the willingness of the children

to get started on the workshops and their flexibility and the willingness of the teachers of children to let them participate in the workshops. In addition, the study highlighted the challenge student teachers face in designing genuinely participative courses to children whose learning is complex and multifaceted and compasses both school-learning and the multitude of activities in which they partake on their own time. The challenge is made greater by the fact that student teachers gain most of their teaching experience in the classroom environment. The study, however, found that this historical body may be changing, as evidenced by the willingness of the participants to embrace new ideas and methods, if not the ability to implement them in their own work (Kuure, Keisanen, & Riekki, 2013, pp. 271-272).

The study of Kuure et al. raises a few interesting points: firstly, problem-based learning answers to some of the cross-cultural themes of the national core curriculum for upper secondary schools. It promotes genuine participation, an important aspect if active citizenship and entrepreneurship, it requires the learners to work on their anticipatory skills to be able to work their way towards gaining all the know-how needed for the problem to be solved and it forces the learner to generate ideas, take initiative and spark discussion, as well as gain confidence in these actions. In the study of Kuure et al. the students and children also learned new technologies and media, and the students were able to seek technologies they felt necessary for their goals and implement them in the problem-solving. This corresponds to the objects of instruction given in the curriculum for technology and society, as well as media production. The study especially answered to the objective where the student "gains confidence to use [the student's] potential, creativity and problem-solving skills in seeking solutions for practical problems" (Finnish National Board of Educations, 2016, p. 40).

Secondly, while the students were willing to use the technological assets they found or were instructed to use, they mainly used them in a way that mimicked a traditional classroom teaching method. This is a phenomenon that ecologists have noted before. Zheng and Newgarden found that educators using *Second Life*, a virtual world popular among educators, tended to simply transfer their classroom habits into the virtual environment (Zheng & Newgarden, 2012). They felt that in order to update our teaching methods to virtual worlds, we must rethink our view of "language as a complex adaptive system with an integral role in individual and social cognition and of learning as an ecological agent/environment achievement" (Zheng & Newgarden, 2012, p. 14). They note that in their view, cognition is embodied activity, evidenced by neural activity that activates whether we perform actions ourselves or perceive another performing the actions. By this logic, they see a great potential in virtual worlds over classroom setting:

in a virtual world, the learner can get embodied experiences off of a character or their avatar in an environment utterly alien to a classroom. The embodied action one can take in a virtual environment, such as interacting with objects in the world, move about freely and change our perspective, separates virtual worlds from other, less physically involved social media.

In addition, Zheng and Newgarden consider transference not to apply to language learning in virtual environments in the way it has been used. The skills do not transfer from virtual world to the real world because, due to embodied action, the skills learned *are* real world skills embodied in action. Zheng and Newgarden propose that when it comes to language and virtual worlds, transference should be abandoned in favor of coaction in the two worlds. In a virtual environment we extend our body and our avatar, as well as the body and avatar of others (Zheng & Newgarden, 2012, p. 18).

Finally, Kuure et al. found that the historical body, which has been focused on traditional methods on teaching and has resisted the methods of problem-based learning and new technologies is changing (Kuure, Keisanen, & Riekki, 2013). Students are willing to try a new approach and teachers are willing to deviate from the curriculum in order to explore possible new ways of learning.

Learning ecologies has become a major point in learning theories. Ecological learning is taken into account in the national core curriculum when considering the learning environment. Learning environment should be safe and healthy, versatile and enrich experiences in studying, as well as motivational. They should also develop in a way that supports interaction, learning together and independent study. Learning environment is not limited to schools but extends by means of information and communication technology (Finnish National Board of Educations, 2016, p. 15). Hannele Dufva has connected ecological learning with problem-based learning by examining language learning through a cognitive perspective, but in which cognition is "extended to 'external' activity in social and physical environment" (Dufva, 2013). In her view, language learning includes the material and immaterial environment of the students, both in-school and out-of-school. She claims that contemporary pedagogies would benefit from making the students aware of the various resources available to them, expanding their learning environments to reach outside the school to leisure time, becoming a language detective by learning to detect both linguistic resources around them as well as patterns in the resources and irregularities to these patterns. She also suggests the students should become anthropologists, engaging in field work in virtual and non-virtual environments to observe cultural behaviors and underlying norms, as well as becoming a participant instead of only observing these norms (pp. 64-65). While the focus in

her study seems to be language learning, many of these suggested pedagogies could very well be used for more general learning. For example, becoming an anthropologist and observing cultural behavior in both virtual environments and non-virtual environments can further the cross-curricular theme of knowledge of cultures and internationality present in the national core curriculum.

2.3 Games and Learning

Video games are a medium that is difficult to define. Some games tend to have a narrative, while others, such as Tetris (Pajitnov, 1989), lack one. Salen and Zimmerman define games as being "a system in which players engage in an artificial conflict, defined by rules, that result in a quantifiable outcome" (Salen & Zimmerman, 2004, Chapter 7, Our Definition). This definition applies to games other than video games as well. On the other hand, Gee considers that in many cases "a video game is a set of experiences a player participates in from a particular perspective, namely the perspective of the character or characters the player controls" (Gee, 2008, p. 23), though he also acknowledges that games like *Tetris* do not have an avatar. Gee considers video games to present the player with a goal and freedom to pursue them in their own way. They may also set goals for themselves and are free to pursue them as well, but within the rules of the game (Gee, 2008, p. 23). Vygotsky proposes that all play, from child's play at an early age to games adults play, has rules (Vygotsky, 1966). The child, playing at a mother to their doll, has presupposed rules of maternal conduct, and will act accordingly, taking the role of a mother as they perceive it (p. 7).

Vygotsky (1966) continues to declare that play is an enormous part of the development of a child. At a certain stage of development, a child will begin to credit things with roles: a piece of wood is a doll, a stick is a horse (p.10). The child begins to sever thought from a physical object, although this is a gradual process. What a child is doing is give new, situated meanings to objects. The rules the child creates limits them – a letter cannot be a horse, a mother does not hurt a baby, football players do not use their hands – and the child creates "a new form of desires, i.e., teaches [them] to desire by relating [their] desires to a fictious "I" – to [their] role in the game and its rules. Therefore, a child's greatest achievements are possible in play – achievements that tomorrow will become [their] average level of real action and [their]

morality" (pp. 13-14). In play, the child assumes rules on themselves they would not adhere to in real life: a preschooler never succumbing to the desire to eat candy is quite improbable, but a child will rigorously adhere to the rules of hide and seek. Thus, the child is creating zones of proximal development, in this case adhering to rules. However, by assuming roles in play, the child can create all kinds of zones of proximal development. If all games have these benefits, all games can be studied from this point of view. However, perhaps it is beneficial to look at the epitome of role taking in games: role-playing games.

Role-playing games, or RPGs, do not fall into the definition of Salen and Zimmerman, due to there often being no "quantifiable outcome". In addition, the rules of the game may be fluid in role-playing games, due to having a human as a game master (Juul, 2003). However, Juul's view is in opposition to Vygotsky's view on play and games: the person playing creates the rules themselves. These rules may be unknown to the players and human game master as well, but when it comes to enforcing them a too lax approach will take something from the experience. If a role-playing character is falling from a great height, and there is no way the player can justify their character getting out of the situation, the game master will usually let the character fall to their death. The rules may not be obvious, but they are there. If the game master does not let the character die and has no plausible reason for breaking the rules the players may feel a lesser satisfaction from overcoming obstacles, as they have lost the rules that bring them the sense of achievement Vygotsky outlined.

However, according to Zagal and Deterding, role-playing and RPGs are too wide a term to define in their own right, as the activity assign to these terms is varying and happens in diverse media, from tabletop games to computer RPGs, massively multiplayer online RPGs and even live action RPGs, just to name a few (Zagal & Deterding, 2018). They summarize that as "role-playing games is a social category created by humans, it has no unchanging, context independent essence" (p. 47). Yet the games now perceived as being in different genres have a shared historical ancestor in the tabletop RPG Dungeons and Dragons, or D&D. Furthermore, viewing RPGs from a scientific perspective should, according to them, understand RPGs from a particular perspective, such as "RPGs as a performance or as a virtual economy" (p. 47). However, they do list a few styles that most RPGs have in common: "achieving goals and making progress according to rules, acting out and immersing oneself in a role, creating an interesting story, or simulating a world" (p. 47). White et al. have studied tabletop RPGs, or TRPGs as "ergodic texts" which they claim "must be played or performed to be truly "read"" (White, et al., 2018, p. 64). They claim that a tabletop role-playing session blurs the lines between audience and author, and has in

fact a threefold authorship: the players, with their game master, or GM, create the session – or performance – as a tertiary authorship, in accordance to the secondary authorship of the GM, who has built the story or the scenario the session takes place in, and the GM in turn mediates the primary authorship of the designer, who has built the rules and the world the scenario or the story takes place in (p. 64). As TRPGs are as diverse as role-playing games in general, defining them precisely is impossible. However, all TRPGs require a setting, the fictional background of the game, and a system, the rules the game employs. These requirements narrow the field of possibilities for the players, letting them co-create a focused story and play their parts with both less and more creativity: the player is now forced to act as a halfling, with their cultural background and physical and mental abilities, but the actions they can take within the parameters of the game are limited only by their imagination. They also gain the benefit of feeling of achievement as they act according to the rules of the game while creating the narrative.

Computer role-playing games, or CRPGs, are a video game format of the TRPGs. By having a computer handle the mechanical aspects of TRPGs, the emphasis on story became prominent (Schules, Peterson, & Picard, 2018). According to Schules, Peterson and Picard, in the early CRPGs "survival and combat management usually formed the core gaming experience, and the inclusion of an extensive and compelling narrative was generally not considered necessary" (Schules, Peterson, & Picard, 2018, p. 108). However, they mention that the shift towards appreciating the Narrative aspect of CRPGs had gained importance by the end of the 90s, as evidenced by an IGN review of the original *Baldur's Gate* (BioWare, 1998). It has been noted that "even with the best engine in the world though, *Baldur's Gate* couldn't have gotten far without a terrific storyline" (Ward, 1999). In fact, CRPGs have been often analyzed using narratological theories.

If, however, narrative is the only compelling aspect of CRPGs, the player might as well be reading a book, or if they wish for a narrative with a pleasing visual aesthetic, there are movies available. What separates CRPGs from these is participation and role-taking. The player assumes a role in the narrative and is an active part in guiding it to a certain direction. Even games that do not emphasize the player choice cast the player into an active role: if the player does not complete the objective, the narrative will not progress. The player is part of the ritual: "action where behaviors are stylized such that they lose immediate practical function and gain experiential and meaning-making functions" (Hoover, Simkins, Deterding, Meldman, & Brown, 2018). They are both the actor and the audience, as the story is co-created by them and the developer of the game, the primary author. As a performance, with themselves

as an audience, the players are engaged in restored behaviors: a player may want to play a certain part of the game multiple times in order to get it right, due to feeling either that they used up too many resources playing the part, or perhaps feeling that they did not perform as well as they should have. Gee (2007) feels that players of video games have several identities: their real world identity – which in itself is a construct of identities like father, teacher, soccer player, gamer – and their player character identity, which is influenced by their real world identity as they project values and hopes on to the character. Gee found that players could feel responsible for their player character identity: if, for example, their thief was not able to open the locked box because the player forgot to equip an item that helps open boxes, the player would not be angry at the character, but themselves for not playing the character as the character would operate. In other words, they were not able to create the projected identity for the virtual identity. Often this might lead to the player loading a saved game from an earlier point in the game and trying again (Gee, 2007). CRPGs are also always communicative, through pixels and sounds, they are "made special" by the main goals of CRPGs – "fun," "immersion" or "engagement" – and they often create strong communities around them, for example the online forums of Beamdog for *Baldur's Gate: Enhanced Edition* (Beamdog, 2012) with over 4,000 discussion threads on the game. These are all traits of performances (Hoover, Simkins, Deterding, Meldman, & Brown, 2018). If CRPGs are to be considered ergodic texts and performances, they can be seen as falling under the cross-curricular theme of Multiliteracy and media discussed in the national core curriculum. By playing a video game, the player immerses and assesses the ergodic text.

As evidenced by the online communities built around CRPGs, the games have a deeply social aspect. Thus, sociological examination of CRPGs is appropriate. Earlier roles and identities were discussed from a performative viewpoint. Sociological viewpoint "assumes that people interpret the situation they are in, the identities that are active, and the roles being performed" (Williams, Kirschner, Mizer, & Deterding, 2018, p. 230). To understand situations, sociologists look at frames: ways to understand and organize situations, "like "play or grocery shopping," made of shared norms, expectations, and understandings of what things mean and how to behave in the given situation" (Williams, Kirschner, Mizer, & Deterding, 2018, pp. 230-231). A CRPG game session could thus be divided into a few frames: 1) the "primary framework", or the "real world". Here the player has a real world identity Gee discussed. 2) the "game world", where the player has a player character identity. As discussed before, the primary framework affects the game world, as real world identity affects player character identity. But game world frames can also affect the real world: in the game, a player may act in a way that reveals an aspect

of their life they have not explored in the real world. The player may meet refugees in the game and help them, after having heard the refugee explain their story. The player might never have met a refugee in real life, but now updates their primary framework, being able to recognize the situation as similar to the simulated one they have played through. This may lead to them having a better understanding of the situation and having more options on how to act in the situation in real life.

Bowman and Lieberoth consider RPGs to always be psychological experiences (Bowman & Lieberoth, 2018). They compare role-taking in RPGs to that of a child playing "Hide and Seek", or other children's games in which they assume a role. As noted by Vygotsky, this is an important part of a child's development: the Theory of mind – how developing children "learn to establish internalized models of how other individuals […] are likely to respond in particular situations, and how they may experience emotional or cognitive states that are different from their own" (p. 246) – is crucial to the development of empathy. They also point to Carnes, who saw role-playing as an asset to adolescents in identity formation (Carnes, 2014). As Hoover et al. (2018) noted, role-taking happens every day to us all: we may be a customer, a service provider, a student, a team captain. We modify our behavior according to the rules the role plays by. Bowman and Lieberoth consider that the benefits of these role-taking activities include community-building, problem-solving and identity exploration, increased self-awareness, and empathy as well as development of critical ethical reasoning and awareness of social issues (Bowman & Lieberoth, 2018, p. 247).

A cognitive approach to RPGs shows that "when we experience things in the body – even when we know them to be fictional – they affect the mind" (Bowman & Lieberoth, 2018, p. 248). Bowman and Lieberoth continue to cite brain research and the consensus that experiencing stimuli on-screen produces neural activity corresponds to slightly modified versions of what a subject would experience *in situ*. This supports Zheng and Newgarden's claim of a simulated action activating neural patterns the same way an action would. What this means is practicing a cognitive action in a role-playing situation carries the same benefits as practicing them in real life. Additionally, these discoveries may indicate that "engaging with fictions can build capabilities for empathy, understanding, and taking on the perspectives of others" (p. 248). Some fMRI (functional magnetic resonance imaging) studies suggest that "if a concept is more relevant to our daily lives, we are more likely to perceive it as real" (p. 248).

However, if we combine these results to the earlier studies of simulation and in situ learning, we can reverse the results: if a situation in real life is similar to a situation in a gameplay situation they are

familiar with, they have a frame of reference they can navigate the situation by. Thus, CRPGs can build empathy, which in turn is necessary to recognize bullying, harassment, racism and exclusion, all important parts of the cross-curricular theme of well-being and safety found in the national core curriculum. Situational Language Theory "posits that learners must practice language in real-world situations. This is accomplished by having students engage in conversations and pretend scenarios" (Hammer, To, Schrier, Bowman, & Kaufman, 2018, p. 287), in other words role-playing. As seen before, observing cognitive actions benefit learning in a similar way as performing the action. Thus, a CRPG simulation of a conversation is at least as beneficial as having a conversation with another student in a classroom. In fact, by having the surroundings of the classroom replaced by the computer simulated surroundings of the game the player may be closer to a real world situation than the student.

When a learner seeks to understand a new domain, be it the game world, the intricacies of mathematics or literary traditions, they must build their own mental models of the domain. In mathematics, this model making might be a simple memory rule that helps them understand and remember a mathematical equation, in literary studies they might apply a literary tradition to a book or a movie they love, and in games they might seek certain items in order to create a set of attributes they feel better at either completing the game or representing the character. This strategy, sometimes referred to as theorycrafting, is in accordance with constructivist learning theories. New domains in CRPGs can, however, be domains that are needed in real world as well. For example, moral decisions in game can be authentic simulations that have consequences in the simulated world in much the same way as they would in the real world: a player might need to consider their account balance and then make an informed decision on whether they provide the beggar the amount they ask for, or less or more. This activity can be a simulation on actual interaction with beggars, or donations in general. The player sees how their actions affect the game world, and gain insight to the workings of the real world.

For learning to happen, Gee claims that the learner must be literate in the semiotic domain of the subject learned, as well as the domains connected to the domain. To be literate in the domain means that they are able to recognize and produce content in the domain (Gee, 2007). For example, a person who can recognize and elaborate on the way good and evil are represented in the *Harry Potter*-series by J. K. Rowling can be considered to be literate in the semiotic domain of *Harry Potter* as well as a general form of structural literary criticism. Games tend to employ multiple domains to make the game have more of an impact. The impact here becomes from situational meanings: the gamer acknowledges events in games

better if they can create a situational meaning for it. For example when in *The Witcher 2: Assassins of Kings* (CD Projekt Red, 2011) the witcher Geralt finds a dead man in a red and white hooded cloak on the ground next to a pile of hay under a tower, a player may recognize this as a reference to *Assassin's Creed* (Ubisoft, 2007), in which cloaked assassins make leap of faiths, tricking their enemies into thinking they jump to their deaths to demonstrate their faith, but actually falling into a pile of hay or a body of water, landing safely. The reference in *The Witcher 2: Assassins of Kings* is an "easter egg": something the developers have left in the game for the players to find, in this case to make a joke, as the players may sometimes fail the leap of faith in the *Assassin's Creed*. But if a player has not played *Assassin's Creed* or has not become otherwise literate in the semiotic domain it represents, they may not understand the reference and may even completely dismiss it as a typical body in the streets of a medieval village, as well as recognize the pile of hay only as a common resource in adventure fiction: they might try to examine the pile, or even try to interact with it. They are not able to make a situational meaning for the body and the pile of hay using the intertextual frame of reference, as they have not come across it, and the intended impact does not land.

But semiotic domains do not simply help the designers make more impactful games: they invoke critical thinking. A person that becomes literate in a semiotic domain gains insight into it and may become able to view it critically on a metalevel. Gee found that a child playing a game found that a certain area had scary music, and they felt they were not ready for the new area as they felt the music was scary in order to signal the player that the game is getting harder. This led to the child opting instead to learn and gain more resources in the previous area before attempting the scary area (Gee, 2007, p. 34). The child viewed the game as a set of varying effects and how they were meant to affect the player and drew conclusions on the game difficulty from this review. The ability to critically think about a domain is an important aspect of learning in itself, but it is also important when it comes to literary development. A person that is able to critically examine a game can see the messages the developers are trying to send to the person. These messages can be something the developer is overtly sending the player, they might be covertly sending messages by, for example, subtly propagating their views on topical issues, or they might be sending messages without even knowing they are doing so by having their implied views present in the game by accident. Not only that, but they may be able to see the reasons behind the messages, even the cultural reasons the developers were not aware of as they were creating the game. Kristin Bezio was able to study *Rise of the Tomb Raider* (Crystal Dynamics, 2015) critically and found out that while the developers were tackling the issue of a possible conjunction of Islamophobia and alt-right Internet

culture, the game failed at its message of tolerance, moderation and acceptance. While the main character does work against the Western religious extremists, she acts as an imperial Western oppressor in doing so. She demands the resources and services of impoverished, uneducated – by Western standards – native people (Bezio, 2018, p. 120). Bezio demonstrates how critical thinking may lead to uncovering the hidden sociocultural issues some games may have, and the critical analysis of multiple games may lead to a new understanding of how cultural identities have developed, and how to reflect on the cultural heritages, values and economic operating environments that underlie these identities by understanding how far the covert imperialist, colonialist, racist, or sexist views have spread, as per the cross-curricular theme of knowledge of cultures and internationality found in the national core curriculum.

An important aspect of learning in games is the "psychosocial moratorium" described by Gee (Gee, 2007). The players can attempt high risk maneuvers with a decreased risk, making the possible failure more likely to be viewed critically as a learning experience – an aspect of the active citizenship, entrepreneurship and the world of work cross-curricular theme in the national core curriculum – instead of a discouraging defeat. This is quite different from a failure in a big test, which will affect the overall grade of the student: failures in many games can happen often, and the player may quickly correct the mistake they made if they wish to. However, while the risk of failure has been diminished, the stakes of the game world are often high, helping the player learn how to act under pressure. For example, a timed event in a game has always high stakes: failure will lead to an unfavorable result. However, in a game the player may try again the event by loading an earlier save. This also keeps the players motivation to continue playing up.

Motivation is an important part of CRPGs. As noted earlier, they are fun to play. Gee (2007) asked why this fun is not present in classroom, and what makes video games fun? He found a few key aspects: video games create situated meanings. A student will look at the grammar rules and read lists of new words, and after enough repetition they might retain some of these in memory, and possibly be able to connect these two aspects and create sentences using them. A video game approach is different: when a game wants to teach the player something, it first places the player in a situation. Then, while the player is in situ, they are asked to do something: they are presented with a problem. To transfer this to the context of a language class, this would be akin to giving the student a task of creating a sentence that means a specific thing. Next, the game will inform the player of the assets they have at hand: if the problem is opening a locked door, the game might inform them that they can move around using the arrow keys and

use a piece of equipment, namely a lockpick, to open the lock. Transferred to the classroom analogy, this would be akin to giving the student the relevant rules on grammar and a list of words that contain the necessary words to build a sentence. Lastly, the player would open the lock, solving the problem. In the analogy, this would be the student correctly creating the sentence in the target language. However, the analogy is not perfect: in the situation of the game, the player is acting in the game environment as they will be in the future. In the analogy, learning in a real situation would include the student to create the sentence while in a conversation. In the classroom the student is not in an authentic surrounding, but in a practice area, immediately setting the tone of the exercise. They also are very likely not speaking with a native speaker of the target language, or even with a person they could only communicate with in the target language. Lastly, they are forced into a role they do not have any contact with: their real world identity is unable to connect to the virtual identity they are supposed to assume. For example, if they try to act as a tourist trying to find the railway station, they do not have the vested interest in finding the station. Instead, the goal they are striving for is to end the exercise. When a character in the game is trying to learn how to lockpick, their goal is to open the lock, a result that is identical to the application of the skill they are trying to use. Thus, by having goal of the exercise be the result similar or identical to a real world application result of the skill, the player can connect the two identities more easily, and the learner can reach a more profound learning experience. Players might also adopt communities of practice into their play: a game situated in a historical surrounding might allow historically accurate acts to be committed even if it means circumventing the rules of the game: they might pass over many situations that would be solved by a roll of the dice by simply agreeing that the historical accuracy demands that the players succeed in their endeavors at this junction. Conversely, the group might decide that while they have rolled extremely well and would succeed to stop Abraham Lincoln from being assassinated, historical accuracy demands that they fail, and the GM might intervene.

In his article *Learning and Games*, Gee lists five conditions for experiential learning that need to happen for the experience to be truly useful for learning: 1. the experiences have to be structured by specific goals, 2. they have to be interpreted, 3. they must be followed with immediate feedback on the experience, 4. they need to be applied multiple times in later experiences that are similar to the original, but not identical, thus generalizing the lesson learned beyond the original experience and 5. the learners must be able to learn from the interpreted experiences of others in addition to their own experiences, both from peers and more expert people (Gee, 2008).

Sociocultural learning theory claims that learning is tied to the role one has in a community. RPG players not only assume a role not native to them when they play a character, they assume multiple roles every time they play: they are the character, they are an RPG player, they are a critic of their own and other player's choices they have made for their characters. In addition, CRPG players often have to play multiple characters at once, being at once the charismatic leader of the group and the quiet but insightful mentor to the leader (Hammer, To, Schrier, Bowman, & Kaufman, 2018)

A fundamental problem in western learning culture has been that math and science has been historically thought of as "unfeminine" (Gee, 2007, p. 13). There has certainly been a conscious attempt to change this way of thinking, but the results have been minimal as evidenced by the fact that in 2016 the professions in Finland were divided by sex in almost identical split as 30 years earlier (Keski-Petäjä & Witting, 2018). Games, however, often contain aspects of mathematics in riddles, logical puzzles or math problems, and modifying games is one route for players to gain information technology skills and even careers in information technologies (Gee, 2007, p. 13). Originally gaming community was also mostly an "unfeminine" domain, and female gamers were even considered by some to be unwelcome visitors in male spaces (Braithwaite, 2018, p. 139). In addition, a lot of the games were marketed to boys, and the developers assumed boys would be the target audience, creating content viewed as more appealing to boys than girls. However, the game company Her Initiative – among others – began to change this, publishing Nancy Drew adventure games, which greatly affected the popular ideas on gender and games (p. 139). Nancy Drew was marketed to girls but promoted player agency and activity commonly associated with boys at the time. However, the character propagated equality, seeing no reason why some activities would be restricted to a single gender. Contemporary views on teaching also reflect the same principles: students should be treated equally, no matter what gender they identify with.

Video games have been criticized for a variety of reasons. Gotterbarn states that *America's Army* (United States Army, 2002), received wide criticism for U.S. Army's use of video games as a recruitment tool and a propaganda device (Gotterbarn, 2010). Gotterbarn further explores the possibility of violent video games causing violent behavior. He explores Tavinor's claims on proximal, limited consequences and extended consequences violent video games have, and comes to the conclusion that Tavinor's claim that violence in video games is a fallacy, as the person does not in fact engage in the violent acts themselves, is later contradicted by Tavinor themselves. However, Gotterbarn himself does point out that recent meta-studies suggest there might be a weaker connection between aggression and video games than stated by

those who argue for alleged real world consequences of virtual game playing. The argument is finally brought to a standstill as Gotterbarn states that "At the very least the evidence seems equivocal" (Gotterbarn, 2010, 2.1.2, second paragraph). Gotterbarn adds that the criticism made against violent video games does not extend to most video games, and it would not be proper to state that all video games may have negative effects. In fact, he finds that some video games teach ethics, by having players address moral questions in their in-game identity. Gotterbarn claims that while not all video games, not even violent video games, overtly promote and reward immoral actions, some do. In his opinion, video games and game curricula "need to be modified to allow for realistic ethical decision making" (Gotterbarn, 2010, 6.). While this view implies that some video games are better for learning purposes than others, Gotterbarn's research highlights another important factor: games are a medium among others, and as such need a critical review of the literature of the game. A critical playthrough of *America's Army* might give the player a better understanding of the systematic propaganda distributed by the United States Army, and some violent video games might be read as an anti-violence statement. Thus a critical playthrough of these games may enhance the player's multiliteracy and assessment of diverse texts, as well as their critical media literacy skills, as per the Multiliteracy and the media cross-curricular theme in the national core curriculum.

3. Analysis

The analysis will be a thematic cross-case analysis of two cases: *Star Wars: Knights of the Old Republic* (BioWare, 2003) and *Baldur's Gate: Enhanced Edition* (Beamdog, 2012), two CRPGs. Thematic analysis was chosen due to the comparability between the themes in the games and the cross-curricular themes of the national core curriculum.

3.1. Knights of the Old Republic

Knights of the Old Republic, or *KotOR*, is a single player role-playing game, or *RPG*, set in the literary continuity of *Star Wars Legends*, formerly named *Star Wars Expanded Universe*. This means it is a game set outside the six movies created by George Lucas and is outside the timeline established by the new movies published by Disney. The game is set approximately 4,000 years before the events of *Star Wars: Episode IV* (Lucas, 1977). It has the player, a human male or female, explore several planets, make moral decision, solve puzzles and resolve conflicts in an attempt to stop a tyrannical regime from taking over the galaxy.

3.1.1. Problem-based Learning in *Knights of the Old Republic*

The game starts with a single goal: survive the attack. However, the first NPC – non-player character – the player meets names the tyrant who is responsible for the attack: Darth Malak. Thus, the player is immediately informed of the large-scale problem they face, and the game, from start to finish, can be seen as a series of controlled problems that bring the player closer to solving this underlying problem. By framing the activities of the game this way, they are clearly indicative of the structure demonstrated by Jarvis et al. (Jarvis, Holford, & Griffin, 2003, p. 135). This pattern is used on a smaller scale as well: after escaping the spaceship under attack, the player is tasked with finding the commanding officer – a future companion and possible romance option – in the planet they crash landed on. This, it turns out, is not a simple matter, but includes seeking information about the planet, its politics, its societal structure, what happened to the commanding officer after the crash landing and onwards. Going even further, the game presents a lot of microlevel problem-based learning as well: the first one is presented when the player is tasked to equip their items. This task is not as simple as it seems: first, the player must retrieve their items.

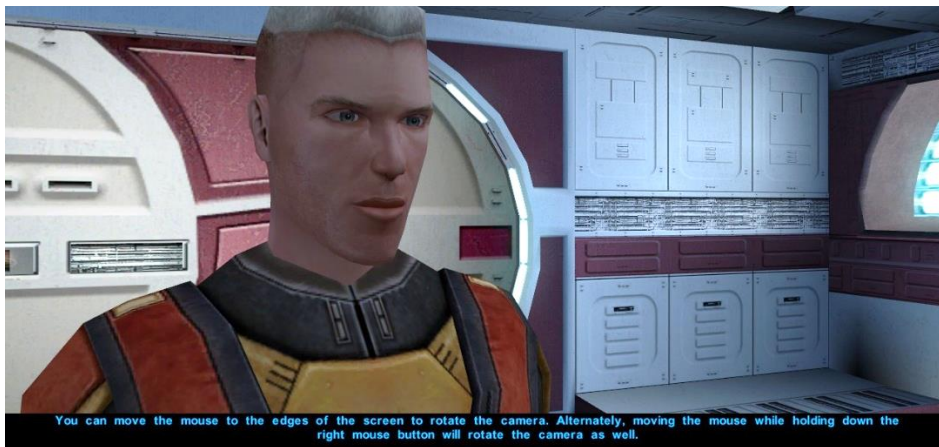*Figure 1: The player asks for directions from an NPC.*

Figure 2: The NPC explains basic camera controls to the player.

Figure 3: The NPC explains basic movement controls to the player.

Figure 4: The NPC explains basic object interaction to the player.

Figures 5 and 6: The player directs their character to interact with an object in the game and retrieves their equipment.

As seen in figures 1–5, the player character is viewed from a third person perspective. In conversation the camera always focuses on the character speaking, in figure 1 the main character and in figure 2 the NPC. In figure 5 the player is no longer in conversation but can move about and interact with the game world by either using the keyboard's keybindings for movement or the mouse to click on the objects they want to interact with. In figure 5 the player can also see their user interface present throughout the game: the upper left corner has the "minimap", a tool in which the player can see a small map of their surroundings if they have explored the area, and which the player can right-click to open a larger map. The lower left corner has the player icon, which represents the character's health status, the red bar that is in figure 5 full, and which the player can hover their mouse over in order to see a hover box that

displays the player's current character development and health status in numbers, and left-clicking the icon will open the character equipment screen from menus. In addition, above the icon is a small image of an hourglass, which can be clicked to stop time. This can be used, for example, to analyze a situation in combat and plan further strategies. Lower right corner has several icons for items and Force powers frequently used in the game and upper right corner has the menus the player will need throughout their playthrough.

The process of retrieving the equipment is as follows: in figure 1 the player asks the NPC where they can get the equipment, in figures 2-4 the NPC explains to the player how they can look around the game environment by rotating the camera, how they can move about with their character in the game environment, and how they can interact with the object in the game environment in order to accomplish the goal. Then the player is allowed to interact with the footlocker – figure 5 – and retrieve their equipment, as seen in figure 6. Thus, the player has accomplished their task: they have retrieved their equipment. The learning that has happened during the task, however, is three-fold: they have learned how to perceive and move about the game world, they have learned how to interact with objects and they have learned how to add items to their inventory. All this is done in a meaningful way: it is not an arbitrary, theoretical dictation the player must learn, but a series of actions the player will repeat hundreds of times during their playthrough, or to put it another way, learning the activity in a situation that is very similar to the circumstances the activity would have in reality. Other possible learning the player may have achieved during the task is in language skills, particularly if they are not fluent in the language, as the language used by the NPC is rich in grammar, having multiple structures in a few sentences. In addition, the player makes their first steps in learning the semiotic domains of the game.

An important case of problem-based learning occurs when the player gains enough experience to advance a level for the first time. At this point, the player is offered multiple possible ways to advance their character, in addition to an "auto-level up", which follows a certain, predetermined character build that the game has created for the player. If the player wants to customize the character themselves and foregoes the auto-level up, they will have to manage the character development, an action that they will have to complete multiple times throughout the game. However, each level up is a bit different: as the character gains more levels, more options are available to them. In addition, some levels may include the opportunity to gain new feats, while others might offer an attribute increase. After gaining companions the player may realize that different classes have different development cycles, as some gain more feats

and others more skills. The player can thus apply the lessons learned during the first level up to later, different cases of leveling up, and notice how some of the first lessons apply to the later cases and how some have to be adjusted. Thus, this type of learning can be consistent with four of the learning principles presented by Gee (2008): the player has to develop their characters to answer to certain goals, as each class is more adept a certain type of activity than another, they have to interpret the character development and anticipate where the abilities they give to a certain character might be useful, for example it would not behoove for a character focused on melee combat to take feats that increase their ability to shoot rifles better. Later developments of the character give the player ample opportunity to apply what they have learned, and the players can seek information on how to develop their characters to suit certain roles, learning from the interpreted experiences of others. This last principle is very important to avoid character inefficiency, which I will explore later in this subsection.

Other noteworthy cases of problem-based learning can be found throughout the game: the game has a number of mathematical or logical problems the player may attempt to solve. First one involves an NPC the player has met and saved right after escaping the doomed starship. The NPC has been captured, and the player must either save them or kill them using the panels on the wall. There are five panels, which are either green or red. The panels are interlinked: if the player changes one panel, they change two others as well. The puzzle requires the player to carefully examine that at least one panel is always in a position they aim for, be it to save or kill the NPC, while figuring out the relations of the panels. Finally, they must manipulate the panels in a way to realize their goal. Another logical puzzle has the player trapped in a room with a computer and three electronic pillars. The pillars have four systems, represented by colored rings, which can be transferred to other pillars. The systems must be transferred into the farthermost pillar, but according to the rules the game explains.

Figure 7: A logical puzzle with four rings that can be moved to other pillars.

Figure 8: The stakes of the problem are explained to the player.

:: MID-LOWER SYSTEM :: This system may only be safely transferred to another pillar that either has no systems or only the Base

BASE SYSTEM :: This large system may only be transferred to a blank pillar with no systems active in it, or it will cause an

Remember: A system may be transferred to another pillar if it is the ONLY active system on that pillar or it is the LAST one listed.

Figures 9-12: The rules of the system transfers are explained to the player.

The rules are, in fact, the rules of the logical game *Tower of Hanoi*. The player may recognize this and use their existing knowledge to solve problem, they may seek an answer to the problem online, they may figure out the moves by carefully considering the rules, or finally they can try to figure out the rules by trial and error. However, the last way has the danger of overloading the system, sending out an electric burst that damages the player character. By solving the problem, the player gets to use their existing knowledge of the *Tower of Hanoi* in an embodied situation, or if they do not possess the knowledge yet they may use their problem-solving skills to learn about logical, iterative problems in an embodied situation. The stakes are high: the player character is trapped in the room and a mistake may cost them their life. But due to the save game mechanic, the player may try to solve the game again if they do not succeed at first. Thus, the game takes advantage of the psychosocial moratorium. It is also worth noting that the game presents a logical problem often used to teach iterative programming, bringing it into an

enticing situation. As Gee (2007) noted, having these problems in games that are played by everyone, regardless of gender, weakens the false notion of math and science as "unfeminine" fields. They promote seeking more information on these fields.

Environmental awareness is also present in the game and is learned through problem-based learning. While searching for a Star Map, an ancient artefact that will guide the player to the final confrontation area, they must search the ocean floor of the planet Manaan. The Republic has built a harvesting machine to gather Kolto – the natural resource on Manaan – in secret, as the government has decided to stand neutral on the galactic war between the Republic and the Sith empire. Kolto grows on reefs and has superb healing properties, and is thus highly sought after by both sides of the war. As the player nears the Star Map, they are informed by two scientists that the harvesting machine attracted a giant firaxan shark that emitted a psychic call to all Manaanian life forms in the vicinity, driving insane the Selkath – the prominent intelligent species on Manaan – who are helping on the facility, and swarming the waters with aggressive firaxan sharks. In addition, the giant shark seems to guard the only way towards the Star Map, forcing the player to deal with it before they can proceed. The player is given two options: either poison the giant shark, a unique life form, or destroy the facility, hindering the Kolto harvesting and seriously affecting the war effort.
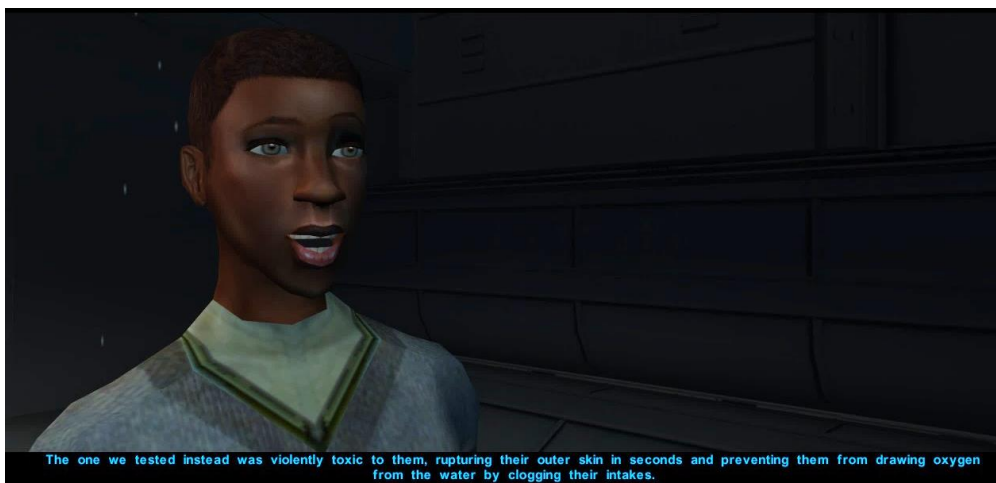

The one we tested instead was violently toxic to them, rupturing their outer skin in seconds and preventing them from drawing oxygen from the water by clogging their intakes.

Figure 13: An NPC explaining the experimental chemical to the player character.

Figure 14: An NPC explaining how to destroy the facility.

The toxic chemical, originally meant to be a repellent, is explained to have a horrific effect on the sharks, as shown by figure 13. The player is told that the effects are unknown, and that it might even affect the Kolto reef. If, on the other hand, the player decides to destroy the machinery, they need to pass a logical puzzle in order to create an explosive mixture of fuel in the tanks of the facility, explained in figure 14.

Figure 15: The control machinery display that shows the volume of the gas.

When the player reaches the machinery, they are given the choice to either vent the toxin or pass the logical puzzle to create a volume of gas that is explosive. As figure 15 shows, the player cannot simply transfer the required 4 million sangen worth of gas into the container pod: the injector pod can be either filled, emptied, or transferred. However, if the player transfers a full injector into the container, fills the injector again and transfers it again, the container pod is filled after only two million sangen have been transferred.
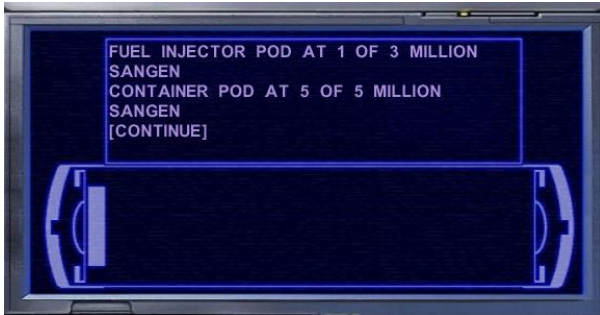
Figure 16: The control machinery display showing the status of the pods after trying to transfer three million sangen to a pod that has room for only two million sangen left.

As figure 16 shows, the injector is left with one million sangen. If the player empties the container pod, transfers the million sangen in the injector, fills the injector and transfers it again, the container pod has four million sangen in it and will explode. The shark leaves and the player is allowed to go to the Star Map in peace. As the player reaches the surface, they are intercepted by the Manaan authorities. They have monitored the ocean floor and have picked up some unusual activity and question the player on their activities.

Figure 17: The judgment the player receives if they destroy the Kolto harvester.

For your crimes against Manaan and the Selkath you are banned forever from this world, on pain of death!

Figure 18: The judgment the player receives if they vent the toxin.

If the player destroyed the harvester, their actions are commended and no further action is taken against them, as shown in figure 17. However, as can be seen in figure 18, should the player poison the shark they are banished from Manaan, as the kolto reef has been affected by the toxin, perhaps permanently. In addition to these consequences, the player gains either light side points, if they destroy the machinery, or dark side points, if they poisoned the shark and the kolto. In order to gain access to the Star Map, the player must solve the problem of the shark, and possibly the logical puzzle. They might figure out the puzzle themselves or search for information on the puzzle. In solving the problem, they will have to weigh the consequences of their actions, creating a situated meaning to actions against the environment in the name of technological progress. Thus, they learn not only important problem-solving skills and information seeking skills, but they also gain perspective on environmental issues. I will elaborate on the effect of the dark side choice present here and in other moral issues in the identity subsection later on.
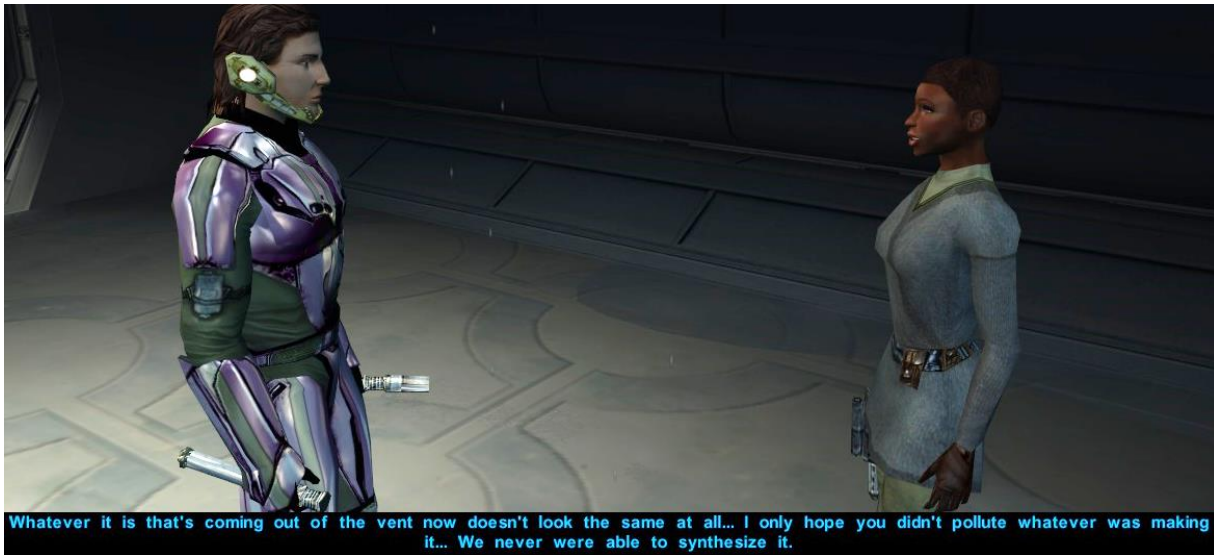
Figure 19: The player being berated after poisoning the kolto reef.

Before going further, it is prudent to define the term anthropocentrism used later on in the text. The term has many layers and connotations. It may mean the human chauvinism towards other forms of life, or be interpreted "as an acknowledgement of human ontological boundaries" (Boddice, 2011, p. 1). Any activity to help the environment and other species begins with the acknowledgement that humans have been able to affect change on the environment on a scale that no other animal has been capable of. Thus, from the environmental anthropocentric view, humans can also protect the environment, and even have to, as most of the imbalances in ecosystems are due to human activities. However, for the sake of clarity I will use anthropocentrism to mean the human chauvinism towards other forms of life.

While the quest has an environmental agenda, it struggles with it due to the fact that the issue is looked at from a very anthropocentric point of view. Even the person who is against poisoning the shark is mainly concerned on the possible problems for future kolto harvesting, as seen in figure 19, instead of the ecological catastrophe it could have caused. This utilitarian view on the environment can be very dangerous, as it can lead to thinking that boils down to "what is bad for us" (Scriven, 1997). If we think on these utilitarian lines and only recognize those benefits and detriments that affect us as a species, we disregard the rights of other species and environment as a whole in favor of ourselves. We might also propagate actions we think are good for humanity, but as we do not know everything there is to know about the delicate balance of the ecosystem, we might actually end up damaging the environment in a way that negatively affects the human race. This is also a utilitarian view: in fact, by understanding that we may never truly understand the delicate balance of our ecosystems, a utilitarian environmental view

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should turn against itself: we should treat nature with respect, without putting the human race above other species, as the actions we assume will be for our benefit might turn out to be detrimental to us. If the player realizes this utilitarian, anthropocentric point of view in the game, they may seek it out in other games and media, learning to recognize how widely the issue is spread.

There are other noteworthy environmental problem-solving cases in the game as well. At a certain point, the player's ship is loaded with a crate of gizka, a very persistent life form. The player may keep the creatures, kill them, or give them to a zoological compound on Manaan, which has been built due to limited exposure to life from other planets. The Manaanian official in charge of stocking the compound is, however, concerned that the creatures might overrun the facility. The player can persuade the official to take the gizka, and the official will agree as it is better than no species to show at all. The problem is to get rid of the creatures, and the player must either explore the game world or seek information elsewhere in order to gain the information on the different paths they can take to complete the quest. The obvious moral problem in the game is whether the player gets rid of the gizka by exterminating them or by giving them to the compound. The player gets dark side points if they kill the creatures, clearly enforcing an ecological view on the problem. However, the question that the player may ask, even though the game does not pose it, is that is bringing foreign, quickly reproducing species into a new environment ethical? As was seen in 1859 in Australia, introducing a new species can be catastrophic to the ecosystem. According to Ermolaeva and Ross, over one-eighth of all mammalian species in Australia became extinct, vegetation decreased, and erosion hastened since the introduction of rabbits (Ermolaeva & Ross, 2011). This realization may help the player understand environmental changes and human activity on a more profound level, having gained a situated meaning for invasive species.

Problem-based learning can also take place in a more mechanical aspect of the game. The player will, at some point, face the problem of inefficiency. They may fail to create an efficient character, who either fails in hitting enemies, does not survive encounters, or perhaps does not possess the skills the player wants them to have. On the other hand, they may look at the system early on, during the first time they level up during the tutorial and plan their progression ahead. This sort of preparation does, however, usually happen only if the player is familiar with RPGs in general to begin with, being able to transfer their knowledge in the similar adjacent semiotic domain to this one (Gee, 2007). If the player is not familiar with the system, they will have to seek the information themselves. They may, as mentioned earlier, examine the feats and skills in order to understand how their character may become more

efficient, or it is possible they seek help from outside. *KotOR* has a thriving online community full of people experimenting and calculating optimal builds, as well as arguing on the role of the main character and how they think the character should be built from a role-playing point of view. Finding the information the player requires from this fount of knowledge might be a daunting task, but manageable. In fact, seeking and evaluating information for game purposes has the players engage in the same strategies as they would when writing a research paper (Nass, Taubert, & Zolotykh, 2014, p. 18). After a while, the player may not only seek information, but produce new information on the game themselves, demonstrating having become literate in the semiotic domain of the video game (Gee, 2007).

Problem-based learning in *KotOR* seems to fulfil a lot of the objectives of instructions for the cross-curricular themes in the national core curriculum. The player is learning to be an active agent in the game society in order to solve many of the problems the game presents them, and while doing so they a) gain confidence in their ability to act, generate ideas and information in a community and b) learn to evaluate different aspects of society and see possibilities of social reform in their own society as well as c) learn social skills and views they can transfer to the real world. They also learn language skills, as the game has complicated sentence-structures and science-specific language. The player learns how to retrieve information, and gains confidence in their creativity and problem-solving skills, as well as faces failure and can view it as a learning experience part of the creative process, and by participating in the online community learns cooperation in generating new knowledge, and "enhances their interaction and development skills by developing their shared media production competence" (Finnish National Board of Educations, 2016, p. 39).

3.1.2. Semiotic Domains in *Knights of the Old Republic*

KotOR, like most video games, consists of multiple semiotic domains. In order to gain the most out of the game, the player must make critical assessment of the domains that are active, as well as the motivations of the developers. Of course, the online community may help at this evaluation, but ultimately the player will have to examine the game themselves through the information they possess.

The overall narrative of the game has a beginning, a middle, and an end, with a "reversal", a "recognition" and catharsis. This is the traditional structure of tragedy proposed by Aristotle, according to Brown (Brown, 2008). Brown also mentions that in *KotOR* the main character goes through this structure: they begin as an employee of the Republic, and later begin their Jedi training on Dantooine, they go on to search for the Star Forge on various planets in the middle of the narrative, and they end their story by defeating the tyrant Malak on Star Forge. The player has a close companion, Bastila, who is an emotional young Jedi. Bastila reveals to the player that they are in fact the former Dark Lord of the Sith and Malak's old master and have lost their memory. This is the recognition or epiphany. Malak captures Bastila, and while the player seeks a way to reach her and Malak, Malak has turned Bastila to the dark side, signifying reversal. As the game reaches its end and the player defeats Malak, they reach catharsis. While the player may not be familiar with the semiotic domain of Aristotelian literary structure, they may recognize these patterns, or at the very least they will gain reference points for future recognition of these structures in other literature.

One of the semiotic domains present in the game becomes apparent as the player is tasked with solving a missing persons case. The father of the missing person, Athlan Matale, claims that a rival family has kidnapped his son, although he does not have any evidence to support the claim. In fact, the head of the rival family, Nurik Sandral, believes that Matale has kidnapped his son. As the player investigates the case, they come into contact with some kath hounds, an aggressive native predatory species, which have killed a person, identified by their journal as the son of Nurik Sandral. When given the news, Nurik retires, and his daughter informs that Nurik does in fact have Matale's son locked up. The son of Matale and the daughter of Sandral turn out to be lovers, and the player may try to reason with the feuding fathers to fund a new life for the pair or instigate them against each other, resulting in the death of everyone involved. The quest can be viewed from a number of different viewpoints: first of all, Nurik's actions are based on assumptions against a rival, who he thinks is inherently up to no good. The feud itself is cast in a senseless light, as the origin seems to be simply the fact that the two families settled on the planet Dantooine at roughly the same time. Thus, the possible senseless killing is due to prejudice and preconceptions. On the other hand, the quest can be viewed from a literary point of view. It is a clear reference to *Romeo and Juliet*, the famous tragedy by William Shakespeare in 1597 (Shakespeare, Burton, & Bloom, 2004). The similarities are rather recognizable: two feuding families have two progenies who fall in love and struggle with the relationship of their families and their feelings. Eventually *Romeo and Juliet* ends in a tragic double suicide, and the feuding families reconcile at their

death. The quest of Sandral and Matale feud, however, follows a different path near the end. If the player chooses to aid the lovers, the families reconcile and help the two get started on their own. But if the player instigates the death of the lovers, the families die as well. The player can also manipulate the two lovers into going back to their families and hating each other, continuing the feud indefinitely. This video game adaptation of the traditional story casts the player in an active role, and has changed the ending from a tragic, but hopeful to an opposing duality: either the player helps the pair, and a positive ending ensues, or the player does the opposite, resulting in death or hate. The reason for this difference in the two stories is debatable, but one possible reason for it is the different media: by making the results polar opposites, the theme of light and dark sides influencing the player through their choices is upheld more rigorously, and the game seems more consistent. Introducing the Shakespearean plot into the game in a quest form can familiarize the player with Shakespeare. Most players will probably have at some point encountered a version of this story, but by meeting it in the game may help the player understand how widely Shakespeare affects media, developing the player's critical media literacy skills, as per the multiliteracy and media cross-curricular theme of the national core curriculum.

3.1.3. Ethics and Environmental issues in *Knights of the Old Republic*

As mentioned earlier, *KotOR* raises environmental issues through problem-solving to be reviewed by the player. However, there are some issues that are noteworthy, but are not something the game intentionally has the player question. These issues require a critical view of society, ecology, and ethics to be applied to the game. For example, during the game the player may come across occasions of speciesism. These can be an allegory to racism, or actual maltreatment of animal species similar to real world problems, such as the case of the firaxan shark earlier.

In the planet of Taris, the gulf between high-income humans and low-income non-humans is steep. The high-income humans live in brilliant skyscrapers and platforms high above the surface, whereas the low-income non-humans are forced down to the lower levels, where provisions are scarcer and criminal gangs hold power. Even worse off are the outcasts, who are banished to the undercity, where they have to live in constant fear of the monstrous rakghouls, monsters that carry a plague on their claws and fangs that

causes the victim to turn into a rakghoul themselves. The people of undercity never see the sun and are forced to live off the waste the upper city dumps on them. This society is dystopian according to the definition given by Gordin, Tilley and Prakash: "it is a utopia that functions only for a particular segment of society" (Gordin, Tilley, & Prakash, 2010), as the high-income humans live in a technologically advanced paradise in the clouds, while the rest of the population live in darkness and scarcity. As dystopias tend to do, this reflects contemporary societies: according to Smith the educational system in the United States of America aimed at helping those in high-need position, but ended up classifying them as "too risky to be teachable" and he claimed that schools found "creative ways to avoid teaching and enrolling [high-need students] altogether" (Smith, 2013, p. 140). Smith, in working with a class of high-need students, connected many of the aspects of a dystopian world in *The Hunger Games* (Collins, 2008) to the lives of the students, such as comparing the relationship between rich people of the Capitol and the poor people of District 12 to the relationship between "IB kids" and the high-need students (p. 143). McDonald and McDonald claim that "beyond the gore and splatter of the typical zombie movie lie specific insights into how our contemporary world has strayed into the dystopian" (McDonald & McDonald, 2013, p. 250). This claim is true not only to the typical zombie movies, but *KotOR* as well: even in the contemporary Finnish society, the gulf of financial incomes keeps increasing (Kinnunen, 2020). By linking the society of Taris with the similarities in the Finnish society, the player can become aware of the societal questions present in both societies and gain a more meaningful understanding of the operating principles of civic society.

The case of Taris is not, however, limited to the gulf of incomes. The speciesism present in the upper-class humans and lower-class non-humans is an allegory to real world racism.

Figures 20 and 21: A player companion recounting the living conditions of Taris as a non-human refugee.

Juhani, a player companion who spent her life on Taris, explains in figures 20 and 21 how she faced bigotry from the wealthy humans as she had to live off the waste of the upper levels while doing heavy physical labor. She was a minor, a non-human refugee and after a while a child with a single parent. Her tragic story culminated after her mother died due to the poor living conditions, and the dept her mother had incurred with a criminal organization led to her being sold to slavery. However, the Jedi saved her as her buyer was about to take custody of her, changing her life. This is similar to the treatment some immigrants and refugees have had to face in Finland. While the problem of racism and discrimination is a universal problem, as can be seen in the way Chinese Uighur are treated (Newlines Institute for Strategy

and Policy, 2021), as well as the racist comments of former president of the United States Donald Trump, as he claimed during his campaign for presidency that the Mexican immigrants were rapists, criminals and drug dealers (Santa Ana, et al., 2020), it is important to understand that Finland is not a discrimination-free country. Finland has struggled for years now with the public image of refugees. Certain groups, such as the Finns Party, calling themselves "immigration-critical", have spoken against immigration, listing problems of immigrants and refugees, painting threatening mental images of the consequences of immigration, and even proclaiming openly racist views (Keskinen, Rastas, & Tuori, 2009). It is worthwhile to note that even though the Finns Party was the first political party to profile themselves as being openly against immigration, negative attitudes towards immigration and the racism present in the Finnish society are larger issues. In 1990s, the refugees from Somalia were received in Finland with a mixture of reservation and hostility. They were not allowed to work, as they were waiting for their residence permits, but some of the media headlines claiming that immigrants waste time in hotel rooms paid by the government demanded them to earn their keep. This, in addition to other factors such as the depression and ignorance, led to some Finnish people to develop hostile attitudes towards immigrants. An extreme example of these attitudes were violent attacks on Somali refugees by skinheads, a group already not opposed to violent behavior. Later, when the refugees had gained residence permits and were allowed to work, they mainly tended to get jobs in fields requiring physical labor, such as sanitation, construction, transportation and security (Aden, 2009). In 2013 the Open Society Foundations conducted a study into the experiences of Somali immigrants. The findings indicated that Somali immigrants had experienced most discrimination of all immigrant and ethnic-minority groups in Finland and had experienced harassment from the police and citizenry as large. Somali children had experienced racism and discrimination in schools as well. The greatest concern the immigrants had was employment, as they had faced discrimination while applying for work. The study also found that Somali men found work typically in the transportation and storage sectors, while women often found work in health and social services (Open Society Foundations, 2013).

As a companion character, the player has a different sort of multiple identity construction with Juhani than they do with the main character, as they cannot choose the dialogue she has. Because the main character is more malleable in their morals and identity by the player, they might not feel as connected to Juhani as they do to the main character. However, the relationship between the main character and their companions is important: as they are constantly travelling with the main character, the player can modify their progression stat-wise, and they get to control their actions in the game world, if not their

personality, the player may feel more kinship to them than other characters in the game. The identity principle by Gee states that the player relates to the virtual identity in some way (Gee, 2007). This necessitates that by playing Juhani and hearing her story, the player will form some sort of emphatic response to her and may be able to better comprehend people in similar situations, such as the refugees and immigrants of our contemporary society. Thus, the player will learn to recognize racism and exclusion in the society and understands human diversity better, as per the well-being and safety cross-curricular theme in the national core curriculum. Empathy and compassion are also some of the underlying values of the national core curriculum (Finnish National Board of Educations, 2016, p. 12), and students are expected to learn how they may promote the universal human rights as well as the rights of the citizen (p. 13). As equality is a core value of the curriculum, simulated stories of overcoming prejudice and bigotry are an important learning experience.

Another instance has the player decide whether to defend a non-human NPC from children that are hurting him or not. On the same level the player may encounter a vocal person who proclaims all non-humans as vermin and a plague, drawing especial attention to their appearance. If the player stands up to the person, he calls the player character "an alien lover", an insult that is echoed by the children if the player chooses to help the non-human NPC. Fishbein found that evolutionary mechanisms leading to prejudice were "(a) inclusive fitness, which leads to strong ingroup preferences; (b) primate intergroup mechanisms, which lead to hostility toward outgroup members; and (c) authority acceptance, which often leads to ingroup preferences and outgroup hostility" (Fishbein, 2002, p. 70). According to this model from evolutionary psychology, a child is more likely to act in an exclusive, rather than inclusive way towards members of other, subordinate groups if they see themselves as a part of a particularly dominant group, in relation to other groups, than a child who does not view themselves as a member of such a group. In the scenario described in *KotOR*, the children are humans in the upper city of Taris: they are clearly privileged, and aware of their position. By engaging in this encounter, the game tries to present the player with the moral lesson that simply because someone is different the player should not treat them worse. This inclusion is a fundamental principle in the national core curriculum, as well as important for the well-being and safety cross-curricular theme.

While the dominant message of *KotOR* is inclusion, it has some aspects that work against this message. Near the end of the game, the player character crash-lands in an alien planet. On it they find the remnants of an ancient empire that spanned the galaxy. The aliens, called Rakata, used the Force to power most of

their superior technology in order to dominate the rest of the world known to them. However, a plague that spread quickly throughout the species took away their ability to use the Force, and they were forced to retreat to their home planet. The species then split into two: the Elders, who kept the knowledge of the old empire but tried to atone for their sins, and the rest of the species who formed into tribes and descended into barbarism and cannibalism. The Elders mostly keep to themselves, but occasionally capture members of the tribes in order to enact a genetic study into recreating the affinity to the Force in themselves. In addition to the cultural difference between the two factions, the Elders have white skin, while the rest of the species have a darker complexion.

Figure 22: The main character meeting with a member of the Elders (Researcher Ll'awa) and a caged member of the tribes.

The message the game may have tried to convey with this setting is the importance of education and technology, but instead it falls into the same pitfall Bezio (2018) discovered in *Rise of the Tomb Raider*. By portraying the technologically advanced faction of the species as morally and culturally superior the game purports an elitist colonialist view, which is further made apparent by the involuntary testing conducted on the other faction. In addition, while portraying the technologically advanced species as

light-skinned and the tribes as dark-skinned might have been a developer's choice to implement the theme of light side versus dark side of the Force, it conjures a mental image of colonialists imprisoning members of their species with darker skin tone, who they consider to be less advanced in both technology and culture. Even if we remove the historical context of people with a lighter complexion subjugating people with a darker complexion, we are left with two groups: one that is technologically advanced, and another that is less so. The technologically advanced one feels they are morally justified to act against the universal human rights – albeit that the subjects here are not human. In doing so, they act as colonialists did. They even consider the process to benefit the injured party, much as colonialists felt they were educating "savages" or "primitive tribes". These "civilizing missions" were used as an excuse by colonialists for invading countries they deemed as "uncivilized" (Schreier, 2010; Davie & McLean, 2017; Francis, 2016). This setting is in stark contrast to the national core curriculum's core values of inclusion. However, a player who can critically evaluate and analyze the game and its problematic aspects gains a new point of view into systematic racism and bigotry inherent to our culture, and may be able to act against them, according to the core values of the curriculum.

While the game seeks to promote an environmentalist agenda, as can be seen in the case of the giant firaxan shark dilemma explored earlier, there are a few instances in which the game seems to undermine this goal. For example, the case of the gizka has an ecological solution, but it is to leave the quest unfinished and keep the creatures contained in the player's ship. The fact that the quest is left in the player's quest log as unfinished creates a ludological pressure to complete the quest, no matter the consequences. Of course, the player is not required to give into this pressure, but it does exist and should be acknowledged in the analysis. Another case of note is the case of the terentatek.

Figure 23: The NPC describing terentatek, a dark side predatory beast.

As the player is about to leave Dantooine on their mission of exploration, they are approached by a fellow Jedi. He explains that there are threats in the galaxy aside from the Sith. He describes predatory beasts, the terentatek, whose prey are those strong in the Force. In fact, the player is informed that they themselves are prey to the terentatek. The NPC also recounts the history of The Great Hunt, during which the Jedi tried to hunt the creatures into extinction. If the player questions the morality of these killings, they are reassured that the creatures are "an abomination", and that eradicating them would be for the greater good of the galaxy. In the course of the game, the player may come across terentatek, and the assumption is that they should kill them. In fact, not killing them may leave some notable questions unfinished, and may even cost the player one of their companions that they have joined with earlier. Thus, a ludological pressure is exerted to force the player into killing these creatures.

While it is easy to claim that there is no parallel to the terentatek in the real world, as they are creatures infused with the dark side, a closer inspection should be conducted. The player is given information on these creatures from a single source, a Jedi who has no other credentials than the fact that they belong to the Jedi order. In addition, real world fables have often assigned human morals to animals: the Red Riding Hood struggled with the Big Bad Wolf, and Christianity has often demonized snakes, starting with the Genesis. Both wolves and adders are antagonized by human cultures, and the population of wolves has dwindled in multiple regions. Out of the Nordic countries, Finland is the only one that has not protected

adders (Näveri, 2015). Thus, seeing the terentatek as a rare, antagonized species is quite easy, if they are compared to some real world species that have undergone this treatment. It could be said that hunting terentatek in the game is giving into an anthropocentric worldview in the virtual world.

3.1.4. Identity in *Knights of the Old Republic*

Identity plays a big role in *KotOR*. It is given a foundation by the player as they create their character, choosing their gender, their occupation, and their defining attributes, and it is built during the game as the player makes choices that not only shape their character's identity, their appearance, and moral standing, but also affects the player. According to Gee's (2007) identity principle, the player must bridge the two identities, the identity they have in the game world as a character and the identity they have in the real world as the person playing the game. This is accomplished by the emergence of projective identity, how the player projects their goals, hopes and backgrounds on to the virtual identity. This might lead to the player wanting to create a character they feel as an intelligent and wise defender of good, and thus they try to play the character intelligently, solving every logical problem they face, strategizing their gameplay and acting according to their moral compass. However, their moral compass might not always align with the moral system in the game. These situations make the player question either the moral system proposed by the game, or their own moral views.

The game has a morality system designed around light side and dark side of the Force. If the player does deeds that the game system has designated as evil, the player receives dark side points, moving them towards the dark side of the Force. Conversely, if the player does deeds that are designated as good, the player is moved towards the light side. Often the game gives the player multiple choices in a situation, with polar opposite outcomes: the player may offer a person in need credits or shake them down to get the few credits they have on them. The light side options usually consist of compassion, law-abiding, and empathic deeds, whereas the dark side options are self-serving, anarchic, or cruel. By gaining enough dark side points the player character's skin will lose color and is lined with dark veins, signifying the corruption of the dark side. The morality system is supposed to give the player a feel of the consequences their actions have, apart from the immediate ones they face. If they want to be a paragon of justice, they

should consistently act compassionately and according to law to accumulate the light side points, moving themselves towards the light side. By reaching the maximum light side points, the player gains a bonus to a game stat, defined by their occupation. Alternatively, a player reaching maximum dark side points receives a stat bonus as well. Whether the player seeks dark or light side of the Force for their character, the morality imposed on the player is the same: actions that lead to the dark side are evil, and actions that lead to the light side are good. For example, the action of destroying the Kolto harvesting machine on Manaan gains the player light side points, whereas killing the giant shark gains them dark side points.

The moral system in the game is based on the western views of morality. While killing and stealing without reason or provocation are universally considered to be amoral, the western ideology respects the freedoms and rights of the individual, which are considered natural and inescapable. Thus, while killing is considered amoral, defending your right to live is a reason for killing that is morally justified (Hwang, 2015). However, there are cases where the system in place does not award the player with points. Few of these are worth examining further. In one instance, the player is captured, and they are asked to betray the location of the Jedi enclave, the base of operations of their order. If they refuse, their companion is tortured. If the player does not divulge the information, the companion tortured praises their will-power, stating that for a moment they wished the player character had told the torturers what they knew, and had the roles been reversed, they would not have had the will-power to watch others suffer. On the other hand, if they reveal the information, they are gently admonished for putting the need of the few before the need of the many. This seems to be in accordance with what Hwang claims eastern philosophy is centered around: the communal good is considered more important than the rights of the individual. The fact that this encounter, however played, does not yield any points on the morality system raises the question: were the developers unsure as to which option was "good" and which "evil", did they not consider either option to fall into these categories, or did they want to have the player question this moral quandary themselves, without a point of view given by the game system? Whatever the developer's reason, this issue does provoke a re-evaluation of one's moral stands, which is necessary to understand other societies and cultures, as well as growing into a moral actor in one's own society, as per the national core curriculum.

3.2. Baldur's Gate: Enhanced Edition

Baldur's Gate: Enhanced Edition or *BG:EE* is a remake of the 1998 video game by BioWare. The remake mainly optimized the user interface, fixes game design flaws – or bugs – and combines the game with its expansion as well as adds on all new storylines and characters. The game is set in the fantasy role-playing world of *Forgotten Realms*, originally created by Ed Greenwood in 1967. The *Forgotten Realms Campaign Set* was originally released in 1987 (Greenwood, 1987). In *BG:EE* the player is cast as a person leaving their childhood home with their foster father, who eventually becomes the hero of the Sword Coast, the area the game is set in. It uses a 2nd edition Advanced Dungeons & Dragons ruleset, modified to fit the gameplay. For example, the turns players take action in are not tied to initiative, and instead the game circumvents this rule in favor of immersion. The player can still pause the game and plan their actions as they would in TRPGs.

3.2.1. Problem-based Learning in *Baldur's Gate: Enhanced Edition*

In *BG:EE* the player is not presented immediately with an overarching problem they must face during the game. Instead, they are given smaller problems that they must solve, which in turn tends to lead to new problems. However, one could claim that the overall problem the player is presented is the game. In learning how to operate the game and solving the smaller problems – or quests – the player gets closer and gains resources to solving the game. Thus, the overall experience of playing the game follows the traditional problem-based learning theory.

The initial problem the player is faced with is creating a character, beginning with the gender of the character, and continuing with the race of the character. This can be a grueling task, as the player is given multiple races to choose from. It is important to note that the term "race" in the game is used to differentiate between different humanoid species, for example elves, dwarves, and humans. After choosing a race, the player must choose a class, for example a fighter, a cleric, or a thief. Some races cannot choose certain classes, so the player's earlier choices already affect the rest of the playthrough. The next step of character creation is alignment. Some classes have alignment restrictions, for example

a paladin will always have to be lawful good. The alignment system will be given closer attention later on in the analysis. After alignment, the player must define their ability scores. The computer assigns the player a number of points they are allowed to use on ability scores by simulating the activity of rolling three six-sided dice six times, once for each ability score. Thus, a player may have less or more points if they wish to "reroll", or in other words have the computer assign the number of points again. Ability scores do not accumulate through level progression, but the game world does have mystical tomes that may be used to gain singular points in a given ability score. Assigning skills to the character follows assigning ability scores. The skills are dependent on the character's class: a fighter might be able to choose proficiency in multiple weapons or master one weapon, whereas a thief might learn to use only one weapon, but would also learn how to pick locks, set traps, hide in shadows, pick pockets and see through illusions. Lastly, the player must choose their appearance and name. Appearance is a combination of character portrait and character avatar, a two-dimensional "paper-doll" that the character moves through a two-dimensional game terrain.

As with *KotOR*, the player may create a character that is inefficient. The game tries to limit this by advising the character through character creation.


Figure 24: The player choosing their character's gender. Text: "Females of the realms can excel in whatever profession they choose, whether wizardry, thievery, or the arts of war.
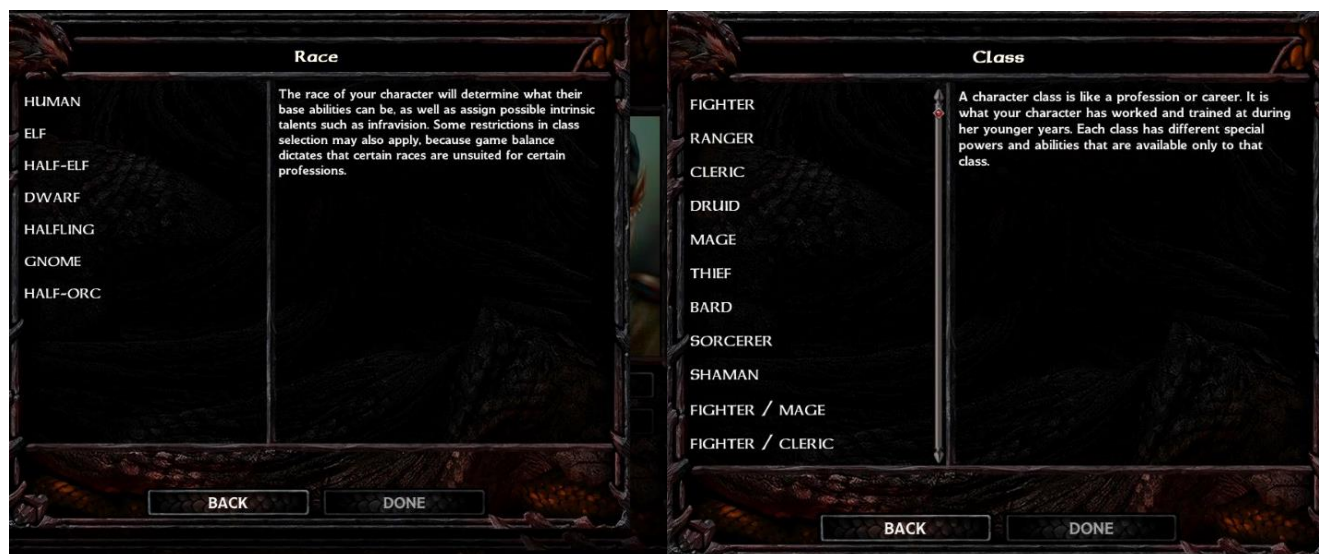
Figures 25-26: The player choosing their character's race and class.

As can be seen in figures 24-26, the game offers tips for new players, explaining that gender does not affect efficiency in the game and how the character's race may affect their character's intrinsic talents, in addition to explaining why races come with some restrictions. As the player has so much to choose from, it is still very possible to create an inefficient character. Thus, the player may choose a difficulty they want to be applied to the game.
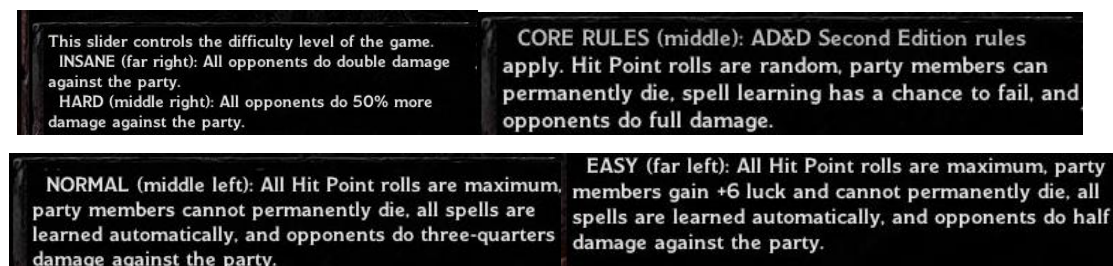
Figures 27-28: The options for game difficulty.

By adjusting the difficulty to easy, the player may experience the game at a significantly lesser set of requirements for character optimization. This allows the player to gain learning experiences from gameplay without being an expert in the game system. Conversely, if the player wishes a more challenging experience, they may seek out information about the game system and different character builds, playstyles and strategies and adjust the difficulty to insane. Completing the game on insane difficulty is much harder, but much more rewarding, as the player can "unlock achievements" in the game, one of which is to complete the game on insane difficulty. This follows Gee's "achievement

principle": players are rewarded in accordance with their skill level and accomplishments. Gee considers this to signal the player's ongoing learning in the semiotic domain (Gee, 2007). It also is a genius way of taking into account regimes of competence and zones of proximal development (Gee, 2007; Jarvis, Holford, & Griffin, 2003). The player is allowed to play according to their proficiency level, and as they progress, they may seek information through the social action of partaking in the conversations on gaming forums, learning the game's rules and how they can play their character better, how they can improve their character, and how they can use different tactics to different situations. Each time the player seeks knowledge on the forums, they push their zones of proximal development further, followed by the implementation of the information gained from the forums in the game, and as the player understands how the information they have gained and implemented works, they achieve learning. Often, they are also faced with materials in games that are beyond their understanding, and by gaining assistance from either the forums or other sources, they learn to understand the materials. This scaffolding is often used to implement the zones of proximal development and learning (Sanders & Welk, 2005).

The first problem the player is faced as their character is getting provisions for their upcoming journey with their foster father. In order to do this, they must engage in a conversation with the local innkeeper.

Figure 29: The player character is given information on how the tutorial works in the text window.

As the player begins to explore the tutorial area of Candlekeep, they are given a text prompt to go talk to the green-robed monk seen in figure 29. The monk then explains basic mechanics of movement and time.

Figure 30: The NPC close to the player as they begin playing explains movement mechanics.

As seen in figure 30, the tutorial is quite didactic: the player is given information on how they can move and pause time, and then they must internalize the information. However, past dialogue is saved in the text window, and the player may scroll back to view the given information as they explore these capabilities in the game world, creating a more situated meaning to the information.

After learning about movement, the player might enter the building next to them in figures 29 and 30. This is the inn in which the innkeeper Winthrop sells equipment to the player.
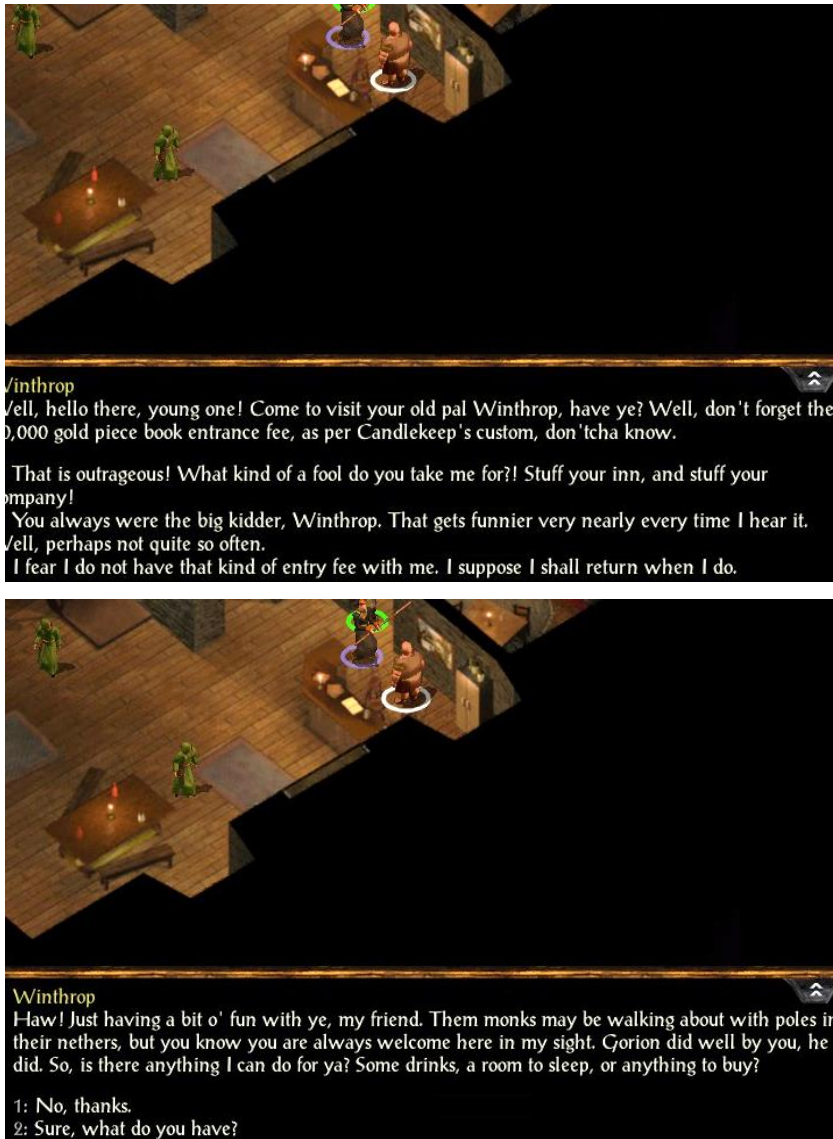
Figures 31 and 32: The player character engaging in conversation with an NPC to buy equipment.

The player can then converse with the innkeeper and choose to buy equipment they will need on their journey. After that they can explore the keep finding multiple quests, which are similar to most quests in the game: one person may want an elixir for their cow, another a sword from their locker at the barracks, a third for the player to kill the rats in their cellar. These quests are set to affect problem-based learning, as the player learns by doing what they are going to do for the rest of the game. However, the player is not required to do these quests: they are free to skip them and meet with their foster father in order to leave the keep, not being able to return for a significant portion of the game. This is problem-based learning as well: the game has a few points in the story after which they may not return, or may be trapped in a single area for a while, or are fugitives in the eyes of the authorities. Each time they are given the

same warning as when leaving the keep: they might not be able to return, or that at the very least they should get their affairs in order before moving on. This warning is left to signify that major events are about to transpire, and the player should be ready for the game to change drastically.

Figure 33: The player meeting an NPC after having survived the ambush that ends the prologue of the game.

The player is often given advice and learns the tactics they should use while playing the game. In figure 33, for example, the player gains advice on the composition of their party: a helpful NPC explains that as the wilderness is dangerous, the player should seek travelling companions in order to journey in a safer manner. The NPC also mentions that people who have similar principles get along better, implying that the player should seek out companions that approve of the decisions they make as they adventure. The NPC warns that strife inside the party may turn allies into enemies. Usually if the player acts in a way that the companions disapprove of, they will simply berate the player and eventually leave the party, but in some cases the companions become hostile. For example, a red wizard named Edwin will hire the party to find and eliminate the witch Dynaheir. A warrior Minsc – accompanied by their animal companion Boo, a miniature giant space hamster – will task the party with rescuing Dynaheir. If the player has both Minsc and Edwin in their party as they meet Dynaheir, they will have to side with either

companion against the other. The warning given by the NPC in figure 33 is thus sound advice when it comes to party composition, given in an immersive way.

As the player seeks out information for character creation and further development, they learn to navigate online communities and seek information in a problem-based manner, as per the cross-curricular theme of multiliteracy and the media in the national core curriculum. While exploring the tutorial they learn to plan ahead, a skill they will require in the game as well as in the real world when they have to employ learning strategies. This planning ahead will also be present in choosing the party composition, as the player will have to consider which characters can work together and which characters will be in constant conflict with each other. Planning party composition will also require the player to empathize with the companion characters, being able to see the other companions from their point of view in order to understand whether they will be able to work together. This ability to empathize with others is fundamental to the cross-curricular theme of well-being and safety. The ability to plan ahead and employ learning strategies that are beneficial to the player in a chosen situation is part of the cross-curricular theme of active citizenship, entrepreneurship and the world of work (Finnish National Board of Educations, 2016).

3.2.2. Semiotic Domains in *Baldur's Gate: Enhanced Edition*

Baldur's Gate: Enhanced Edition is filled with semiotic domains, some of which the player may be familiar with to begin with, and some of which they can delve into while playing. One rather noticeable domain is the fantasy genre employed in the game. The world is rich with magic and fantastical beasts, as it is set in the fantasy setting of *Forgotten Realms*, a *Dungeons & Dragons* role-playing setting heavily influenced by the works of J.R.R. Tolkien.

In addition to the fantasy genre, a player may recognize a mythological genre present as well. The world has a large pantheon of gods, who constantly engage in *theomachy*, the act of fighting between gods or against gods (Bolt, 2019). For example, the origin of the world is explained in a book of lore: the overgod Ao created the universe. After a time, the primordial essence coalesced into the twin goddesses Selûne and Shar. The twins embodied light and darkness, and they were so close they thought of each other as

one being. However, after creating the world, infusing it with life and creating the Earthmother Chauntea, another goddess, they came to be at odds. Chauntea wished for warmth and light, and Selûne wanted to grant this wish while Shar opposed it. The conflict gave birth to gods of war, disease, murder and death, and many others that were not named in the book.

The origin of the world and gods as well as the activities of these deities seem similar to Greek mythology. As Bolt notes, a key ingredient in many Greek – and Roman – epics is theomachy. Gaia, the earth-goddess rise against her abusive lover Ouranos with her children, and the result of this theomachy was the generation of the goddess Aphrodite, as well as the Erinyes, Giants and Meliai (Hard, 2004). Another similarity is the relationship and origin between the goddesses of light and dark: in Greek mythology, Nyx, the goddess of the night, emerges from Chaos, a primordial being. Nyx's niece is Hemera, the goddess of day. As can be seen, both narratives have light and darkness closely interlinked, originating from primordial essence as well as being among the first few beings in the universe. By recognizing some elements of the similarities between the pantheon of *BG:EE* and Greek mythology, the player may be interested to seek for more such similarities, delving deeper into the lore of the game as well as Greek and Roman mythologies. They might even search the game forums for information on these similarities, for example, one user of the forums asked whether there are any ancient Egyptian influences in *Baldur's Gate* (Deleted user, 2013). It is noteworthy that the core contents of compulsory course Human in environmental and societal change (HI1) include the Mediterranean economic area and societies during Ancient times, and the core contents of national specialisation course Development of the European worldview (HI4) has Classical cultural sphere's cultures and way of living and the first steps of science and the origins of democracy as its core contents. In addition, the national specialization course Religions in science, art, and popular culture (UE5) has as its core contents the religious themes, symbolism, and myths in different forms of art and popular culture and the interdependency of different forms of religion, art, and popular culture (Finnish National Board of Educations, 2016). Thus, an examination of the similarities between mythology and religious lore in *BG:EE* requires transversal competencies, and learning while examining them strengthens the learner's transversal competencies.

Another semiotic domain present in the game would be the mechanics of the game. As mentioned in the section concerning problem-based learning in *BG:EE*, as the player learns more of the game they might wish for a greater challenge, and in order to do so they must seek more information of the semiotic domain of the game mechanics to build their character and party in a way they can succeed in the face

of this greater challenge. They must develop their information seeking habits when it comes to finding information on character builds and they have to assess both the given advice as well as their current skill level in order to examine whether the advice is useful to them. This activity, as well as the activity of seeking similarities between the game and mythologies, corresponds with the objective of developing skills in seeking, selecting, using and, if they progress as far as sharing their progress on the forums or with friends who also play the game, sharing diverse text materials in information acquisition and studies. This objective can be found in the cross-curricular themes of Multiliteracy and media in the national core curriculum (Finnish National Board of Educations, 2016).

The player may also find the Aristotelian structure employed in *BG:EE.* The game has a beginning, in which the player leaves the safety of their home, and begin to adventure and seek out the reason for the iron shortage present in the virtual world. The middle of the story has the player investigate the Iron Throne and its leaders, the perpetrators of the conspiracy to weaken Baldur's Gate through the iron shortage they have machinated, eventually leading the player back to their old home Candlekeep. The game ends when they stage an attack against the last leader of the Iron Throne and the killer of their foster father, Sarevok. The game has a moment of recognition, when it is revealed that the player character is in fact the offspring of Bhaal, the late God of Murder. It is also revealed that Sarevok is the player's half-brother, as he is a son of Bhaal as well. While in Candlekeep searching for the leaders of the Iron Throne, Sarevok kills the other leaders and frames the player for the crime, invoking the reversal of fortune. In the end, the player slays Sarevok, the killer of his foster father and the plague of the region, ending the threat of the Iron Throne and achieving catharsis.

3.2.3. Ethics and Environmental issues in *Baldur's Gate: Enhanced Edition*

As in most role-playing games, in *Baldur's Gate: Enhanced Edition* the player will come across multiple ethical conundrums. These problems may concern abiding to the laws or not, protecting the environment or people harming the environment, and being self-serving or protecting others.

One interesting case is the encounter with the druids of Cloakwood and Aldeth Sashenstar, a nobleman from the city of Baldur's Gate.

Figure 34: An NPC explains their problem with the druids to the player.

As can be seen in figure 34, Aldeth has been hunting for sports in the Cloakwood, and has come into conflict with the druids. According to him, the druids killed his friend, and he fears they are coming for the rest of their hunting party. The player can then offer their assistance and protection, and soon enough the druids enter the scene.

Figure 35: The player has to decide whether to side with the druids or with the nobleman.

The druids claim that the nobleman has killed one of their members in cold blood. Aldeth denies this, calling the druids uncultured barbarians for the second time in the conversation. The player then has two options: kill Aldeth or broker for peace with the leader of the druids. If the player has Jaheira, a druid companion, in their party, a peaceful solution is possible. Otherwise choosing to advocate peace will end with the player having to fight the druids.

The situation is morally very complicated. There is no evidence to support the claims of either group: both claim the other has killed one of their members. Aldeth seems to have an elitist attitude towards the druids, as well as an anthropocentric attitude towards wildlife, seeing it as their right to hunt the animals as they wish. He highlights that their group is civilized as opposed to the druids, purporting his elitist worldview. On the other hand, the player option to side with the druids is callous and jaunty, claiming that the player and their party choose to kill Aldeth for an aloe vera balm for the party's chafing armor. Instead of siding with the druids for environmental reasons or for justice for the slain druid, they choose it for slight materialistic gain. Siding with Aldeth the player does not propose to kill the druids, but only to prevent further loss of life.

The dilemma is well-constructed: there is no perfect answer. The player must consider whether they let a possible murderous bigot go without punishment, or if they wish to seem self-serving and vindictive. The player might ask themselves whether death penalty is ever justified, and if not, should they defend the nobleman and kill the attacking druids. They might consider that if they have to kill one group, does the fact that the druids seem to be the aggressive party in the scenario make them worse than the elitism, anthropocentrism and possible murdering conducted by the nobleman?

An interesting environmental issue is raised when the player is approached by a ranger, who is overseeing a local ankheg hunt.
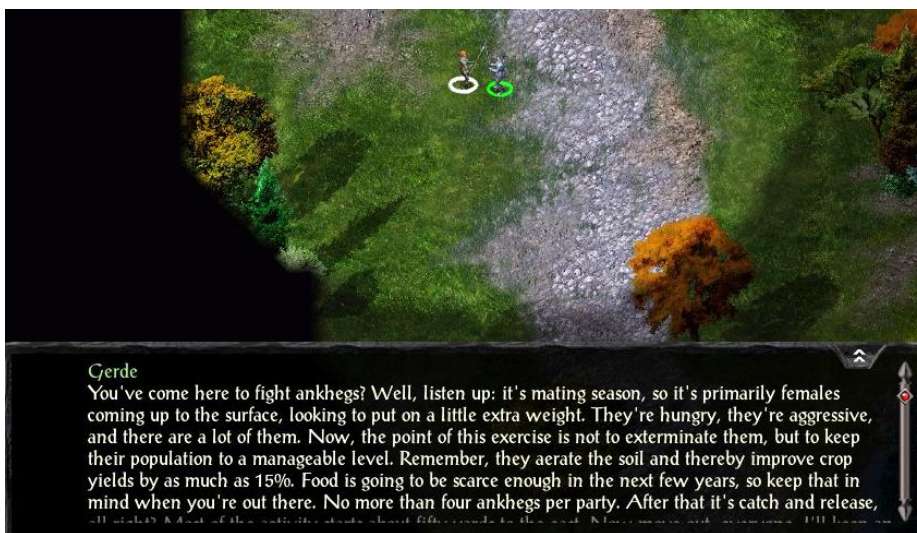

Figure 36: The player meets an NPC tasking them to fight ankhegs.

Ankhegs are giant chitinous centipede monsters that burrow in the ground and are highly aggressive. The player is tasked with culling the population but are asked to stay within a quota of four ankhegs. This is because, as the ranger explains, they aerate the soil and improve crop yields. After killing some ankhegs the player can return to the ranger and receive a reward. The ranger will say they trust the party has stayed to the quota and leaves.

On one hand, this is very similar to the quotas given to moose hunting groups in Finland. The main reason for the quotas is to keep elks from becoming endangered but at the same time keep the population small enough that it does not cause a high risk for traffic accidents. This precarious balance is upheld by constant regulation and examination of the elk population. On the other hand, both the quotas on moose and ankhegs can be thought of as anthropocentric. Keeping the moose population from inflating is done

to reduce accidents involving humans, and killing ankhegs is done to keep people safe from them. Of course, the world of *BG:EE* is pre-industrial, perhaps lacking a sense of environmentalism present in the modern age. However, the world is filled with magic, which can create food and drink from nothing, create floating cities and even work as a weapon of mass destruction. Thus, survival in this pre-industrial age greatly differs from the survival of real pre-industrial world. In addition, the player can pose these questions from a modern perspective, as both they and the developers view the world from a modern point of view. Thus, the player can analyze the dilemma in a way the player character might not be able to. These are situations in which the ethics and morality of the player may supersede the ethics and morality of the character. While this may seem like a case of failing to bridge the virtual and real world identities as Gee proposed (Gee, 2007), there may be another phenomenon occurring. As there are no repercussions to acting according to a modern environmentalist agenda, and the quest giver even unintentionally asks the player to act in a way that furthers this agenda, the player who plays a good-aligned character may feel responsible to the character and acting in a way that does not feel to them as good, due to being against environmentalism would feel wrong. In fact, the player reinforces the bridge between their virtual and real world identities by bequeathing some of their own moral views to the player character, as per the projected identity explained by Gee (p.50-51). Furthermore, keeping ankhegs from going extinct is justified to the player, signifying a possible need to justify not hunting the ankhegs excessively. This raises a question whether this is a concern the developers should address or not: is the default option to an aggressive beast in nature to kill it? If so, then explaining to the player the need to preserve some of the creatures is justified. If not, the explanation implies that the developers consider the extermination of the species to be the default option. Even then the justification is that the creatures benefit the city of Baldur's Gate and its surrounding settlements. The game does not even consider the possibility that the creatures might be an important part of the ecosystem, or that hunting species to extinction could be inherently wrong. After all, as Scriven (1997) points out, the utilitarian moral view of pleasure as being intrinsically good and pain evil does encompass animals, as they can experience both. On the other hand, it does give pause to those that perceive the world from a utilitarian point of view: if the survival of this creature is important for the survival of the nearby settlements due to its positive effect on crop yields, the utilitarian player may be able to see other environmental actions as benefiting humanity. For example, global warming has been estimated to greatly raise sea levels, diminishing the areas capable of supporting human settlements and forcing them to migrate inland (Pilkey, Plkey-Jarvis, & Pilkey, 2016), among other detriments to humanity.

This scenario can provide the player with insight into population regulation done in the real world. It promotes the idea that natural activity of animals may benefit the environment and human beings as well, and that the player may not be aware of all the benefits the animals can provide. However, the player might also recognize the anthropocentrism present in the scenario, and gain insight into how deeply it is rooted into human cultures. Being aware of the problem can help them act in an environmentally sustainable way, as per the cross-curricular theme of sustainable way of life and global responsibility in the national core-curriculum.

The depictions of gender and race in tabletop RPGs and the fantasy genre have been studied a lot in the past. For example, Garcia studied how race, gender, and power are depicted in the different editions of *D&D* (Garcia, 2017). They found that the first editions had only male pronouns for players, and the first three books were called *Men & Magic* (Gygax & Arneson, 1974). However, later editions began to acknowledge and include women as players. This shift in gender perceptions was slow, as for example the *Advanced Dungeons & Dragons* (Gygax G. , 1979) still had the maximum strength score of females as lower than the maximum granted to male characters. As can be seen from figure 24, this is no longer the case in *BG:EE*. Females of every race are as capable as males. However, the division of genders is present in the game as well: while the companion characters are quite equally divided into males and females, most of the named enemy characters are male, and almost all unnamed enemies are male, perhaps signaling that males are more likely to take up the life of an adventurer or join a criminal enterprise than females. Another possible reason for this could be the disregard to equal representation when it comes to antagonists and villains in the game.

Depictions of race in *D&D* differ from the concept of race in real societies. Race in this fantasy setting can be human, elf, dwarf and so forth. Instead of race, the system might speak about species. By looking at it from this point of view, the fact that different races have different inherent maximum abilities, and even had different maximum levels in early editions does not seem that alarming. After all, dogs, a different species from cats, have inherently greater sense of smell than cats. However, the human characters depicted in early editions of official *D&D* books were almost exclusively white. According to Garcia, even demi-human images prior to the latest edition were of white heroic characters. This focus on Caucasian features creates a worldview where all heroes are white. In fact, this is most disturbing when it comes to elves: the world of *Forgotten Realms* saw a schism between the elven race, and the evil part of the race moved underground. After living there for centuries, their physical appearance changed,

and their skin tone turn black, hence earning the name "dark elves". Having a species with two races, one of which is good and light skinned and another of which is evil and has black skin is very alarming. In fact, later editions have changed the skin of dark elves to vary in color, and the race itself is no longer inherently evil. This shift in the racial perceptions might be a result of a wider audience: Garcia claims that *D&D* was originally mainly played by white males. The fact that the game has gained popularity across genders and ethnicities might have created a richer cultural background for the writers to consider and draw upon.

There are a few dark elves in *BG:EE* and it is possible to meet them in any order. One of them is an NPC who asks for help against gnolls, a monstrous species, that are attacking him. This NPC, Drizzt Do'Urden, is a paragon of virtue, known from the books of R. A. Salvatore. In them, Drizzt leaves his evil kin and forges a new life on the surface of the world, overcoming prejudice against his race and becoming a force for good. The other two dark elves, Viconia and Baeloth, are possible companion characters. Both are evil. Thus, the game adheres to the deterministic view on races and alignment present in earlier editions of *D&D*.

While these depictions of races and gender are indeed very problematic and go against the values of the core curriculum, being able to recognize and analyze them can give the player new perspectives into the real world society and systematic racism and sexism. Being aware of how far-reaching these issues are in our culture is necessary to promote the well-being and safety of the groups that face this discrimination through various works of art and entertainment. In addition, the issues in these games can be examined in a safe environment, offering a problem-based way to study societal issues in a virtual environment. In fact, this correlates with the objective of instruction for social studies in the national core curriculum, as one of the objectives is to be "able to form justified views of value-based and controversial societal and economic questions" (Finnish National Board of Educations, 2016, p. 186).

3.2.4. Identity in *Baldur's Gate: Enhance Edition*

An important aspect of playing *BG:EE* is identity. Player has to choose their alignment at the start of the game, and it will determine some of the game content, as well as give the player a guideline as to how

they should respond to some situations. A lawful good paladin is expected to serve good and uphold the law, whereas a chaotic evil necromancer is expected to do evil deeds and disregard the laws if they cease to suit them. The separation of good and evil, however, is left for the player: there is no immediate feedback on the player's actions concerning morality. They must choose what they believe to be good and what they believe to be evil. This is in accordance with the original mechanics of TRPG *Dungeons & Dragons*, as a good part of the motivation to play was the inherent commitment to rules and roles.

However, the player can decide to completely ignore the alignment they choose: they can choose to be chaotic evil, but act in the world as a good and lawful person. However, this is breaking character, and may create a chasm between the virtual identity and real world identity Gee (2007) describes. On the other hand, if the player feels acting as an evil character to be repugnant, the bridging of the two identities can also be impossible. In these cases, it might be more constructive for the player to simply seek another role and refrain from playing evil characters. In addition to good and evil, the player can choose to be neutral, and this applies to lawfulness as well. In fact, druids are forced to be neutral, as they are thought of as keepers of balance, because in the game nature does not care for laws, chaos, good or evil, but strives for balance in all things.

While ignoring the alignment does not impede the player's progression, there may be some inconsistencies when it comes to the narrative. The player may act against their alignment, but the game has periodic dream scenes, which are different to each alignment. The dreams are a manifestation of the player character's heritage, as they are a child of a god, namely Bhaal, the Lord of Murder. Bhaal was an evil god who had multiple children before his demise, and the player, as well as the antagonist of the game, are his offspring. A good character will have dreams in which they resist the call of their blood, whereas an evil one will act according to the call, wrestling to gain control of the power inside themselves. To act against the player's alignment might make these dreams seem to be in conflict with the character's actions.

Sometimes it is not clear what choice would be within the player character's alignment and acting in a morally correct way might require a creative use of the game system. On reddit, user Randymgreen asked the following:

> "I often feel confused about moral choices, in game I mean, (RL too let's be real). I can justify doing shadow thief shit or stealing from rich guys, especially douchey ones, because I need allies/cash to fight saverok. Ends and means and all that.

But one that's got me at the min is the statues in durlags.

They were heroes who were beaten, you can release them to help you but then they will attack based on apparently being pissed that you enslaved them (which is weird BS but I guess there is magic involved)

So there's several choices you can make.

1. Leave them in stone limbo for ever.*

2. Free them and run away before they turn hostile.

3. Free them and kill them, am I murdering or like 'letting their souls finally rest'. Either way some of them are 'evil races' so maybe I should though I always hated that racist d and d bullshit

*someone might be able to free them more fully years down the line, someone else might kill them later if I don't free them now making me somewhat responsible.

What should I do? Ideally I'd know more about the magic and them personally, but that's not an option I guess" (Randymgreen, 2017).

The player in question has not found a morally satisfying way to play the scenario in the game and seeks help from the community to find a better solution. They feel that their character, who presumably is good aligned, would not act in the way the game proposes to them. The community then proceeds to help Randymgreen, proposing they could beat the attacking party unconscious by using unarmed attacks only, or they could use magic to either charm the adventurers and order them to do nothing while they themselves move past them (Phalange44, 2017), or even create a magical barrier around the attacking party and then move past them (gangler52, 2017). Other community members claim that there is no moral dilemma, as the player would be acting in self-defense (TactfulFractal, 2017).

While the game does not punish or reward the player's actions when it comes to their alignment, they will gain feedback on their actions in the form of a reputation meter. The characters start with a neutral reputation of 10. If they commit evil acts or are caught stealing by a town guard, hence committing unlawful acts in a law-abiding settlement, their reputation will decrease, and eventually they are despised and may not even be allowed to enter cities. If, however, they commit heroic, charitable and good acts, they gain reputation and can become revered by the whole of the Sword Coast. Some companions will not stay in a party with low reputation, whereas others will leave if the party's reputation is too high.

These companions will offer their opinions on moral dilemmas before the player makes their decisions, as well as voicing their opinions on their actions based on party reputation on irregular intervals while exploring the game world. Some quests may be available to the player only if they have a certain level of reputation: for example, Aldeth will not ask players who have low reputation to aid them.

4. Discussion

Star Wars: Knights of the Old Republic and *Baldur's Gate: Enhanced Edition* are in many ways very similar, and in a lot of ways very different games. Both are CRPGs, and both are based on the rule settings of *D&D* in some way. Both tackle ethical and environmental issues, and both have issues inherent to them in the depiction of some ethical or environmental issue or situation. Both games rely on the player co-creating an identity with the game designer for their character in order to bridge their real world identity and their virtual identity to keep the player motivated.

4.1. Problem-based Learning

Both games use problem-based learning to keep the player motivated and constantly learning. They have overarching problems, with periodical smaller problems that the player must solve. In the beginning of both games the player has problems to solve that teach them how the games are operated, and they are presented in the same way they will come across further problems in the rest of the game. This encourages player agency. As Zheng and Newgarten stated, the agency learned in a virtual world are applicable to the real world as well (Zheng & Newgarden, 2012). In addition, the problems found in the game, such as ethical dilemmas and environmental concerns are simulations of real world problems regarding those same topics. Thus, learning in the game is as effective as it would be when faced with the problem in the real world.

Problem-based learning in these games puts the player in the role of a progressive force. If the player does not act in the virtual world, the story does not develop. In addition, it is implied in the games that if they do not act, the villains will win. The player is encouraged to be an active agent in their environment. For example, in the case of Sandral-Matale feud – discussed in section 3.1.2. – the player may skip the quest, but if the player does play it, they will know that the son of Matale is being held prisoner by Sandral, and it is implied that the grief stricken Sandral may even hurt the young man. Thus, player agency is vital for the survival of Matale's son: the player must seek the information regarding his whereabouts, and they will have to save him. The game advocates an investigative attitude and agency in the community, both of which correspond to taking initiative and becoming active in the community as per the cross-curricular theme of active citizenship, learning to deal with conflicts constructively and how to act in a way that advances the well-being of others as per the cross-curricular theme of well-being and safety, as well as gaining confidence to use one's potential, creativity and problem-solving skills in seeking solutions for practical problems as per the cross-curricular theme of technology and society.

Both *BG:EE* and *KotOR* have a complicated game system that can result in a very efficient or inefficient character, depending on how the player develops their character. However, most of the groundwork for character creation in *BG:EE* is done in character creation, as later character development through leveling up does not affect attributes and gives only a modicum of customization options for the player. In *KotOR,* however, the player can customize their character throughout the game, as they gain feats and attribute points at regular intervals. Both systems encourage the player to learn the system and seek information on character creation and development, and as a result the player will develop their information seeking skills. Eventually they might even take part in the online communities dedicated to the games, developing their skills at sharing information in different communication environments. This phenomenon is quite common in RPGs, as part of the gaming experience is the possibility for the player to customize their character abilities and playstyles. While not all games are as unforgiving as *BG:EE* and *KotOR* in their character creation, they do require the player to seek information on character builds and tactics if the player wants to optimize the character efficiency. For example, *The Witcher 3: Wild Hunt* (CD Projekt Red, 2015) has the player gain ability unlocks as they level up, and after unlocking the abilities they have to activate them before using them. Activation costs nothing, and the player can change active abilities to other abilities they have unlocked, but there are only a certain number of abilities that can be active at any given time. Thus, even though the player may unlock every ability, they cannot have all of them active at the same time, forcing the player to choose which abilities are the most efficient to their playstyle

or to a given problem. Like most video games, *The Witcher 3: Wild Hunt* has a vibrant online community that offers character builds and tactics for different playstyles.

The games employ heavily Gee's (2007) achievement principle. As mentioned earlier, the player may wish to seek information on how to build an efficient character for their playthrough. If, however, they choose not to do so, they can play the game at a lower level of difficulty. This will suit a beginning player, letting them experience the game without putting in too much effort. They can complete the game and feel a sense of achievement from overcoming the hurdles that are sufficient to their skill level. Should they decide to play at a more difficult level, some optimization may be in order. This will require either a lot of research, or a lot of trial and error. In the end, the player will have to put a lot more effort into beating the obstacles in the game, which will lead to a greater sense of achievement. The game will try to match the player with a difficulty level close to their skill level. Should the player's skill level be out of balance with the difficulty level of the game, the player may adjust the difficulty during the game. This is similar to the zones of proximal development mentioned by Vygotsky: if the player tries to reach outside of their zone, learning cannot occur, as they do not have the necessary understanding upon which to expand. The game system is thus providing a scaffolding on which the player may find their proper speed at which to advance (Jarvis, Holford, & Griffin, 2003) Both Vygotsky's zones of proximal development and Gee's achievement principle affect deeper learning for the player than they would gain without the aid of a video game with these customizable difficulty levels.

4.2. Semiotic Domains

Semiotic domains play a big part in *BG:EE* and *KotOR*. The domains include the signs that explain to the player how the game system is employed on the screen, for example hovering the cursor over the character icon will show the player's current hit points in both games. Other domains include fantasy genre and science fiction genre, but also more traditional literary features. Both games have aspects that are deeply intermedial: the Sandral-Matale feud with its Shakespearean themes and the mythological similarities between the gods of *BG:EE* and Greek, as well as Roman mythologies require the player either to be aware or become aware of the real world connections to understand them. In fact, as

demonstrated earlier with *BG:EE* forums, the online communities can lead to becoming aware of these connections, promoting further research into the subjects. This in turn can lead to further transversal learning. The players will also see examples of narratological devices used in the games: both games employ an Aristotelian structure of tragedy in their narratives. The players may be familiar with the Aristotelian structure, in which case they may gain practice in recognizing it in popular culture, or they may be unfamiliar with it, and the game will add to their frame of reference of popular culture narratological twists, which in turn may lead to the player later on being able to recognize these structures in other literary works. Being able to assess structures in different texts is a learning outcome for the cross-curricular theme of multiliteracies and the media in the national core curriculum.

4.3. Ethics and Environmental Issues

It is interesting to note that while both games have a system for feedback on the ethics of player choices, the systems do have a fundamental difference: in *KotOR* the player is internally changed to match their choices as their alignment shifts to accommodate the choices made. In *BG:EE*, however, the player gains external recognition for their actions, whether it be in the positive or negative sense. The player alignment is static, but their actions affect how other people see them. Both of these systems can be beneficial when it comes to cross-curricular learning: understanding that our choices define us is important for a sound moral basis to develop, and it encourages the learner to become active in promoting the well-being and safety of others in the community. On the other hand, understanding that public actions will have public consequences is important, especially in the world of entrepreneurship. Thus, the system in *KotOR* answers to the cross-curricular theme of well-being and safety, whereas the system in *BG:EE* answers to the cross-curricular theme of active citizenship, entrepreneurship, and the world of work.

It is noteworthy that not all RPGs have a morality system to guide the player's actions. For example, there is no system in the game that offers immediate and clear feedback to the player in *The Witcher 3: Wild Hunt* (CD Projekt Red, 2015), but the game does have moral choices the player must make. An example of this is meeting a man in the wilderness, tied up and left for monsters. If the player saves the man, they go their separate ways. However, the player may then meet with the man later, leading a gang

of highwaymen. The gang has killed a group of refugees and offers the player a portion of the spoils as a thank you for saving the gang leader. The player must then decide whether to take the money or kill the bandits. This lack of morality system can lead to a better simulation, as in real life people do not have a feedback system that immediately tells them whether their decisions were moral or not: they have to decide it themselves. However, as Gee notes, immediate feedback is beneficial for learning (Gee, 2008).

There has been research that questions the effectiveness of morality systems as a device for moral dilemmas. Heron and Belford claim that as the systems enforce a ludic aspect in the games, making the moral choices more a question of resource management rather than an ethical dilemma. In addition, they consider the game choices often to be very "cartoonish", having surreal options with no believable middle ground (Heron & Belford, 2014). However, as they mention, video games can have both internal and external morality. Internal morality would be the moral choices that the character makes in the game, and is considered, in the game, to fall into a certain moral view. For example, giving into your anger in *KotOR* would be considered evil in the game. External morality requires the player to consider their actions in the game in contrast to how they themselves approach moral dilemmas in the real world, and what aspects of the game system and the developer's own moral views affect the options given in the game. This division of internal and external morality corresponds to the division of ethics while reading and ethics of reading by Schwarz: the former refers to moral dilemmas and issues in the story, while the latter refers to the interpretation of the text, taking into account the contexts present when the text was written, as well as to what audience the text was originally created (Schwarz, 2001). As seen in the analysis of both games, the meta-analysis of the game may yield a new perspective into the game's ethics, how they relate to the real world as well as what they reveal of our society and culture.

KotOR and *BG:EE* have multiple virtual cultures depicted in them. Some examples of the cultures found in *KotOR* are the Sand People and the Rakata. Examples of cultures in *BG:EE* are the dark elves and the Rashemeni. It is important for learners to come across cultural variation, and to see the differences and similarities to their own culture. It is also important to learn how to respect the cultural heritage of others. Unfortunately, the cultures in these games are sometimes presented in a way that may support the parallels in real world that are problematic if the player explores them from external moral point of view. Rakatan culture, as well as the culture of the dark elves, are considered cruel and in some cases even primitive from the western view present in the games, and even the case of advanced Rakatan society has dangerous racial undercurrents. The depiction of Rakatan societies supports a view in which the

rights of the individual can be discarded when on a civilizing mission, and the parallel the dark elves represent is that a portion of the populace with a physical difference to the dominant portion is evil and barbaric. However, there are redeeming cases as well: the culture of Rashemen is explained to be a consenting matriarchy, where the witches are accompanied by their caring bodyguards. The culture of the Sand People is also examined from a positive light, declaring that they are mostly aggressive towards other cultures because of a language barrier and the other cultures encroaching on their territory. In fact, conversing with the Sand People may lead to new understanding of the history of the planet as well as the galaxy, promoting not only language skills but cultural diversity.

As seen in the analysis of both games, there is an underlying environmentalist agenda present in the games. The player is encouraged to participate in preservation of species, even in cases where the species are hostile to humans. There are, however, some cases in which the games undermine this environmentalist message: the case of gizka does put the player in a position in which they must either kill the animals, introduce them into a foreign ecosystem or leave the quest unfulfilled. Exterminating the terentatek is another such case, forcing the player to either act in an ecologically questionable manner, or leave the quest unfinished. These situations exert a ludological pressure on the player to dismiss the environmental issues in favor of completing the quests. The case of ankhegs has the player participate in population control, but the reason for preserving ankhegs is not to preserve the biodiversity of the ecosystem, but rather the utility they have for the nearby human settlements.

The contradictions present in the games, the simultaneous attempt at inclusion and inadvertent exclusion, the attempt at environmental agenda and the anthropocentrism that can be found in both games can be a catalyst for learning. Jarvis et al. discuss Allman's views of adults thinking in dialectical operational terms. By examining the contradictions that can be found, people can use the ensuing tension to discover new questions and problems (Jarvis, Holford, & Griffin, 2003). In addition, the player can get practice in discovering issues in popular culture in a problem-based manner, by discovering them in the games. What makes this activity an especially effective learning experience is that the player can examine these issues in an environment where the risks of the real world are lowered: games are a safe environment in which to engage in the examination of societal issues, and the player can thus take advantage of the psychosocial moratorium discussed by Gee (2007).

4.4. Identity

Identities play a big part in both *BG:EE* and *KotOR*. In both games the player needs to bridge their real world identity and virtual identity by projecting their own real world values and hopes into the virtual identity, but they must also put themselves in the place of the playable character. The virtual identity has a backstory that differs from the player's personal history, and it affects the identity. As noted by Vygotsky, as well as Bowman and Lieberoth, the ability to put oneself in the place of another or take up a role different from their own identity is paramount to the development of empathy (Bowman & Lieberoth, 2018; Vygotsky, 1966). Thus, being able to bridge the real world identity and virtual identity is important when it comes to learning empathy, a key value in the national core curriculum and basis for the cross-curricular theme of well-being and safety. The virtual identity is tied to the main character, but as the player has a modicum of control over their companions in both games, they can come to identify with them as well, through an *extended virtual identity*. This can happen, for example, in the case of Juhani in *KotOR*: the player cannot choose how Juhani speaks, but they can choose how Juhani's character is developed mechanically as well as how she acts in the game world. This ability to affect the character may create a bridge between the player and Juhani's virtual character. The player may never fully bridge their real world identity with Juhani's virtual identity, but the bridge may make empathizing with Juhani easier than empathizing with an NPC that the player meets in the virtual world but does not travel with and control. While *BG:EE* has this same phenomenon, its purpose is more mechanical. Where *KotOR* has the player empathize with their companion characters to further side quests focusing on the companion, empathizing with companions in *BG:EE* has mainly to do with the ability to keep the adventuring party working together. The player has to be able to empathize with the companions' motivations and beliefs in order to see how their own actions are judged by the companions, as well as seeing the interrelations between the companions. If the player fails to do this, the companions may leave the party or even attack it. There are, however, four exceptions to this: the new companion characters added to the original game *Baldur's Gate* in the remake of the game have long side quests that focus on them, quite similarly to *KotOR*. In those quests, the player's ability to empathize with the companions is a device to further these side quests. On the other hand, *KotOR* has a few instances in which the player must be able to read the interrelations between companion characters: if the player chooses to turn to the dark side and rule the galaxy, they must eliminate a few of their companions who would oppose them. If they do so, three other characters will separate from the party, running away. The player can, however,

force one of the two companions to turn on his best friend and kill her. If the player does this, the surviving companion will realize what he has done and attack the player, forcing the player to kill him. Further studies should be concluded into how the player's ability to empathize with companion character controlled by the player differs from their ability to empathize with other NPCs.

4.5. Learning Outcomes, Unanswered Questions and Further Studies

The learning outcomes that can be perceived in the games come mostly from the problem-based learning and simulated reality present in the games. The existence of these methods of learning is heavily tied to the origin of the games, namely TRPGs. Learning empathy through these games is inherently an aspect that has its origin in the tabletop games: role-taking is the basis of TRPGs. However, many CRPGs have the player control and closely interact with characters other than their main character, perhaps yielding more results in learning empathy. This is rarely the case in TRPGs, as the player usually controls only one character. Planning ahead when it comes to character development is also something TRPGs and CRPGs have in common. In addition, seeking information on character creation and development in TRPGs is similar to information seeking in CRPGs. TRPGs have similar online communities to CRPGs, promoting participation, information seeking and media skills in much the same ways. Where TRPGs and CRPGs differ is the beginning of the gaming experience. CRPGs have interactive tutorials, in which the player gets to try out the mechanics of the game as they are playing. TRPGs have a Game Master who helps the players and explains how the game works. While both of these are problem-based learning experiences for the players, TRPGs have a more didactic approach to it, as the players either have to read the rule books or ask for the GM for help. Of course, the tutorials of CRPGs may not be as excessive as the amount of information and adaptability the GM may offer. Further studies into the differences in TRPG and CRPG learning should be concluded.

It should be noted that the games cannot answer to all cross-curricular themes present in the national core curriculum. Neither game has a lot to do with entrepreneurship and the world of work. They do promote activity and the analysis of societal questions, such as moral considerations in public decisions, as well as present experiences in agency in simulated societies. However, the games have either a very narrow

or non-existent representation of different forms of entrepreneurship and work, as well as the operating principles and future prospects of the economy. Other games may have a better representation of these cross-curricular themes, and further studies should be concluded into how different video games affect these learning outcomes.

Further studies should also be concluded into how the implementation of RPG video games affects learning in upper secondary school curriculum, especially when it comes to the most relevant findings of this study, namely ethics, environmental values and attitudes and problem-solving skills. A worthy study would also be how playing RPG video games may affect learning strategies used by students who participate in implementing these games to the curriculum.

As this study is about to be published, a remake of *Star Wars: Knights of the Old Republic* has been announced to be under development by *Aspyr Media* (Oloman, 2021). Further studies should be made after the release of the remake on how the remake answers to ethical contradictions found in this study.

Conclusions

This study aimed at defining role-playing video games as a potential addition to the toolbox of upper secondary educators. The study focused on the cross-curricular themes present in the National Core Curriculum for General Upper Secondary Schools (2015), as they were considered to be included in every subject taught in upper secondary schools. As education has developed in the past centuries along with our society, it has had to rapidly evolve in the everchanging environment of contemporary societal needs. This rapid change has been possible by moving away from didactic teaching methods and behavioristic learning theories towards learning as a sociocognitive activity and problem-based teaching methods, while paying attention to the importance to ecological learning.

By examining research that has suggested that a simulated activity is as effective at teaching as activity itself, the study came to the conclusion that activities in video games that correspond to the learning outcomes set out by the National core curriculum for general upper secondary schools can be used to achieve those outcomes. By examining two role-playing games, *Star Wars: Knights of the Old Republic*

(2003) and *Baldur's Gate: Enhanced Edition* it was discovered that many aspects of the games correspond to the learning outcomes set out by the cross-curricular themes in the national core curriculum. Especially ethics, morality, empathy and environmental issues were considered in the games, and information seeking skills and text production online were found to be encouraged by the games. The games had multiple instances in which they demonstrated deep intertextuality and literary traditions in their narratives, deepening the player's skills in diverse text material assessment.

This study found that even though the games required multiple hours of playtime to complete, and a considerable effort in seeking information on efficient strategies to play, they were considered to keep up the player motivation. This was established by examining identity emergence from the conjoining of player's real life identity and their character's virtual identity, the feature of gaining a sense of achievement from overcoming both difficult, long term efforts as well as easier, short term efforts. The players are able to take advantage of their zones of proximal development, pushing them back as the game system works as a scaffolding, letting the player advance according to their skill level and giving rewards accordingly. Paired with simulated learning experiences in reduced risk environments, this generates a learning ecology that is extremely effective.

There were some aspects of the cross-curricular themes that the games examined could not answer to. These were issues that had to do mainly on entrepreneurship and the world of work. While multiple skills usable in the world of work can be learned from the games, they do not prepare the player for work environment or familiarize the player to the different forms of entrepreneurship. There may be other games that might be more effective at this.

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