Perspectives on Computer Gaming in Higher Education

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Game-based Learning in Entrepreneurship Studies in the Social and Health Field

Introduction

Playing games using various electronic devices has increased in Finland and in the whole Europe during the past decades. Young people spend an increasing proportion of their free time at computers (Pääkkönen, 2014), although digital games have not superseded fiction in Finnish society (Kallio et al., 2009: 11). The use of games and gamification or the use of game elements in non-game contexts (Kirvesniemi, Weiss, 2016) are closely related to the development and expansion of European information societies, also in the field of education. In Finland the recent education policy, steered and managed by the Ministry of Education and Culture, has been to promote the introduction of new learning methods, especially those employing information technology in all levels of education. Digitisation, including game-based learning, is a national target in learning for any certificate or degree in Finland. The aim is to use electronic, freely accessible internet material to support learning and to provide high standard e-material, including games and simulation applications for all national curricula (Opetus- ja kulttuuriministeriö 2010: 14).

The increasingly common use of digital services has fostered a change in the Finnish culture of learning. The use of games and gamification may meet today's students' needs well, taken their familiarity with digital material. Games can provide good opportunities for collaborative and participatory learning and teaching. They may not always be easy for teaching staff to embrace, as most teachers tend to adhere to traditional pedagogical practices. There is also a risk that traditional models of teaching are transferred unaltered to instruction that uses digital technologies. In this sense, the teachers' continuing professional development is a great challenge in Finland. Various development projects can help to create space and prerequisites for a new kind of learning and studying (Opetus- ja kulttuuriministeriö 2010: 8–12).

In social and health care education, virtual learning is well known and practised, but games are not a common feature of social and health care education; they are far more prevalent in preschools and primary schools than in higher education (Ketonen, 2006, Sipilä 2013, Pajulahti, 2015). The few examples of using games in social and health studies have been related to practicing a client-centred approach, establishing a home help enterprise (Kirvesniemi, Weiss, 2016) and supporting self-help in rehabilitation. For example, studies have been conducted on how games could be used to counsel and support young people with mental health problems (Raitio, Hopia, 2015: 106–107; Fleming et al., 2012).

The aim of this chapter is to give answers to the question of how virtual games are used and how they could be developed as a functional part of social and health care studies. The chapter discusses students' responses to the virtual game method in the context of social work education. Our goal is to build a bridge between gamification research and practice in the field of social and health care. We will also discuss how gamification and the practice of social and health care are bound together.

As mentioned above, gamification means bringing elements of games into non-game contexts (Kirvesniemi, Weiss, 2016). It can provide tools and problem solving skills within non-game contexts (Jagoda, 2013). Games, on the other hand, can be seen as metaphors for reality, useful in learning new contents. In the construction of social reality, games can have a function of familiarization in learning (Lakoff, Johnson, 1980). Games and gamification can help understand complex chains of events and connections between phenomena. For example in social and health studies, they may help students understand the stages of setting up enterprises and the real-world conditions of successful business activity. Games can be used to construct narratives about starting as entrepreneurs. The different dimensions of the narrative affect the outcome of the undertaking.

This chapter describes an example from Seinäjoki University of Applied Sciences, where students of social work and health care tested a digital game on starting a home help enterprise. First, the advantages and challenges of gamification and the use of games are discussed from the viewpoint of social and health field. Secondly, we describe the social and health service provision system and its current changes in Finland. Thirdly, the chapter presents a description of how entrepreneurship is visible in the core contents of social work studies in Universities of Applied Sciences. This is followed by an account of the process of developing and testing the game and a comparison of Finnish and Estonian students' experiences of playing the game. The chapter ends with a discussion of the evaluation and development concerning gamification and use of digital games in the social and health field.

Pros and cons of gamification and digital games in the social and health field

In Finland, much of the social and health services have been digitized. For example, client contacts to various officials, as well as the advice, counselling and information of decisions given to clients, mostly occurs digitally. Despite the wide-

spread digitization, the use of games or gamification are not common tools in the social and health sector. They are sometimes applied to create a more informal setting, to bring variety or welfare to work, or to facilitate the adoption of new roles at work. They can also be used to collect information from staff or to create improvement suggestions.

Engaging staff in these efforts may become a problem, however, because transfers are common in the social and health sector, especially in social work (Ailasmaa, 2015). Many employees are not interested in interviews or electronic surveys designed to develop their work. They do not always have a possibility to concentrate on the time consuming development projects (Palukka, Tiilikka, 2011: 113). The game method, however, would not necessarily demand much time and would thus provide one possibility to learn and to develop social and health care work. Games and gamification could also bring empowering elements to the psychologically and physically demanding field.

Similarly, it is important that students of social work and health care benefit from a wide range of pedagogical methods. Gamification and the use of games constitute one technique of learning and developing client work. It has several advantages: It brings the real world into learning, facilitating effective studying (Gaweł, Pietrzykowski, 2014) and it can produce in-depth, authentic and active learning (Heimo, 2014: 2). Game playing can consolidate the knowledge gained and help combine theory and practice in the social and health field (Heimo, 2014: 14; Sealover, Henderson, 2005). Further advantages are that students can play in any place, and the same game can be offered to an unlimited number of students. This allows studying irrespective of time and place and engaging in interdisciplinary and international collaboration between different cultures (Heimo, 2014). Active interaction and participation can be encouraged; games and gamification can help integrate communication, activation and creativity into learning (Sipilä, 2013). The teachers can also use the opportunity to develop their pedagogical and technological competence and become active in international collaboration (Raitio, Hopia, 2015; Heimo, 2014).

Game-based learning can also motivate students to learn about entrepreneurship. For many students of social work and health care, entrepreneurship and starting a business seem like a distant idea. Very few Bachelors of Social Services or Registered Nurses become entrepreneurs directly after graduation, which may render learning about entrepreneurship frustrating. Playing in teams and competing against other teams may increase motivation; team play calls for social skills and ability to compromise and listen to others. These are skills required in all social work and health care, which largely take place in teams and networks. Games are often in English and they can improve students' language skills. Games and gamification can be engaging; they can be educational, fun and refreshing (Sealover, Henderson, 2005).

Despite all these advantages, game-based learning does not interest all students and teachers in the social and health sector. It is not easy to organize games, if there is no genuine commitment. In our case, for example, it was difficult to arrange a game day for teachers; not enough teachers registered for the

day or were interested in testing the game. We can only guess at the reasons for teachers' lack of participation. It is our assumption that some teachers might have been interested in testing the game, but all teachers were very busy and had tight schedules at the time. We do not know much about the students' degree of interest at Seinäjoki University of Applied Sciences, either, because game-based learning is not included in the courses students can choose from.

It is possible that lack of interest or time can make learning difficult and the use of games can even become an obstacle to learning. In games, the phenomenon to be studied or developed is often pulled into the world of winning and losing. Playing games is strongly associated with success and failure; the player either loses or wins. Successful playing should not mean winning the game (Heimo, 2014, 12). For example in entrepreneurship games designed for the social field, winning should not be the most important thing. Instead, it is important that students learn the terms under which enterprises can successfully operate in Finnish society. Taking part in the game and learning from one's mistakes should be the essential thing from the perspective of learning.

The scarcity of game-based learning in the education and practice of social work and health care can be partly explained by the fact that games are mostly played by boys and young men (Raitio, Hopia, 2015: 106). Playing games is a popular hobby for many Finnish boys and men; for them it is natural to accept game-based learning as part of their studies. According to a study published in Finland in 2007, very active players of digital games were predominantly men. Almost four out of five of them were 15–34 years old (Kallio et al., 2007).

Students and staff working in the social and health sector are mostly women; in Finland, their share is over 90% (Ailasmaa, 2015). Women have not yet embraced gamification and game playing to a similar degree as men. As they are not interested in playing games in their free time, accepting them as part of the studies is not quite so easy. On the other hand, there are recent indications that various mobile and Facebook games have increased in popularity, and it has been estimated that today, almost half of digital game players are women in Finland (Raitio, Hopia, 2015, 106). Girls play a lot, but they are partly interested in different games (Kallio et al., 2007).

The attraction of virtual games is reduced by technical problems, which are quite common. Often the computer or internet connection does not work propertly (Ketonen, 2006; Heimo, 2014). Players' lacking skills may also be a challenge (Pajulahti, 2015). For example older students and teachers are not as competent players as younger people. In general, however, Finns have good digital skills and they can use various digital services (Tieto hyvinvoinnin ja uudistuvien palvelujen tukena 2015: 10). The use of digital learning environments is common in social and health studies, which is also likely to facilitate the use of games in learning.

Enterprises as part of the social and health service provision system Finland

The Finnish social and health care system is characterized by universal coverage based on citizenship. The public and private social and health services combined constitute the largest industry in Finland, if measured by number of staff. In 2013, the number of social and healthcare employees was 386,364 (Terveyden ja hyvinvoinnin laitos, 2015). The industry has experienced one of the greatest increases of all business sectors in Finland in recent years (Hasanen, 2013: 10). Private social and healthcare services are also a growing sector in Finland. During the 1990's, new liberalist competition practices were adopted from economics and from the private sector into Finnish public social and health care (Aaltonen et al., 2014: 245; Laiho, Ruoholinna, 2011: 13), so economical aspects are much highlighted as a basis of the services. Business in care services is a topic much discussed among professionals and students, especially among those, who are planning to ground care companies of their own (Aaltonen et al., 2014: 245; Laiho, Ruoholinna, 2011: 13).

The discussion is related to the problems which people must solve when they want to start running their own enterprises. The legislation is very complex and an entrepreneur must have a lot of knowledge about entrepreneurship. Nearly all entrepreneurs need finance and the risks are high in the startup phase. Traditionally communities have organized their own social and health care services, but now communities have to decide whether to increase the share of private and third sector in their services (Kunnat, 2016). The question is, would it be better for the community to organize the services as before, and would there be any disadvantages when allowing the private or third sector provide the services.

The major part of the social and health services has traditionally been provided by local authorities (municipalities). From the public discussion one might glean the impression that a strong privatization of the services has occurred. According to statistics, however, the proportion of outsourced social and health services only increased 1% per year between 2005 and 2010. Part of the public services are provided by national limited liability companies or companies owned by organizations. There are also family enterprises, in which the owners take on much of the workload, and a few franchising chains. A minor proportion of the municipalities have established municipal enterprises to provide housing services (Hoiva, 2020, yksityisen hoiva-alan tulevaisuus, 2015: 34–35).

According to Statistics Finland, there were 2,179 private social sector enterprises offering community services and 1,123 enterprises providing housing services in 2013. They afforded employment to 31,000 people. The majority or 92% of the enterprises providing community services were small enterprises with less than 10 employees. Private care providers constitute a fragmented sector of various groups. Besides private businesses, organizations provide a large part of the services by maintaining 2,416 units offering social services. Elderly services and child day care are the major fields, with approximately three fourths of the social

sector employees. The private sector is most visible in elderly services, whereas the proportion of private day care is only 10% (Sosiaalipalvelut, 2013).

All in all, the private providers of social services, including private enterprises and organizations, employed approximately 70,000 people in 2013 (Sosiaalipalvelut, 2013). Despite this, municipalities continue to bear the main responsibility for organizing social and health services, and also provide most of the services. In recent years, however, the purchaser-provider model or outsourcing has become more common, which means that the municipalities buy social and health services from private providers of services (Hoiva, 2020, yksityisen hoiva-alan tulevaisuus, 2015: 35).

The Strategy for social and health policy, published by the Ministry of Social Affairs and Health in 2011, stresses the aim of a socially and economically sustainable, effectively operating and dynamic society. Central aims include narrowing the differences in health between population groups, making working careers longer and reducing poverty and marginalization. Other important aims involve improving the availability, quality and effectiveness of the services. The social and health service provision is also undergoing a structural change following the Finnish government's acceptance of the so-called SOTE model. The reform aims at more client-centred, efficient, cost-effective and better integrated services (Sosiaalibarometri, 2016, erityiskatsaus toimeentulosta ja sote-uudistuksesta, 2016: 69).

The responsibility for organizing social and health services will be transferred from individual or joint municipalities to larger, independent regional entities in 2019. After the reform, service users will be able to decide, whether they want to approach public, private or third sector service providers. Municipalities will no longer have a decisive role in funding social and health services either, as it will mainly become responsibility of the state. Each region will produce the services either independently or in collaboration with other regions, and they can use private or third sector services. Besides the reform of the administration and funding, steering of the service provision and the use of action models will also be reformed (Sosiaalibarometri, 2016, erityiskatsaus toimeentulosta ja sote-uudistuksesta, 2016: 69–70).

To sum up, the main principles in the reform of social and health services include a regional administration model, citizens' freedom of choice and the diminished responsibility of municipalities in organizing services. In the new regional model, the role of private enterprises and organizations will increase. Competition neutrality is sought, which means that the public, private and third sector all have equal opportunities to operate in the market (Kunnat, 2016.) As a result, the importance of entrepreneurship skills and competence will grow in the social and health sector.

Entrepreneurship studies for Bachelors of Social Services at Seinäjoki University of Applied Sciences

In recent years, an effort has been made to develop entrepreneurship studies in all educational fields at Seinäjoki University of Applied Sciences, where entrepreneurship is one of the central values. As it was found that students of social work and health care had too little entrepreneurship studies, a course of 3 credits was added to the curriculum in 2011. The aim is that students adopt an entrepreneurial mindset, familiarize themselves with the business environment in their field and learn to collaborate with other professional groups. Various pedagogical approaches have been used during the course, for example group work, online studies and company visits. The course also involves planning, marketing and implementing an event in an entrepreneurial fashion (Volanto, 2011: 142). According to the curriculum, the course aims are, among other things, that students understand the role of entrepreneurship in the social and health sector, learn basic business concepts and are introduced to business planning, financing and legislation (Sosionomikoulutuksen opetussuunnitelma 2015–2016).

The Degree Programme for Bachelors of Social Services was launched in Seinäjoki University of Applied Sciences in 1992, first as an experimental programme, and later, since 1995, on a permanent basis (Varmola, 2006: 16–17). The extent of the Degree Programme is 210 credits. During their studies, students learn to understand people's different life situations, needs and resources. They learn how to apply methods of social work to improve individuals' welfare, social functioning and participation in various groups and communities. Students also learn about the structure of society and culture and about their effect on our lives. International co-operation is an important part of the studies; many students carry out part of their studies as exchange students at universities in other countries (Sosionomikoulutuksen opetussuunnitelma, 2015–2016).

Since the very beginning of the programme, the School of Health Care and Social Work of Seinäjoki University of Applied Sciences has been involved in a national network for social field education. This network for universities of applied sciences has drawn up a national set of competences to describe the skills and competence required from Bachelors of Social Services. The competences, revised in spring 2016, guide the planning of the curriculum and learning contents.

The competences defined for Bachelors of Social Services involve:
- Ethical competences in social work;
- Competence in client work;
- Service system competence in social work;
- Critical and inclusive societal competence;
- Research-oriented development and innovation competence;
- Work, community, management and entrepreneurial competence (Sosiaalialan ammattikorkeakoulutuksen kompetenssit, 2016).

The last competence above is related to entrepreneurship. It involves the aim that Bachelors of Social Services should be able to collaborate in interdisciplinary teams and work communities, as well as in international environments. They

must learn how to work as first-line managers, know the essential labour legislation and promote occupational safety. In addition, they should learn to manage themselves, promote their own and the work community's occupational welfare and evaluate work quality, outcomes and effects. Bachelors of Social Services must be familiar with the role of economics and strategic management in their work, and they must learn the basic conditions for entrepreneurship in the social sector. Finally, importantly for our topic, the competence in client work involves the ability to instruct in different electronic operational environments and to advise clients in using electronic services (Sosiaalialan ammattikorkeakoulutuksen kompetenssit, 2016).

Studies pertaining to the entrepreneurial competence are arranged jointly for students of all fields during their first year. The course does not discuss how to start or operate a business; instead, the expected learning outcomes involve understanding the role of business operations as part of social and healthcare services. The social work students, who tested the game, were taking a last semester course on the organization, management and development of social services. Below is a description of how the development process of the virtual game took place and what special questions came up when using the virtual game with students.

The game as part of an international project

The Degree Programme of Social Work of Seinäjoki University of Applied Sciences was involved in an international project called the "Virtual Game Method in Higher Education" (GAMES). The other participants were the Project Coordinator Poznań University of Economics and Business in Poland, the University of Tartu in Estonia and the University of Huelva in Spain. The project was financed by the Erasmus+ Programme and it was conducted in the years 2014–2016. The project aim was to create a virtual game under the guidance of Polish partners for each participant. A platform created at the Poznań University of Economics and Business was employed to create games that were suitable to the needs of education in each participating country. A game on home help services was created at Seinäjoki.

The idea was that the game should correspond to the real conditions in Finland and in the municipalities selected for the game. Because of this, 8 second-year social work students were recruited to seek information about the age structure, employment situation, existing home help services and price levels of suitable facilities in the municipalities. Information was also sought about salary levels of relevant professional groups and about the cost of continuing professional education, clinical supervision and use of various marketing channels. These real facts were used to create the variables for the progress of the game. Unfortunately, not all information could be used, because the game structure did not allow the number of variables desired. The planners succeeded, however, in creating a game based on realistic data.

Progress of the game

In the game, the players start a home help enterprise, which can be placed in four municipalities in Finland: Seinäjoki, Tampere, Inari and Siilinjärvi. The enterprise can have activities in one or several municipalities. The size, location and age structure of the municipalities varies a great deal (cf. Table 1). Tampere and Seinäjoki are both growth centres with a rather good coverage of social and health services. Both municipalities also provide education in the social and health field, which increases the availability of work force. Siilinjärvi, in contrast, is a small municipality, with a great part of its social and health services provided by the nearest city, Kuopio. Many residents of Siilinjärvi work outside their home municipality. The fourth municipality, Inari, is located in the north of Finland. It is the largest municipality in Finland by area, which means that long distances make running home help services challenging. Finding employees may also prove difficult, because many young, educated people move to larger cities. The share of retired population is nearly 30% in Inari. Another relevant feature is the fact that Tampere and Seinäjoki both have a central hospital, whereas the people of Siilinjärvi use the central hospital of the neighbouring municipality, and the residents of Inari have to travel 300 kilometres to reach the central hospital of Rovaniemi. The distance to the nearest hospital affects the decision on when a client is physically fit enough to be discharged and to become a client of home help services. The distance to the hospital also affects the decision on what kind of services can be profitable for the enterprise.

Based on the information provided, it is the players' task to decide about the size of the enterprise and the services to be provided successfully in the various municipalities. The players have to decide between three sizes: the smallest enterprise has 1–5 employees, the middle-sized 6–10 and the largest 11–20. Finland is a small country and the players know the various municipalities. They are also aware of the structural and cultural differences between northern and southern Finland.

Secondly, the players must define the brand of their enterprise. This is carried out numerically by choosing a value between 1 and 10 to define the level of professional services to be provided. A low value refers to basic services and high value to services requiring special competence. When deciding about the brand, the players need to understand that the level of the services affects their choice of employees and the services their enterprise can start marketing. Besides the pro-

Table 1. Information about the municipalities introduced in the game

Municipality	Area	Population	Share of retired population
Tampere	689.6 km²	220,446	21.8%
Seinäjoki	1469 km²	60,354	21.6%
Siilinjärvi	401 km²	21,567	21.6%
Inari	17 334 km²	6,794	29.0%

Source: Statistics Finland (2016).

fessional competence level required, the quantity of the services must be defined. Some services require more time from employees than others.

Following this, the players hire employees. The game has three groups of employees: home care assistants, practical nurses and bachelors of social services/ registered nurses, whose competence levels have been determined with help of three attributes. The players must be aware that the employees' scope of practice is regulated by law. This means that the staff's educational background must reflect the brand and products offered by the enterprise. The players cannot market services that area beyond the staff's competence.

The players must also define a suitable level of salary for their employees. In Finland, a minimum salary has been defined for each professional group. For example, the minimum monthly salary for practical nurses is approximately 1,700 euros and for registered nurses circa 2,500 euros. If the players offer too little, they will not be able to hire employees and market their services. Paying too high salaries, on the other hand, means that despite motivated employees, the company income will not cover expenses. The game allows players to provide further training to their employees. Players can also affect the staff's working efficiency and permanency, for example by offering clinical supervision and vouchers for cultural activities.

As the participants play against each other, their enterprises must remain competitive. The outcome depends on how well they have succeeded in making decisions concerning the locality, company brand, selection and pricing of services, recruitment of the right kind of staff with appropriate salaries and marketing.

Students' experiences of the game

In Finland, the virtual game was tested at Seinäjoki University of Applies Sciences in April 2016. The participants were a group of third year students of social work. They were 41 students undertaking a course in administration and leadership in spring 2016. We were only able to allocate four hours to play, which is why we did not complete the whole game. Instead, students played five out of the eight rounds. They all played in same classroom, which was rather challenging, given their large number.

Four teachers took part in the testing day. One of them was the instructor for the students' entrepreneurship course, while the other teachers were researchers in the game project. The teachers' role was to support the students. Two teachers provided technical help, whereas the other two observed the progress of the game, writing down their observations about how the students used and related to the game. The teachers' field notes were used as part of the data for this chapter.

First, one of the teachers, the game leader, gave instructions orally. The students also received the instructions on paper. They played in teams of three, with advice and help available from two teachers on request. After all teams had finished a round, the game leader ended it and started a new round. At the end of the game, she reported the results and announced the winning team with the best results.

After the session, the students gave feedback for the game, using a computerized questionnaire planned by the Estonian project partners from Tartu University department Pärnu College. In this Erasmus project, all the participants used the same questionnaire when collecting feedback from students. The questionnaire consisted of 16 items: 3 background questions, 5 questions on the implementation of the game and 8 on students' personal skills and experiences pertaining to the game. The web-based survey tool Lime Survey was used, with questions in English. The students replied anonymously. The survey did not require much time. The background questions concerned the respondents' age, sex and nationality. Most items were multiple choice questions. There were also a few open questions, but they did not attract many responses.

Feedback was received from 38 students, all of whom were female. The results were relatively difficult to analyse and it was not possible to draw clear conclusions based on them. First, the number of students was quite low, making statistical conclusions impossible. The second problem was connected with the survey itself. In several questions, the response options were: totally disagree, disagree, neither, agree and totally agree. In many cases over 20% of students chose the option "neither". We cannot, however, know what this means. It might suggest that the student had no opinion, but it can also mean that she did not want to share it.

There was great variation in the students' answers. Approximately 20% of them expressed a critical attitude towards the game. Six out of 38 students had played the game before. Over 20% of the students felt that, based on the game, they were able to draw conclusions relevant to the real world market situation. Circa 27% of the students reported that they found the game's way of presenting market dilemmas interesting.

Nearly 40% of the students experienced playing the game as neutral, while over 30% of them felt irritated. Very few students felt bored, disoriented or cheerful. Their criticism mostly concerned the information given to them for making decisions during the game. Over 20% of the students reported that the instructions had not been clear and the story provided in the game scenario had not been coherent or clear. On the other hand, circa 20% of the students regarded the structure of the game as consistent.

According to over 20% percent of the students, many problems were presented during the game. Only circa 13% of the students answered that it had been agreeable to play the game and no more than 15% percent would recommend the game to others. Only 17% of the students would like to participate in similar classes in future. Over 36% would like to change some elements in the game. Many of these students told that they would like to change the game so that starting from the very beginning, it should be possible to make more decisions during each round. Some students were frustrated because in game only allowed for each enterprise to hire one kind of workers, for example nurses or practical nurses. This version of the game still involved some technical problems, which irritated the students. As many students were playing at the same time, some of them felt bored, because they had to wait for slower groups before starting the

following round. Many students needed the teachers' help and were frustrated because they, too, had to wait for their turn.

Comparison between Finnish and Estonian students' feedback

Finnish and Estonian cultures are relatively similar nowadays and even the languages resemble one another. Finland has been an independent country since the year 1917, whereas Estonia was a part of the Soviet Union during the years 1940–1991. The population of Finland is over five million, while Estonia has a population of over one million. The economy in Estonia is developing very fast, with a large number of small enterprises. The taxation and salary levels are lower in Estonia compared to Finland.

As mentioned before, the Games project participants created their own games on the platform developed in Poland and tested it with their students. Estonian colleagues were responsible for collecting feedback on the testing. The same questionnaire was used to collect feedback from students in Estonia. The writers of this chapter have not been informed if the students in Estonia played the game individually or in teams, whether they completed the whole game during one session and if and to what extent they received instruction and technical support from teachers. Due to these facts, we were not able to produce a very reliable comparison between Finnish and Estonian students' feedback. We would, however, like to briefly present the differences detected in the responses. The differences were quite noticeable, and we can presume that the students' field of study and sex, among other things, contributed to their experiences of the game.

The number of students in Estonia was 33, of whom 26 were female and 7 male. Most of them (17) were students of business and administration or tourism (14). Two were students of social work. Compared to Finnish students, Estonian students found playing the game more agreeable (Table 2). Over 43% of the Estonian students felt cheerful when playing. On the other hand, over 36%

Table 2. Students' experiences of playing the game

| | Nationality | | | |
| | Estonian | | Finnish | |
	Count	Column N%	Count	Column N%
Cheerful and in good spirits	14	42.4%	2	5.3%
Irritated, because things did not go as I wanted	1	3.0%	12	31.6%
Neutral	4	12.1%	15	39.5%
Cannot tell	1	3.0%	2	5.3%
Amused	0	0.0%	0	0.0%
Bored	0	0.0%	3	7.9%
Disoriented	12	36.4%	1	2.6%
Self-confident and challenged	0	0.0%	0	0.0%
Other	1	3.0%	3	7.9%

reported feeling disorientated during the game session. Comparing the two sets of feedback, we can say that clearly a larger proportion of Estonian students felt that playing was fun. Only two Finnish students felt this way. Instead, almost one third of Finnish students felt irritated during the game, for reasons explained above, compared to a single student feeling irritation in Estonia. Three Finnish students also felt bored during the game session. Despite this, nearly 40% of Finnish students rated playing as neutral. In Estonia, only 4 students found playing the game neutral. One student in Estonia and three in Finland chose the option "other", but did not explain why, although given a chance to elaborate.

Over 36% of Estonian students were eager to participate in similar classes in future and circa 34% were prepared to recommend the game to others. Over 40% agreed that the game scenario captured important issues and over 43% regarded the way of dealing with market dilemmas as interesting. Like Finnish students, part of the Estonian students were critical about the story provided in this game scenario; only 14% of the Estonian students found the game scenario coherent and clear. Over 28% of them answered that the problems provided in the game were diversified. In other words, the students in Estonia were generally less critical about the game compared to Finnish students. A considerably larger proportion of Estonian students were ready to participate in similar classes in future and to recommend the game to other students.

Rather similar answers were given by both Finnish and Estonian students to the question "Which skills are necessary to successful progress with the game?" (Tables 3 and 4). According to the Finnish students, problem solving skills, decision making skills, flexibility and communication skills were the most important skills. Computer skills, analytical skills, time management and independence and team work skills were not regarded as equally important. All Estonian students answered that the most important skills required in playing the game successfully were problem solving skills, decision making skills and communication skills. Nearly 100% of them also mentioned team work skills, flexibility and analytical skills as necessary in playing the game. Time management and independence were not considered so important.

As regards this question, the main difference between the students in the two countries lied in the fact that Estonian students appreciated the importance of almost all the skills much more than Finnish students.

The students had been classified into groups based on the combination of the following features: extravert, introvert, sensor, intuitive, thinker, feeler, judger and perceiver. The writers are not informed of the exact basis of the classification, but it showed that Finnish students were mostly extraverts, intuitive and feelers. The next most common groups were perceivers and judgers. Few Finnish students were classified as introverts and thinkers. As for Estonian students, most of them belonged to the category intuitive and judgers, whereas the next group were classified as thinkers, perceivers and extraverts and a minority as introverts, sensors and feelers. The greatest difference was that there was a notably larger number feelers among Finnish students compared to Estonian students. There was also a greater number of extroverts among Finns, although the dif-

Table 3. Skills required in playing the game according to Estonian students

| | ESTONIA | | | | | | | | | |
| Skill | Totally disagree | | Disagree | | Neither | | Agree | | Totally agree | |
	Count	Row N%	Count	Row N%	Count	Row N%	Count	Row N%	Count	Row N%
Communication skills	0	0.0%	0	0.0%	1	3.0%	12	36.4%	20	60.6%
Decision making skills	0	0.0%	0	0.0%	0	0.0%	3	9.1%	30	90.9%
Team work skills	0	0.0%	0	0.0%	1	3.0%	4	12.1%	28	84.8%
Flexibility	0	0.0%	0	0.0%	1	3.0%	12	36.4%	20	60.6%
Analytical skills	0	0.0%	0	0.0%	1	3.0%	7	21.2%	25	75.8%
Independence	0	0.0%	2	6.1%	15	45.5%	9	27.3%	7	21.2%
Problem solving skills	0	0.0%	0	0.0%	0	0.0%	10	30.3%	23	69.7%
Time management skills	0	0.0%	2	6.1%	6	18.2%	10	30.3%	15	45.5%
Computer skills	2	6.1%	6	18.2%	8	24.2%	10	30.3%	7	21.2%
Other	11	34.4%	2	6.1%	15	46.9%	0	0.0%	4	12.5%

ference was not pronounced. Even though the justification of the classification remains unknown to us, it would seem, also based on the students' feedback for the game, that Finnish students expressed more emotions associated with the game than Estonian students. This finding may be related to the students' field

Table 4. Skills required in playing the game according to Finnish students

| | FINLAND | | | | | | | | | |
| Skill | Totally disagree | | Disagree | | Neither | | Agree | | Totally agree | |
	Count	Row N%	Count	Row N%	Count	Row N%	Count	Row N%	Count	Row N%
Communication skills	1	2.6%	2	5.3%	5	13.2%	21	55.3%	9	23.7%
Decision making skills	1	2.6%	0	0.0%	4	10.5%	16	42.1%	17	44.7%
Team work skills	0	0.0%	1	2.6%	3	7.9%	19	50.0%	15	39.5%
Flexibility	0	0.0%	1	2.6%	6	15.8%	21	55.3%	10	26.3%
Analytical skills	0	0.0%	1	2.6%	11	28.9%	20	52.6%	6	15.8%
Independence	0	0.0%	8	21.1%	13	34.2%	13	34.2%	4	10.5%
Problem solving skills	0	0.0%	0	0.0%	4	10.5%	24	63.2%	10	26.3%
Time management skills	0	0.0%	4	10.5%	10	26.3%	16	42.1%	8	21.1%
Computer skills	0	0.0%	2	5.3%	10	26.3%	15	39.5%	11	28.9%
Other	6	15.8%	2	5.3%	26	68.4%	3	7.9%	1	2.6%

of study; in social work studies, interaction skills are emphasised, along with handling and expression of emotions.

There were few responses to the open questions of the questionnaire. This may be partly due to students thinking that they should reply in English, which may have seemed difficult for some of them. For example, there were 14 responses to the question "Would you like to change some elements in this game?", discussed earlier in this chapter. Only three students replied the question "How did you feel while playing this game?" One of them described the experience using the words "excited, irritated, bored", whereas another chose the words "stressed, happy, bored, angry". Both answers describe the fluctuations in emotions aroused by successes and failures and are compatible with the teachers' classroom observations during the game session. The third response to the open question reflects the person's frustration with the technical problems: "The game requires the development. The result should be visible without logging off". It was a major problem that the changes made by players were not always saved for the next round.

When analysing and comparing the answers in Finland and Estonia, we must remember the differences between students. Nearly all Estonians were students of business and administration or tourism, and their game was connected with hotel business. The subject was familiar to them, which probably influenced their motivation to play. The Finns, in contrast, were social work students, whose studies only include 5 credits of business and entrepreneurship. Secondly, the game played in Finland was connected with the care of elderly people, a subject rather unfamiliar to most social work students. Elderly care was selected as a focus, as it is the strongest growing area in the private health and social care sector in Finland. The Polish colleagues from Poznań University of Economics and Business, who planned the game platform, originally meant it to represent manufacturing business; it was planned as a digital game on starting a chocolate factory. The Polish partners were also responsible for the technical execution of the game during our project. Some problems emerged when bringing the Finnish game onto the platform, because enterprises in the health and social sector are quite different in comparison to manufacturing companies. Despite this, an effort was made to create a game which would realistically represent the social and health care context.

Finally, the participating students' age and sex may also have influenced their attitudes and motivation. In Estonia, the students' mean age was 20 years, whereas in Finland it was 25 years. All Finnish students were women, while in Estonia, seven students were men. Statistics have shown that young men are more active players, so in this context, too, playing may have been a more natural and interesting way of learning for men than for women.

To sum up, the Finnish students had a rather critical attitude towards playing, especially as regards technical problems, instructions provided and the game's incompatibility with reality. It was not possible, for example, for the imaginary enterprise to hire employees beyond a single occupational group. The students found it frustrating that, especially early on in the game, it was only possible to make a few decisions and changes during one round. Players had to wait for all

teams to make their decisions before they could move to the following round. The students' critical attitudes may partly be explained by the fact that time did not allow them to complete the game. In this respect, we cannot compare the situation with Estonian students, whose testing conditions are not known to us. One can only presume that their field of study (business and tourism), combined with the contents of their game (hotel business) had an effect on the feedback. The Estonian students experienced the game as more fun and agreeable and they were more prepared to participate in similar classes and to recommend the game to others than the Finnish students. The technical problems experienced in Finland were connected with the fact that the game dealt with health and social sector enterprises and was quite different in comparison to other partners' games. It is also possible that the game was tested too early, before it was technically fully functional.

Evaluation of the virtual business game and game-based learning

Based on our experiences, we might recommend that the game on home help services should provide a more versatile approach to learning. For example, the use of several sensory channels could be integrated into the game. As the visual environment of games strongly affects players, the role of visual graphics, characters and environments could be promoted. The auditory environment could also be developed by including music, which communicates emotions and thus facilitates learning. Music may help the player understand the emotional level of learning (Lu, 2014: 56).

Secondly, it would be helpful if the game included basic information about entrepreneurship. Social and health care students have few courses on entrepreneurship. The students were, for example, not familiar with the roles and job descriptions they had to choose from in the virtual enterprise: CEO (Chief Executive Officer), CFO (Chief Financial Officer), COO (Chief Operating Officer), CMO (Chief Marketing Officer) and CTO (Chief Technology Officer). Another important improvement would be to include information about the Finnish permissions and regulations related to setting up an enterprise in the social and health sector.

The third suggestion for improvement concerns assessment. The purpose of the virtual game was to motivate students to learn contents and skills related to setting up a business. All studies completed must also be assessed. It would be very difficult to assess the students' contributions, especially if the game were not part of a regular course, with other assessment methods and targets available. The question is: what did students learn with help of the game, and how to assess the level of their competence? As mentioned above, the social work students at Seinäjoki University of Applied Science gave feedback electronically on how they experienced the game.

There are several potential approaches to assess students' learning. They could be asked to write a learning journal, in which they describe the role of game-based learning as part of their entrepreneurship studies. Secondly, students could be requested to draw up a plan for setting up a home help enterprise before

playing the game. The same assignment could be used after the game, and a comparison between before and after would give the teacher an idea of the students' learning process and level of competence. Thirdly, students could be asked to evaluate their own learning. Another option would be to compare the results of separate game sessions during one course.

Finally, we feel that even when playing a game, all teams should experiences success, at least in some areas of the game. In this game, only one team could win. Even though just testing the game, the students' attitudes to winning and losing were quite visible. The members of the winning team were happy, expressing their feelings by shrieks of joy, arm lifting and "high-fives". Members of the losing teams, in contrast, sighed annoyed and talked about their minus points. The main purpose of the game, however, should not be one or a few team members feeling like winners and the rest of the students like losers.

Discussion

Games provide students an opportunity to experience something they might not otherwise experience. Not all students will start an enterprise, but games can show them what kind of factors need to be considered when planning a company offering home help services. Games can promote problem-solving skills, as students need to draw conclusions on why certain solutions do not work. Games can also be useful in learning interaction skills, information technology and language skills, provided that they are technically adept and suitable for the overall learning contents. Games can provide a different learning experience; they can be happy and exciting occasions, if students are motivated to play. When planning and designing games it is essential that they suit the contents and requirement levels of the course. In the best case, games are an interesting and motivating method for the teachers' tool kit. Teachers must know the game well, to be able to assist students with technical problems, but also with finding solutions. Just organizing game sessions as part of a course is not adequate; as mentioned above, it is advisable to combine games with reflective assignments. After the game session, it is a good idea to discuss the decisions made and their consequences, and to ponder how the game process and things learnt reflect real life. Unfortunately, in this case in Finland the students' schedule was so tight that there was no time for discussion after the game. The version of the game used was not technically developed enough at the time of testing, which is the biggest reason why gaming was not satisfying.

Gamification and game-based learning are one way to integrate elements of working life into studies, which is one of the goals emphasized in Finnish universities of applied sciences. this way, students of social work and health care can gain an understanding of the conditions of business operations and an idea of how to succeed in the game of entrepreneurship. Simultaneously, however, there may be a risk of forgetting the fact that work in the social and health sector often involves slow processes, where the logic of game playing does not fit. Challenges of social life and health issues may be a far cry from game-like situations. Some

games have been developed with this difficulty in mind, with game contents and rhythm matching the problems of social life. As an example, a game designed to help depressed and socially excluded young people uses virtual novels, whose purpose is to facilitate choices and decision-making (Ravelin, Korhonen, 2015: 120). Socially withdrawn young individuals may find in the visual novel a source of belonging (Lu, 2014: 55).

In future, games should be designed for the study and practice of client work. In other words, games should be created for real client work in the social and health sector, not only for studying client work. One example could be a game used by clients to practise life coping skills. It would be advisable to involve patients and clients in the game planning and implementation process (Ravelin, Korhonen, 2015: 117). Future clients and patients will be critical about their care and assume more responsibility for their health and rehabilitation (Raitio, Hopia, 2015: 111). Games can help clients make choices and decisions related to their welfare.

The identities of social and healthcare workers are bound to change in one way or other due to digitization, and work culture is likely to change with the technological development and gamification. Social and healthcare professionals will increasingly find themselves in a counselling instead of an expert role, while clients are expected to assume more responsibility for their health, welfare and care (Jauhiainen, Sihvo, 2015: 126). Digitization requires that workers adopt new attitudes and knowledge about how to work and support clients (Tiilikka, 2011: 36).

From the perspective of future social and health services, games and gamification can be important in helping students' familiarization with digitization and in creating tools for the promotion of clients' participation and social functioning. Games can be meaningful in the social sector, if they help motivate clients to engage in welfare-promoting activities. Students, who learn to use games during their studies, can apply their skills to promote their future clients' welfare.

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