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UNLOCKING OPPORTUNITIES AT THE CROSSROAD OF GAMIFICATION AND EDUCATION

Market research for Saudi Arabia with a focus on Saudi-Finnish cooperation.

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ABSTRACT

Incorporating gamification into the Saudi Arabian educational landscape is now one of the most researched topics in the country. The international and Saudi Arabian media raised awareness, revealing the clear need for study degrees in this domain since the country is investing heavily to become the "ultimate global hub".

The main objective of this thesis was to carry out a narrow research of the Saudi Arabian gaming market, study in depth the potential advantages and difficulties of gamification in the Saudi educational system as well as the potential collaboration in the field of the gaming industry between the Finnish and Saudi Arabian institutions.

The theoretical framework discussed the concept of gamification, its challenges and opportunities in Saudi Arabia, Finnish expertise and the potential collaboration between both nations. To obtain useful insights irrespective of the geographical limitations, qualitative research of interviews and multiple case studies was used. The collected data was analysed with deductive thematic coding.

The study indicated that combining a new field within the industry brings additional value to the country's financial and educational structure. Moreover, the study revealed that gamification is becoming more popular and that the gaming market has experienced significant growth in Saudi Arabia due to rising digitalization and the youth tech-savvy population. Overall, this research has affirmed that the Finnish-Saudi Arabian collaboration in gaming is viable and has the promise of exchanging information and knowledge, cross-cultural learning, and growth for both sides.

Keywords: gamification, collaboration, Saudi Arabia, Finland, education

CONTENTS

APPENDICES

1 INTRODUCTION

1.1 Background and commissioner/case organization

Gamification has become a cutting-edge strategy in education to improve learning results and student engagement. According to Maida (2018), an analyst for research on education and technology, Saudi Arabia is highly interested in incorporating gamification and the government is already putting a lot of effort into this tool, for instance, the efforts can be illustrated in the launch of gamified laboratories.

Effective student engagement is one of the common challenges for the traditional education system, specifically in the digital age. Nonetheless, gamification offers a chance to overcome this problem, by increasing the interactivity and enjoyment of learning. When used properly, gamification has potentially the strength of revolutionizing conventional teaching strategies and increasing the interactivity and engagement of learning.

The commissioner of this thesis is the Education Export Team leader of the international office at the South-Eastern University of Applied Sciences (Xamk) who has indicated a strong interest in working with the Saudi Arabian market. There is a lot of potential for this collaboration to improve education in both countries.

The researcher's internship, which the university provided, has been a worthwhile and enriching experience that has given her a deep awareness of the multiple procedures involved in collaborating over many marketplaces. The researcher's sincere commitment and output were observed during the internship. The researcher was permitted to serve as a sales representative for a further term, with an emphasis on French and Arabic-speaking countries, after the training supervisor fully realized the researcher's potential.

The researcher was particularly well-suited for this project due to her high racial consciousness and strong Arabic language skills, which influenced the choice of this task.

1.2   Development settings

This study sought to shed light on the current condition of gamification in education, evaluated its viability in the Saudi market, and highlighted significant chances for cooperation between Saudi Arabia and Finland. This research aimed to carry out a thorough research of the Saudi Arabian gaming market, study the potential advantages and difficulties of gamification in the Saudi educational system and the potential collaboration in the field of the gaming industry between the Finnish and Saudi Arabian institutions.

The research questions were:
How may gamification be successfully incorporated into the Saudi Arabian educational system?
What potential exists for cooperation with Finnish educational institutions?

The first objective was to perform a thorough analysis of literature and theoretical frameworks on the subject to have a thorough grasp of gamification in education. The second goal was to evaluate the Saudi educational system, emphasizing its possibilities and problems. Finding opportunities for cooperation in the field of gamification and education between Finnish and Saudi Arabian institutions was the third goal.

There are multiple new ways to better understand the learning process that results from the newest integration of technology into education. One of the most important developments to emerge in education is gamification. By including game principles in their settings, educators have found innovative ways to capture students' attention, increase their motivation, and promote active learning.

According to Helsinki Times magazine (2020), the release of some games like "Angry Birds" (Rovio Entertainment 2009) and the development of large companies like Supercell (2010) in Finland has been recognized legitimately as a pioneer in the field of video games.

Finland's strong commitment to education is intimately related to this huge accomplishment. Gaming and education cooperate harmoniously, and the education system in Finland provides game education at different levels. Vocational schools are the best option for people interested in the business of game creation. Moreover, students who are interested in becoming game programmers can amplify their knowledge and abilities by studying computer science or game design at universities of applied sciences. (Neogames 2023.)

Therefore, Saudi Arabia's stated desire to incorporate gamification into its educational system and market is, therefore, both encouraging and a fantastic chance for cooperation between the two countries.

1.3 Research methods

To study further the actual application of gamification, multiple case studies and open-ended interviews were the major qualitative research methods utilized. This technique was mainly used to present a general view of a research issue and get a wider idea concerning the topic.

Qualitative research involved gathering and analyzing non-numerical data, text, video, or audio to understand ideas, opinions, or experiences. This approach was used to generate new research ideas or to obtain an in-depth understanding of a specific problem. It contrasts with quantitative research, which gathers and examines numerical data for statistical analysis. (Bhandari 2023.)

One method of conducting an interview and a qualitative research technique is the open-ended interview. It is an open, conversational exchange between the interviewee and the interviewer with a specified theme or issue at hand. (Moilanen et al. 2022.)

Qualitative data was collected through open-ended interviews with education export experts to hear more about their opinions and perspectives regarding the potential collaboration. It was not practical to conduct in-person interviews with Saudi Arabian teachers due to the researcher's geographical location. Nonetheless, the researcher interviewed one Finnish coding school that collaborated with Saudi Arabia to hear about their experience and highlight the challenges they have faced to avoid them in future collaborations.

Three interviews were done during this research, on-site and through Teams. The invitations were sent in advance to the interviewees and the interviewer prepared in advance the interview guide.

Moreover, this research included multiple case studies as a qualitative research method. Three case studies were analyzed in this research to answer the second research question and to understand the cooperation model. The agreement signed by the University of Helsinki and the Ministry of Education in Saudi Arabia to bring their teachers to Finland and pursue their education programme was one of the cases. One expert on education global solutions who was involved in this project was interviewed to support the case.

Data analysis was crucial to understand the complexities of the Saudi Arabian market and its preferences in the context of this study. The data was carefully analyzed to allow for the discovery of patterns and trends. Additionally, the research obtained important insights by utilizing thematic coding. This method is part of the qualitative data analysis, which is used to find common themes or ideas. A deductive approach was used for the thematic analysis in this research. Therefore, the author already had a perception of her themes and prepared her case studies and interview guide accordingly. The themes were already mentioned in the literature review and were supported and confirmed by collected data.

As a result, the analysis was done according to the themes. The conclusion of the analysis was the success of the potential collaboration between Saudi Arabia and Finland and the opportunities it brings to both nations regardless of the

challenges that were illustrated by cultural and language barriers and also the success of incorporating gamification in education in Saudi Arabia.

1.4 Framework and the limitations of the study

This study included theories of gamification in education, the current system of Saudi Arabia's education, Finnish long-term expertise in gamification, and the collaboration of the two nations.

During this research, the analysis and decision-making procedures were guided by this framework illustrated in Figure 1.
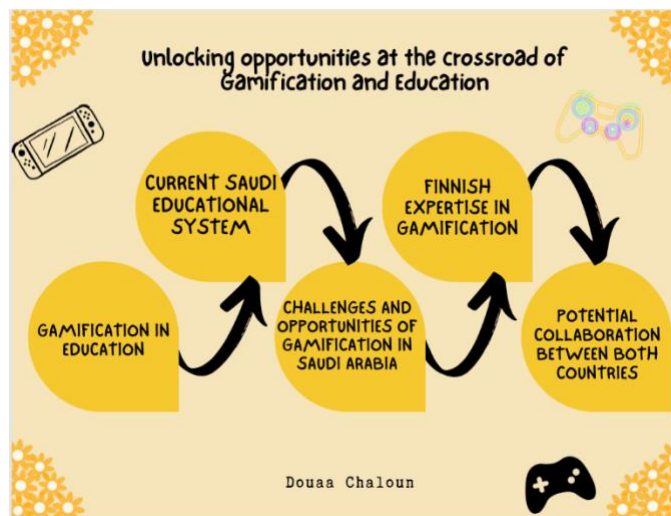
Figure 1. Theoretical framework

According to Radwan (2022), the gaming industry is now growing rapidly in Saudi Arabia and the whole GCC region, notably, significant funding was announced to encourage regional game developers. According to El Hajj (2023), Saudi Arabia has invested nearly $40 billion to reach its 2030 vision and become the ultimate global hub.

At the same time, Finland has shown a strong interest in gamification and the gaming sector. The consolidation of these interests is a strong opportunity that is worth consideration.

It was imperative to recognize the limitations of this research. Due to geographical limitations, the researcher was unable to conduct in-person

interviews in Saudi Arabia, which would have allowed for a more nuanced knowledge of local viewpoints. Furthermore, a big part of the research depended on the accessibility and availability of data sources in Saudi Arabia; this means that differences in the quality of the data provided challenges.

This study's purpose was to collect data and analyse it by acknowledging and resolving these limitations. In the end, this helped with a better understanding of gamification in the Saudi educational system and even the possibility of cooperation between Saudi Arabian and Finnish educational institutions.

2 UNLOCKING OPPORTUNITIES AT THE INTERSECTION OF GAMIFICATION AND EDUCATION

2.1 Gamification

2.1.1 Concept of Gamification

Since its inception, the concept of gamification which entails introducing game elements and designs into non-gaming contexts to increase user engagement and motivation has quickly developed (TseHou 2023,1).
While the term itself is relatively new, the idea of imbuing work with elements of game design has been around for a while.

The field of gamification developed as a result of several significant events. In a nutshell, the story started with Richard Bartle creating the multiplayer online experience. He invented MUD1 in the late 1970s, which was a huge central event that led to the development of online gaming. Thomas W. Malone, on the other hand, explored the essential motivation of video games and demonstrated the potential of being used as teaching tools in the early 1980s. 4 years later, the book "The Game of Work," written by Charles A. Coonradt, motivated companies to consider employee enjoyment and productivity. Later on, gaming consoles became popular, and Sony Company came out with the PlayStation 1 in the early 1990s. Serious Games and Games for Change were created afterwards in 2003,

and Nick Pelling was the first to use the term "gamification". All of these events helped in the field's growth. (Chitroda 2015.)

In 2010, the field of gamification experienced a notable upsurge. Leaders in game mechanics and engagement science came together in 2011 for the inaugural Gamification Summit. Today, gamification is widely used, especially as a talent attraction and retention strategy. Gamification's future looks bright because it can transform industries through immersive training, increased motivation, and enhanced engagement all of which can lead to improved performance and outcomes in a variety of settings. (Chitroda 2015.)

Since its appearance, gamification has different definitions, and the author selected the most relevant ones for her research.

"Gamification" is defined by Deliyannis (2023) as "less structured gaming apps with various game aspects and incentives like points, awards, and leaderboards." Hamari and Huotari (2016, 25) have defined gamification as the process of adding features to a service that allow for engaging gameplay to support users' overall value creation.

According to Hamari and Huotari (2016, 26) Because gamification places a strong focus on components like incentives, feedback, progress tracking, and motivation, it falls within the category of applied behavioural psychology.
It is an essential part of a lot of activities, not only those that happen online. Applications for gamification can be found in many different domains and endeavours, such as marketing, employee training, healthcare, and education. In circumstances where motivation or behaviour change is required, the main idea is to utilize the psychological elements of games such as competitiveness, achievement, and a sense of progress to enhance their appeal. Gamification seeks to enhance the interactivity and appeal of non-gaming activities to eventually promote desired results.

2.1.2   Gamification and education

Education experts have given gamification a great deal of attention since it first became popular in the early 2010s.

Karl M. Kapp (2012) quoted gamification as "*the application of game-based mechanics, aesthetics, and gaming principles to engross individuals, spur action, facilitate learning, and address challenges"*. Kapp (2012) has also defined gamification as *"the optimal approach for crafting immersive learning environments".* This definition shades gamification's capacity to stimulate both motivation and solid engagement (Charlo, Dios et al. 2021,18).

According to Llorens-Largo & Molina-Carmona (2020,16), gamification is not a new tactic in the field of education. Since the early days of formal education, play and game concepts have been used as tools to inspire, stimulate, and communicate educational content. For instance, Kahoot (2013) is the most popular tool used in education. This platform has been used in lecturer's classes to enhance student engagement and motivation. The author discovered this platform during her university courses and it helped her understand parts of her courses unconsciously while taking part in the quizzes. Moreover, Duolingo is another example of educational gamification. Users learn languages, by playing games and quizzes. This application launched a new feature of offering courses to schools. Teachers can therefore track their students' progress and activity. These playful components are not just included in early childhood education; people of all ages can take pleasure in these stimulating experiences, even if they are unaware that these tactics contain instructional components. The possible impact of gamification on the assessment stage of the learning process is another important factor in this educational context, highlighting the necessity of using a variety of assessment techniques when implementing different pedagogical strategies.

All tiers of the educational system have embraced the notion of gamification, which is based on the idea of learning through play and enjoyment. It is an aspect

of education that is widely accepted. Companies like Wonnova, which uses the gamification model in conjunction with the film Jumanji (1995), attest to the long-standing use of this concept. Within the corporate world, gamification techniques have been applied to inspire and encourage staff members and clients to accomplish objectives, create goals, make plans, integrate gaming elements into work settings, create a feeling of community, and create company slogans. (Llorens-Largo & Molina-Carmona 2020,16.)

In the process of conducting this research, the author came across a new term "serious games". Serious games are Interactive digital or analogue games with a primary purpose other than entertainment. These games are designed to fulfil informational, instructional, or training purposes rather than just for fun. In a variety of industries, such as education, healthcare, and military training, serious games are an invaluable tool for imparting knowledge, developing skills, or simulating real-world scenarios. (Llorens-Largo & Molina-Carmona 2020,16.)

Serious games and gamification in education are related because they both aim to increase the effectiveness and engagement of learning. Gamification is the process of incorporating game elements into non-gaming contexts, such as classroom activities or e-learning platforms, whereas serious games are full game experiences with a distinct educational focus. The goal of both strategies is to increase student engagement and motivation.

The specific learning objectives and the preferences of educators and students often determine whether to use gamification or serious games in the classroom. Serious games are more extensive and provide in-depth learning opportunities, whereas gamification can be used to enhance a variety of educational tasks, such as behaviour control in the classroom and quizzes and assessments. Oftentimes, gamification components combined with serious games can be a potent way to get students interested and help with learning.

2.2   Educational system

2.2.1   Finnish educational system

There are different levels in the Finnish education system, and one of its unique features is that there are no educational dead ends. Finland guarantees a continuous and adaptable educational pathway by giving students the chance to always progress to a higher level of education. (Ministry of Education and Culture 2021.)

With its dedication to ensuring that everyone has access to equal educational opportunities, Finland's education system is a pillar of the country's welfare society. From pre-primary through higher education, education is provided free of charge in Finland. The excellent educational standards commitment of Finnish teachers are the system's defining features. The Finnish educational system's dedication to quality, accessibility, and a comprehensive approach to learning has won praise from around the world for its ability to develop well-rounded people. (Ministry of Education and Culture 2021.)

Finland has always been ranked among the top education systems in the world and according to the Study Finland (2020), Finland was ranked first in higher education efficiency in the world in 2020.

According to Finland ToolBox (2022), Finland is ranked second in the world when it comes to the highest performance of graduates in 2019.

Based on the graph provided by Ministry of Education and Culture in 2021 (Figure 2), the Finnish educational system is composed of :

Early childhood education and care This portion of education is for children who have not yet reached the age of seven, when compulsory education usually begins.

Early childhood or Pre-primary education: The year before compulsory education begins is when children receive pre-primary education. It is essential in getting pupils ready for their academic path.

Basic education: This nine-year mandatory education program gives students a solid foundation in knowledge and skills. It serves as the foundation of the Finnish

educational system, guaranteeing that every student receives the same education.

Upper secondary education: There are two options available at this level: vocational education and training or general upper secondary education. It equips students with specific knowledge and abilities according to their own interests and professional aspirations.

Higher education in Finland offers advanced learning and specialization in a wide range of subject areas through its universities and universities of applied sciences.
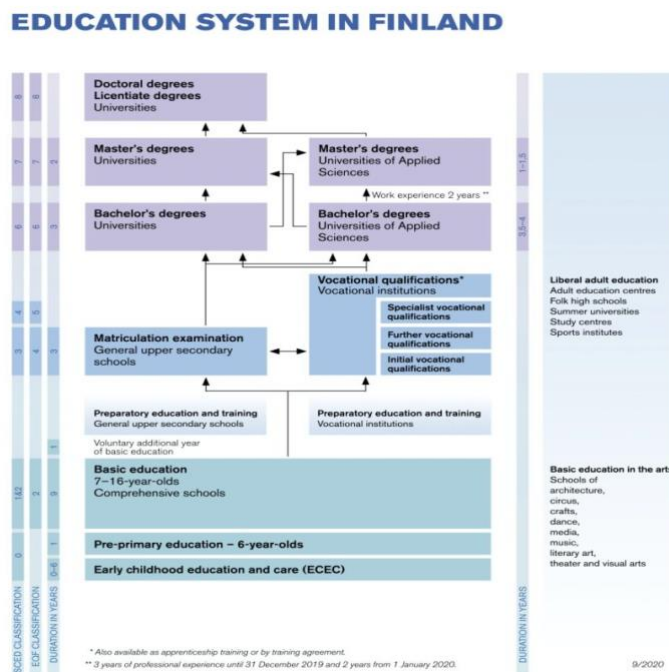
Figure 2. Finnish Education System (Ministry of Education and Culture 2021)

Given that the higher education system was the author's main area of interest, this section will elaborate on that point.

Universities and universities of applied sciences comprise the two main categories of higher education in Finland. Universities are established with a strong foundation in research and education, and they have the power to award doctorates. Conversely, universities of applied sciences function as flexible establishments that are principally committed to professional postsecondary education and actively participate in the field of applied research and

development. Moreover, Finland uses a credit-based system for quantifying studies in its first and second cycles of higher education. Study courses are assessed according to the amount of work they require. A year of full-time study equates to a total of 60 credits, or an average of 1600 hours of student effort. (Finnish National Agency for Education 2023.)

2.2.2 Saudi Education system

Over time, Saudi Arabia's educational system has experienced a notable transformation. Education was available only to the wealthy and those from wealthy urban families when the Kingdom first came into existence in 1932. With plans for future growth, Saudi Arabia currently has a thriving educational system with over fifty public and private universities, about 30,000 schools, and a wide range of colleges and institutions. All citizens have free access to this educational network, which offers instruction, textbooks, and medical services. Saudi Arabia's modern educational system is committed to offering top-notch instruction across a range of arts and sciences. This variety demonstrates the Kingdom's dedication to preparing its people for life and work in the global economy. The Saudi educational system aims to prepare students for modern life and the workforce while also taking into account the nation's religious, social, and economic needs. (Ministry of Education 2021.)

As illustrated in Figure 3, the schooling system for children in Saudi Arabia is called general education, and it is divided into six years of elementary education, three years of intermediate education, and three years of secondary education (World Education News 2020).

The six-year elementary education phase is open to all Saudi children and covers grades one through six. As with all general education levels, funding for this level of instruction comes from public sources and is provided at no cost. Core subjects taught in the curriculum include Arabic, Islamic studies, mathematics, science, and art. Higher grades also cover computer literacy, social studies, and

English. Students who fulfil all the requirements and complete the sixth grade are awarded the General Elementary School Certificate, also known as Shahadat Al-Madaaris Al-Ibtidaa'iyyah. (World Education News 2020.)

The three-year intermediate schooling program covers grades seven through nine. The curriculum in this phase is similar to the elementary. Students after completing grade nine successfully receive the Intermediate Education Certificate (Shahadat Al-Kafa'at Al-Mutawassita) to move to secondary education. (World Education News 2020.)

Secondary education offers a more specialized and extensive curriculum and lasts three years on average. Students are prepared for further study, career training, or entering the workforce during this phase. Depending on their interests and academic performance, students may choose to follow different career trajectories or enrol in universities or vocational schools after completing their secondary education. (World Education News 2020.)

After completing secondary school students move to higher education which is the author's interest for this thesis. Saudi Arabia's higher education system has expanded and changed dramatically in the last few years. Universities and other educational establishments, both public and private, have sprung up everywhere, providing a broad range of undergraduate and graduate programs in a variety of subject areas, from the humanities and social sciences to the sciences and engineering. Among the well-known public universities are King Fahd University of Petroleum and Minerals, King Saud University, and King Abdulaziz University. Additionally, private universities have been founded in response to the rising demand for higher learning. These establishments have played a crucial role in changing the Kingdom's higher education scene. Mechanisms for accreditation and quality control have been implemented to guarantee that institutions and programs adhere to international standards. The proactive approach towards quality maintenance has led to a notable improvement in the overall standard of

education in Saudi Arabia and has also played a role in the international recognition of Saudi degrees. (Ministry of Education 2021.)

Figure 3 highlights the Saudi Arabian education system commencing from Elementary education to higher education, Doctoral degree as the highest. This demonstrates the educational path every student in Saudi Arabia should follow.
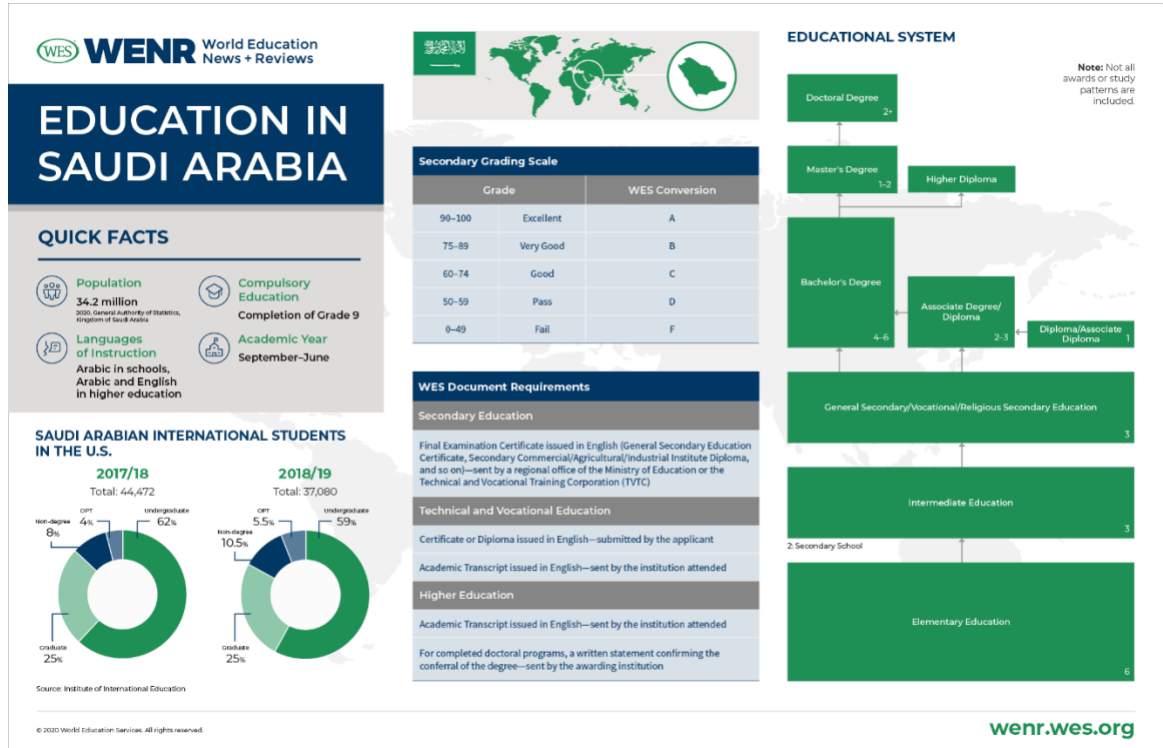
Figure 3. The educational system in Saudi Arabia (AllahMorad 2020)

2.2.3 Saudi VS Finnish education system: differences and similarities

A comparison of the educational systems in Finland and Saudi Arabia revealed both points of similarity and differences, offering important insights into the distinct approaches that each country uses to educate its citizens. Differences between the two educational systems are presented in Table 1.

Table 1. Differences between Finland and Saudi Arabia

Point of differences	Finland	Saudi Arabia
PISA (2018) According to education GPS (2018)	Reading: 520 points Mathematics: 507 points Science: 522 points	Reading: 399points Mathematics: 373 points Science: 386 points
Goal and objectives	"Finland's objective is to provide citizens with equal opportunities to receive education." (Ministry of education and culture 2021)	Saudi Arabia's objective is to Assist students in meeting the religious, social, and economic needs of the country while preparing them for modern life and work. (The Ministry of Education 2021)
Literacy rate (wisevoter 2023)	100% Ranked 2nd	94,84% Ranked 107
Education focus	The development of independent learning, creativity, and critical thinking are prioritized.	Saudi Arabia has historically prioritized religious and cultural education
Curriculum	The adaptable and flexible curriculum in Finland enables teachers to customize instruction to each student's needs.	The curriculum in Saudi Arabia is rigid and as consequence flexibility to adjust to the needs of students is restricted

Among similarities, one can highlight the following aspects:

Emphasis on Quality: Both countries are well aware of how critical it could be to raise the standards for their educational systems. They have invested in programs with one goal in mind which is improving student performance.

Digital Transformation: Finland and Saudi Arabia have embraced the use of digital technology in the classroom. To give students, access to online resources and the opportunity to engage in e-learning, they strive to incorporate technology into the educational process. Finland's aim in 2027 is to *become the world's leading developer and user of sustainable digitalization in education.* This goal has been established to provide equal opportunities for all citizens. (Ministry of Education and Culture 2023.)

Saudi Arabia, on the other hand, is putting a lot of effort into providing all its citizens including students with digital tools in order to reach a better quality of learning but also to achieve its 2030 vision (Alotaibi 2021,2).

Vision 2030: Both countries want to develop their higher education and expertise in different fields. Saudi Arabia wants to be a centre for research, development, and higher education by 2030 so that its people can prosper in a world that is changing quickly (vision 2030).

Finland is allocating 4% of its GDP for research and development and aims to become the most competent labour force, according to the Ministry of Education and Culture (2019).

Inclusivity: Finland and Saudi Arabia strive to offer inclusive education, guaranteeing that learners from a variety of backgrounds can receive a good education. They are promoting gender equality in education and helping students with special needs through various initiatives.

2.3   Challenges and opportunities of gamification

Including gamification in education in Saudi Arabia might be beneficial for the country to reach its aims such as to become the largest hub. However, many challenges need to be taken into consideration.

2.3.1   Opportunities

Including gamification in education will enhance students' engagement and increase his or her motivation to reach their educational goals. When students realise their studies have a part of "fun", which, in this situation are games,it will enhance them to participate, study and give more.

Gamification helps students to understand the concept of courses simply and amusingly. It improves a learner's mental health and increases linguistic growth. Gamification aids students in getting rid of the stress and tension that every student experiences during his or her educational journey and any negative emotions. Also, when students have a positive outlook on their education and are aware that their efforts are appreciated and rewarded, they shift from being passive to active participants. As a result, they have a propensity to store knowledge in long-term memory. For instance, when students receive extra points or medals this will raise their level of competitiveness to study and improve their knowledge but also it makes their educational journey more enjoyable. (Alqarni and Alabdan 2022,42.)

According to Aaltonen and Jääskä (2022,2), gamification has a positive impact on students' emotional behaviour and can develop many skills for the students such as communication leadership and decision-making skills.

Furthermore, this decision is a great benefit for Saudi Arabia since it enhances the creativity of its students and will lead to an increase in creative brains every year. In addition, gamification develops students' critical thinking and problem-solving skills

Moreover, Saudi Arabia's Vision 2030 emphasises the importance of an education system that is world widely competitive. Therefore, adopting gamification which helps the promotion of both innovation and creativity aligns with the country's aim. (Vision 2030.)

With the help of gamification, teachers can also follow their students' progress and point out areas in which more help may be required in real-time.

Saudi Arabia can also use educational escape rooms while incorporating gamification into its education. According to Charlo et al. (2021,60), an educational escape room is a learning environment that is creative and blends formal and informal teaching. This innovation can be tailored and fit all levels of education and different fields. By adopting this game, students will strengthen their self-esteem, and their interaction and communication skills since they will be working in groups.

Figure 4 highlights the important opportunities and benefits that hold gamification in Saudi Arabia.

Figure 4. Opportunities of gamification

2.3.2 Challenges

As with every new decision, many challenges face gamification while incorporating it into Saudi Arabia's landscape.

Indeed, the term Gamification seems interesting and enjoyable, however, adopting gamification during classes requires the teacher's training and orientation to understand the principles, and the instructions to use it in an appropriate way that matches educational objectives and curriculum. This means increasing teacher's workload which might not be welcomed by many lecturers. Moreover, Gamification increases competitiveness in the classroom but also might lead to chaos and a lot of tension between students which can affect the learning environment and waste time. Also, students might feel stressed and anxious due to the high level of competitiveness, and it can dramatically affect their mental health and intensify their sense of inadequacy. In other words, some competitors are so driven by the competition, that they can sometimes miss the educational goal of the course. This feeling could take precedence over the learning objectives and cause those who do not perform well enough to feel inadequate. Sometimes competitors can do anything to win, and this includes cheating which is unethical and unaccepted.

Not all commercial games are appropriate for educational use, and many educational games have limited resources, which may not appeal to kids who are used to better graphics and gameplay. Similar to how not everyone finds games appealing, not everyone's preferred method of learning may be supported by games, according to Harviaien (2014,3). Although the use of playful motivation may help students who struggle academically and make learning more enjoyable for average students, its effects on exceptionally talented students are still unknown. Some people may still find that traditional intensive study techniques are the best learning approach, and any gamification that is added could act as a distraction.

When talking about gamification in the E-learning environment, not all the students are digital natives. Ensuring all students can use digital platforms might be challenging especially during the first period. Moreover, it can be a serious obstacle for some students who cannot afford to buy laptops or tablets in the context of institutions that do not provide them.

Saudi Arabia has a strict and rigid government-mandated curriculum, therefore incorporating gamification into the curriculum will be time-consuming and a real challenge for the teachers who might lack the appropriate pedagogical training regarding this new decision to integrate new teaching methods. Moreover, teachers may be uncertain about including certain methods of teaching due to their lack of clear educational policies.

2.4   Finnish expertise in gamification

Finnish expertise in gamification is known worldwide and Finland is a pioneer gaming hub.

The Finnish game industry has grown significantly over the past 20 years. Over the past ten years, mobile games have been the main driver of this expansion, though other platforms have also contributed significantly. In terms of revenue, the Finnish game industry is among the top five largest national game sectors in Europe as of 2022, and it leads the way in the creation of mobile games. (The Game Industry Of Finland Report 2022,4.)

With Helsinki, Espoo, and Vantaa as its core, the Capital Region is Finland's most significant centre for the game industry, home to almost half of the country's operating studios. The number of active studios, Tampere (36 studios), Oulu (20 studios), and Turku (17 studios) are other notable centres of the game industry. In addition, there are active industry centres in Jyväskylä, which has eleven studios, and in Kajaani and Kotka, which have seven and eight studios, respectively. Moreover, Finnish game developers are actively exploring new avenues for growth in the gaming sector, such as AI, web3 technologies, unique platforms, different approaches to revenue, and user-generated content. While

actualizing creative AI in game development processes is still a work in progress, game studios are closely observing its rapid advancement. It is projected that the application of AI will greatly increase production cost-effectiveness and make it easier to create more customized gaming experiences. (The Game Industry Of Finland Report 2022,14.)

In the year 2021–2022, Finnish game studios released fewer than 50 games annually. This is less than the year prior when they released roughly 100 games annually between 2019 and 2020. Moreover, this quantity is notably less than what was produced in the middle of the decade of the 2010s. This pattern, which shows that studios are focusing more on improving and growing their current titles than on releasing new ones, highlights the dominance of the games-as-a-service model in the Finnish game industry. This trend is probably caused by several factors, such as the rising cost of user acquisition, fierce competition, and the enduring appeal of well-known brands. (The Game Industry Of Finland Report 2022,11.)

As illustrated in Figure 5, one significant and steadily growing source of employment in Finland is the game industry. Over 4,000 people had jobs in the sector by 2022, both domestically and abroad, which was a historic accomplishment. By the end of 2022, the industry was projected to employ 4,100 people overall, which would be an increase of about 500 workers from the end of 2020. However, one significant issue facing the industry is the lack of skilled labour. In the upcoming years, game companies expect to hire new employees. To address this, the Finnish game industry has been actively looking for talent abroad and offering gaming degrees in the English language at many universities of Applied Sciences (AMK). As a result, over the past two years, the percentage of foreign employees in Finnish studios has slightly increased, going from 28% to 30%. Recently, game companies have also started to offer training courses to people who want to work in the game industry. (The Finnish gaming industry report 2022 2023.)

Figure 5. Finnish Game Industry Report 2022 (The Game Industry Of Finland Report 2022)

As illustrated in Figure 6, the Finnish game industry has maintained an amazing financial success story. In 2012, this period of notable expansion began, propelled by the accomplishments of firms such as Rovio and Supercell. The industry's remarkable €2.5 billion turnover was attained by 2016. Despite a slight recession in 2017 and 2018, there was moderate growth in 2019 and 2020. The turning point was in 2021 when the Finnish game industry broke the €3 billion turnover mark for the first time. The combined turnover in 2022 seems to have been close to or even slightly higher than the €3.2 billion recorded in 2021. At this stage, it is clear now that Finland's gaming industry has developed into a significant part of the country's economy. (The Game Industry Of Finland Report 2022,24.)

FINANCIAL OUTLOOK

€ million

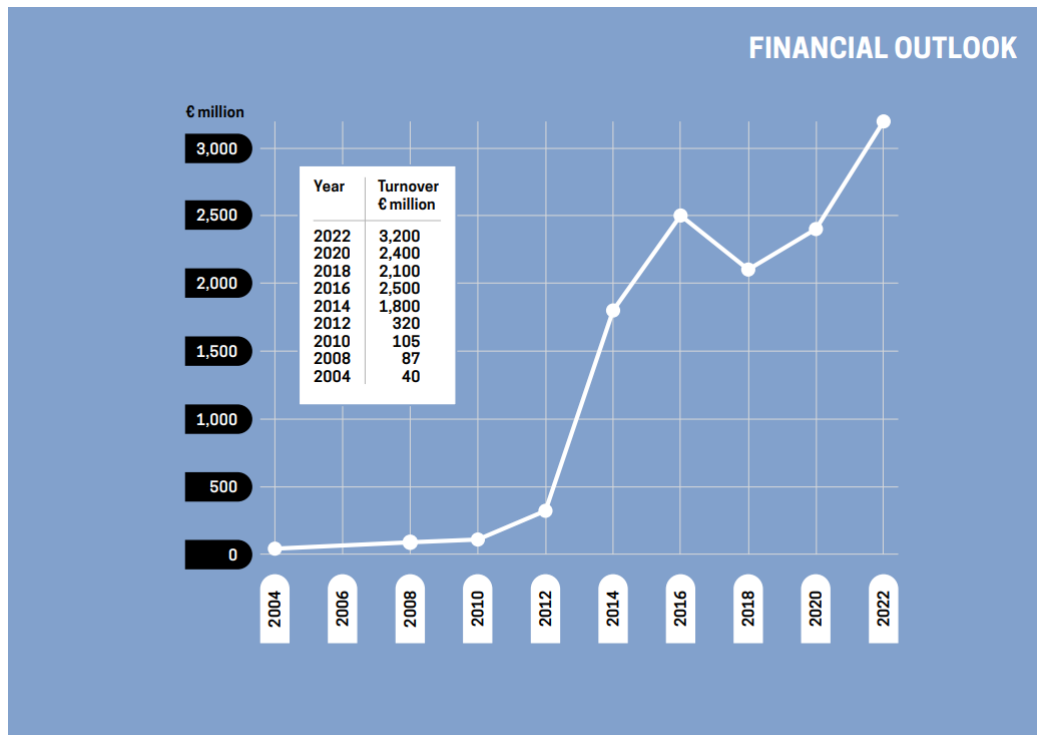| Year	Turnover € million
2022	3,200
2020	2,400
2018	2,100
2016	2,500
2014	1,800
2012	320
2010	105
2008	87
2004	40

Figure 6. Financial outlook of the gaming industry in Finland the game industry (The Game Industry Of Finland Report 2022,25)

Finland is a house of the gaming industry. There are plenty of "National game industry support organizations" located in different parts of Finland. For instance, the Kymenlaakso region's gaming industry is greatly advanced by Xamk University of Applied Sciences thanks to research and development initiatives and an excellent programme in game development. Modern facilities for research and education will be provided by Xamk's forthcoming downtown Kotka campus, which is set to open in 2024 and further solidify the organization's prominence. Xamk Game Studios was founded in 2020 and functions as a key hub for the local game industry, facilitating connections between students, industry professionals, entrepreneurs, and community people with an interest in game technology and business. Their dedicated staff provides both seasoned professionals and prospective students with ongoing assistance, mentoring, networking opportunities, and technical guidance. (The Game Industry Of Finland Report 2022,58.)

The development of entertainment or commercial games differs from the incorporation of gamification in the educational context. Both types have different

purposes and objectives, as the name highlights entrainment games are made for entertainment and enjoyment while educational games have more educational focus such as prioritizing the courses' goal, fostering interactive learning and the pedagogical rules.

Finland has released many educational games such as SmartKid (2013) which received the label of the Best Digital Educational Game in 2013 from the Finnish eLearning Centre. *This game has combined traditional Finnish education and game design* according to the founder. The game is targeted at kids between 4 and 8 years old and helps the kids develop their mathematics level. SmartKid has been developed by SkillPixels and this company focuses on a variety of fields such as physics, chemistry, and biology which showcases the adaptability of gamification in various contents. (Turpeinen 2014.)

2.5   Potential collaboration between both nations

In order to study potential collaboration between both countries there are many factors that need to be taken into consideration. Examining the PESTEL (Political, Economic, Social, Technological, Environmental, and Legal) and SWOT (Strengths, Weaknesses, Opportunities, and Threats) aspects can be a useful strategy for researching possible gamification-related cooperation between Finland and Saudi Arabia.

2.5.1   PESTEL

The main focus of this analysis is the incorporation of gamification into education and the investigation of potential cooperation between Finland and Saudi Arabia. Therefore, a PESTLE analysis is used to look into the Macro variables that can affect how gamification is implemented in education as well as possible cooperation between these two countries.

According to Marmol (2015,9), the PESTEL framework allows to identify list of factors that could affect the success or failure of specific methods and strategies of an organisation.

The acronym PESTEL stands for: Political, Economic, Socio-cultural, Technological, Environmental and Legal factors.

Political factors: According to the Ministry for Foreign Affairs (2023), a stable political environment and strong diplomatic relations could support long-term cooperation between the two countries. Finnish businesses are interested in Saudi Arabia because of its stable political environment, which offers enticing prospects for long-term, mutually beneficial cooperation. According to FLF and EEF annual reports (2011-2016), Finland's aim to extend its education services globally included the identification of Saudi Arabia as a target country for education export in 2014–2015. This emphasises how important Saudi Arabia is as a possible partner in the gamification and education sectors, especially considering Finland's desire to bring its knowledge of education to the nation. (Venäläinen et al. 2019, 14.)

Finland has collaborated with Saudi Arabia for more than 6 years in the educational context, for instance, the University of Helsinki signed an agreement with the Saudi Ministry of Education in 2017 in order to provide Saudi Arabian teachers with a continuing education program in Finland (HY+ 2017).

The University of Eastern Finland has also collaborated with the Saudi Arabian educational organization PreClass and exported its Finnish expertise (University of Eastern Finland 2023).

Economic factors The Kingdom of Saudi Arabia has a large amount of money, mostly from its oil-based economy. Saudi Arabia is positioned as a possible partner with the financial capacity to invest in collaborations and educational technology because of its strength. Conversely, Finland is renowned for its proficiency in both technology and education. The innovative and high-quality Finnish educational system can be a great help in diversifying Saudi Arabia's economy and lessening its reliance on oil. Economic aspects suggest that a joint venture could be a win-win situation in this situation, helping to diversify Saudi Arabia's economy and utilizing Finland's gamification experience to develop creative educational solutions.

Sociocultural factors When evaluating the possibility of Finnish and Saudi Arabian collaboration in the area of gamification in education, sociocultural considerations are important. Saudi Arabia's cultural and religious traditions are deeply involved and have an impact on many facets of life, including education.

As a result, any innovation in education or partnership must respect the national religious and cultural values. Finland, on the other hand, is renowned for its progressive and inclusive educational philosophy, which places a strong emphasis on critical thinking, creativity, and student-centred learning. These teaching tenets are well-respected around the world, but they must be modified to fit Saudi Arabia's cultural norms and values. (Al-Malki 2014.)

Finding a balance between Saudi Arabia's sociocultural background and Finnish educational approaches should be the goal of a cooperative endeavour.

Technological factors Technological factors play a crucial role in evaluating the collaboration between both nations. Finland has an advanced IT infrastructure and is well known for its technological prowess such as AI and 5G network (Yousif 2022). The country was not ranked among the best hubs for nothing. Finland is well-suited to apply gamification techniques since it has a long history of invention and is well-known for its technological advancements in education. The availability of technology to Finnish educators and students makes the country a prime location for gamified learning initiatives.

Saudi Arabia, on the other hand, has been advancing quickly in embracing and incorporating technology into its educational system. Education is being modernized and digitized with great devotion, because of Saudi Vision 2030. The Kingdom of Saudi Arabia has made substantial investments to improve connectivity, e-learning platforms, and digital infrastructure.

Legal factors There are many legal factors that need to be taken into consideration while collaborating between both nations such as IPR (Intellectual Property Rights), contractual agreements, copyright etc..

It is crucial to make sure that intellectual property rights are precisely identified and safeguarded. Legal agreements also need to cover adherence to each country's unique laws regarding data protection, privacy, and education. Furthermore, to uphold moral standards in gamified learning, student data privacy protections are essential. In addition, in order to attract international companies Saudi Arabia has also enacted new laws. The main goal of these laws is to attract and encourage more international companies to establish their businesses in Saudi Arabia. *Foreign investment activities get the same benefits, incentives and guarantees as national investment activities, private property protection,*

access to funds and ownership rights, Customs exemptions and licensing process are examples of these laws. Therefore, this decision will also ease the collaboration between Finland and Saudi regarding gamification. (Albakjaji & Al-Qahtani 2023.)

Moreover, the country is easily accessible even for countries that require visas since the application is done online and takes a few days to receive the e-visa.

Environmental factors Both countries must be aware of the impact of environmental factors. Finland as a country is known for its dedication to sustainability, however on the other hand Saudi Arabia is still in the process of shedding more light on the environmental factors and sustainability. Finland can influence and contribute its knowledge and expertise of eco-friendliness to Saudi Arabia. The adherence of Finnish educational institutions to sustainability norms and environmental responsibility may have an impact on the approach adopted in Saudi Arabia, encouraging the use of greener techniques while implementing gamified education.

2.5.2 SWOT

SWOT analysis is a framework used to evaluate and assess strengths and weaknesses as internal factors and threats and opportunities as external factors. In this case, SWOT analysis is presented in Table 2 and will be used to study and consider those factors that might impact the collaboration between both countries.

Table 2. SWOT analysis

Strengths:	Weaknesses
Finland is known worldwide for its education and expertise in gamification. Saudi Arabia's Vision 2030 is to invest more in education and to emphasize technological advancement (Vision 2030, 36).	One major issue can be the cultural differences since both countries have different cultures which can affect the effectiveness of the collaboration. Diverse legal and regulatory frameworks may present difficulties for this collaboration.

Finland and Saudi Arabia have well-known educational institutions which can lead to smooth collaboration. According to Al-Malki (2014), Finnish educational institutions have expertise in adjusting their curricula and procedures to suit the requirements of various educational systems and cultural contexts which can be a plus for the collaboration.	Finland is not the first destination for Saudi Arabian students, they mainly chose English-speaking countries.
Opportunities A successful collaboration can lead to economic growth for both nations. Saudi Arabia has a high demand for education (Mirghani 2020, 60). This collaboration can enhance both countries' reputations and strengthen their relations.	**Threats** The interest of both countries in other markets and the competitive pressure that both nations might face since gamification is growing significantly in other markets. Collaboration and stability could be impacted by political shifts in either nation. Fluctuations in the economy of both countries can impact the collaboration or the funding designed for it.

The theoretical framework provided a deep understanding of the concept of gamification and its challenges and opportunities while incorporated in Saudi Arabia allowing the author to gain a potential answer to her first research questions. Moreover, analyzing the educational systems of Finland and Saudi Arabia, highlighting the main points of differences and similarities, going through the history of Finnish expertise and analysing SWOT and PESTEL helped the author to get a preliminary vision of the potential success of the collaboration between both countries. However, to support the theoretical framework findings qualitative research needed to be conducted. Analyzing and collecting data

allowed the researcher to compare her theoretical ideas with collected data and answer her research questions.

3 DATA COLLECTION AND ANALYSIS

3.1 Research and development process

The aim of this research was to study potential collaboration between Finnish and Saudi Arabian institutions in the field of gamification and the decision to incorporate gamification in Saudi Arabia.

The development process of this research included the theoretical study, data collection and analysis, key results and findings and future development. Qualitative research was chosen in this study due to the researcher's topic to answer her explorative research questions. Interviews with different backgrounds and multiple case studies were used in this research. The author utilized this method to support her theoretical framework. The aim of this method was to understand the participant's point of view and comments regarding a topic. Qualitative research provides a wide perspective, it is exploratory and focuses on processes which align with the researcher's objectives. (Ghauri & Gronhaug 2010, 104-105.)

3.2 Data collection

In order to answer the research questions, qualitative research with a mix of interviews and multiple case studies was used. Interviews with education export experts, a Finnish coding school and case studies were the main methods.

The author used open-ended interviews since her research relied on interviewees' experiences and perspectives and it is also a fast, flexible and efficient method to receive answers and explain and elaborate the uncertain

points. Moreover, multiple case studies were used to analyze the research topic deeply and obtain a holistic view.

Due to geographical and time limitations, the researcher was unable to receive a reply from Saudi Arabian institutions to conduct interviews and hear their opinion on time. However, using these methods helped the researcher and the commissioner to reach the goal of this study.

The author tried to diversify the interviewees and looked for different backgrounds and experiences to study and hear different perspectives to help her in the analysis and at the same time the most relevant ones to her research topic. The interview was prepared according to the research questions; therefore, different interview guides were used and added to this research as an appendix

The first theme of the interview was to answer the research question: what potential is there for cooperation with Saudi Arabian education? how may it be successfully implemented? This question was mainly answered by education export experts due to their expertise in this area.
The second theme of the interview was to answer the other research question: How may gamification be successfully incorporated into the Saudi Arabian educational system? The answer to this question was mentioned by the Finnish coding school that already collaborated with Saudi Arabian institutions and is familiar with the educational system.

3.2.1 Multiple case studies

The multiple case study was used in this research as a qualitative tool to answer the research questions. According to Saunders et al. (2016), a case study is an in-depth analysis tool used to investigate a phenomenon in a real-world context. This methodology relies on different types of sources.
Case study 1
The first case in this research was the agreement between the University of Helsinki Centre for Continuing Education HY+ and the Ministry of Education in Saudi Arabia in order to bring Saudi Arabian teachers and provide them with a

following education programme. This case study was also supported by an interview with one expert on education global solutions who worked closely on this project.

The data in this case was collected by reading the University of Helsinki's articles regarding this collaboration and an open-ended interview with the education export expert in global solutions.

The agreement between both countries was signed on the 15th of March 2017 in order to provide Saudi Arabian teachers with a continuing education program in Finland. The training program started in May 2017 and ended in December of the same year. The group had 100 teachers, and half of them received training from the University of Helsinki while the rest trained at different universities around Finland such as the University of Turku, Tampere and Eastern Finland. The training program included many courses such as English classes, pedagogical training and practical mentoring done in schools in the region of Espoo. (HY+ 2017.)

In the same theme of this case study, a Saudi Arabian teacher was interviewed by the University of Helsinki during her training in Finland. This case supported the author's research especially since she was not able to receive a response on time from Saudi Arabian educational institutions and it gave her a good perception of the other party's opinion regarding the collaboration.

Case study 2:
Another case study which aligned with the author's research questions and objectives was the aim of Saudi Arabia to develop its education by adopting some aspects of Finnish education. According to Hyytiänen (2017), 24 teachers out of 117 arrived in Turku and participated in the six-month professional development program. The data was collected in this case by observing and hearing teachers' experiences and their positive feedback. The University of Turku has interviewed many teachers and shared their experiences on the university's webpage.

The data in this case was collected by hearing Saudi teacher's experiences including their experience with the Finnish education system, the challenges they

have faced and the Finnish educational aspects they are aiming to export and implement in Saudi Arabia.

Case study 3:

The last case study used in this research is the collaboration between the University of Helsinki Centre for Continuing Education HY in Finland and the Sharjah Education Academy in UAE. This collaboration aimed to provide a PDG (Postgraduate Diploma Programme) for lecturers located in Sharjah. This programme was fully prepared by the Finnish team in order to develop the future of teaching in a more sustainable way. The program was done in hybrid mode and included onsite and online courses. (HY+ 2021.)

This case study highlighted the importance of international collaboration and its positive impact on having innovative and well-trained teachers who forward the message to pupils who are supposed to grow and make changes in the world. These case studies were linked to the research questions and aligned with the theoretical framework of the author's research.

3.2.2 Interviews

The data was collected by using open-ended interviews that were recorded with agreement of the interviewees. The interviewer prepared in advance a set of questions and the interviews took approximately 15-45 minutes. The author took notes and recorded them at the same time as the meetings. This method was very helpful during the analysis since the interviewees provided plenty of information.

The questions were tailored, and the interviewer asked sometimes questions that were not mentioned in the guide to understand the interviewees' answers.

The interviews conducted in this research were done both on-site and remotely. The first interview was done in November at the South-Eastern University of Applied Sciences in the Kouvola campus while the other interviews were done remotely through Teams channel during the same month. The goal of these interviews was to answer the research questions. All the interviewees collaborated on and helped the author find out the answers to her questions.

The first interview was with the commissioner of this research and the senior education export specialist. The author contacted the commissioner through Teams and agreed on the time and location. The researcher is familiar with the interviewee since they work closely in the same team. This first interview focused mainly on the research question: what potential it is for cooperation with Saudi Arabian education? how may it successfully be implemented?

The second interview was with the founder of a coding School in Finland. The author familiarised herself first with the company since it was new for her, then prepared her questions accordingly. She contacted the founder through LinkedIn and continued the discussion through messages on WhatsApp. When both sides agreed on a suitable time, the invitations were sent, and the meeting was through Teams.

The third and last interview was done with a global education export expert of a fully owned company and was used also to support the case study. The interviewee was mainly chosen due to her expertise in education export and her experience with many collaborations between both Finland and the Middle East generally and Saudi Arabia specifically. The researcher contacted the interviewee first on LinkedIn exchanged some messages and explained the thesis topic, the aim of this interview and the process. Then the interviewee agreed to have an interview and provide the author with information.

Before conducting the interview, which was done in November, the researcher did her research regarding the case study and accordingly prepared the questions for the interview to answer her research question: what potential it is for cooperation with Saudi Arabian education? how may it successfully be implemented? but also to gather data that was not mentioned in the sources shared online.

The interviewee made it clear that gamification was not her field of expertise and that she would mainly focus on the topic of collaboration between both countries and support it also with her experience with Saudi Arabia in the field of Edtech and service industry solutions.

The 3 interview guides are added at the end of the thesis as appendix. The interviewer already set her objective and aim for this interview and believed this method helped her dive deeply into the thesis topic and gave her a clear vision.

3.3 Data analysis

In this research, qualitative data analysis was used. This method has 4 steps according to Hesse-Bieber and Leavy (2011) preparation, exploration, reduction and lastly interpretation of the collected data. The author had 3 different interviews and multiple case studies to analyze.

Data had relevant information related to the topic and other not useful for the research, so the author prepared the data to analyze according to her needs.

To support her analysis and the aim of the research, thematic coding was chosen. This method is part of the qualitative data analysis, which is used to find common themes or ideas. In this research the thematic analysis was deductive. Therefore, the author already had a perception of her themes and prepared her case studies and interview guide accordingly. The 6 themes were already mentioned in the literature review and were supported and confirmed by collected data. They were illustrated in gamification in Saudi Arabia, its benefits, adoption of Finnish aspects, potential collaboration between both nations and its opportunities and challenges.

The author started her analysis journey with a thorough read of the collected information and material, highlighted all the relevant information to her research questions whether a word or a paragraph and used them as thematic code. Then, she collected all the codes, named and grouped them into categories and ended her analysis by highlighting the association between the categories and thematic codes by using tables.

4   RESULTS AND ANALYSIS

This research had 3 interviewees who are presented as cases in Table 3. Tables were used to facilitate the data categorizations during the analysis process. Some of the interviewees preferred to be anonymous and not to mention their names in this research, therefore, the table included the sample number, the gender of the interviewee and the profession.

Table 3. Sampling

Sample number	Gender	Profession
Case 1	Male	Senior education export expert
Case 2	Female	Education export expert in the EdTech solutions
Case 3	Female	Founder and CEO of coding school

Data categorization of interviews and case studies was done separately in this research.

Table 4 highlights the most relevant themes mentioned during the interviews.

Table 4. Interview data categorization

Case	Words mentioned by the interviewees/ excerpts	Theme
Case 1	"There is high demand for Finnish education abroad." "Saudi Arabia shows a real interest in collaboration with new educational partners in the field of gamification especially after the Saudi Vision 2030." "Of course, since Finland is a pioneer in this field, the country sees it as an opportunity." "It's a potential market for big operations for us in the future." "We have the expertise there is demand so probably there is an opportunity." "The potential is huge, but we need to act on time." "We can also collaborate with the country in other fields such as IT, cybersecurity and programming."	Potential collaboration
	"Gamification now is a trend and most discussed topic in Saudi Arabia and other countries and the Saudi investors see the facilities that the country can give to push this project further and become the largest hub." "Saudi Arabia has announced the new strategy that will support the development of digitalization and education in particular in the game industry."	Gamification in Saudi Arabia

	"We are aware the collaboration will face many challenges since it's a new market for us (our institution) and the first one might be the cultural differences." "Follow up the political situation since there are processes that might affect the collaboration." "Big competitors mainly US and UK who are leader in this field."	Challenges of the collaboration
Case 2	"We are still growing as Finnish education export and still new, but it doesn't mean there is no demand for Finnish education, in contrast there is." "Saudi Arabia is an interesting market." "There is purchasing power which is interesting for us." "First challenge faced, was the language since we are a non-English speaking country among the other countries who collaborated with Saudi Arabia." "When Saudi Arabian teachers arrived at Finland to study it was first day of Ramadan which was super tough for them." "My own son learned how to read because of a game." "Gamification is a good tool when used properly in education, it enhances student's	Potential collaboration Challenges of the collaboration

	engagement and is an effective way of learning." "We all love games, even engineers play games while doing their work."	Benefits of Gamification
Case 3	"One thing I am mindful about is gamification and it's used in one of our modules in our school." "We are gamifying the learning environment to make it more joyful, enjoyable and real world for our students."	Benefits of Gamification
	"Saudi Arabia is a new market for us, and our collaboration happened because of the selection of 100 global innovative institutions." "Saudi Arabia updated the national educational curriculum, and they are interested to collaborate with Finland and our school." "I compared our curriculum and I found out they are really similar if not the same." "Another collaboration is happening with Saudi Arabia too." "I discussed with the ministry of education while my last visit to Riyadh about the high potential of successful collaboration between Saudi Arabia and Finland in the field of gamified e-learning."	Potential collaboration
		Challenges of the collaboration

	"We had to translate our material from Finnish to English or sometimes even to Arabic." "We faced sort of cultural contextualization, for instance they asked for the history of programming from our school to share it in their platform." "Finnish personality is different from Saudi Arabian one." "They are changing, they are very determined and investing a lot of money to reach their vision 2030." "The education is supporting the vision of becoming the ultimate hub, it is well established, very well planned." "They have a lot of resources to implement gamification." "I have no doubt that Saudi Arabia will execute what they are planning." "They will be successful."	Gamification in Saudi Arabia

Multiple case studies were used in this research. These cases had different topics but were related to the thesis topic. The most highlighted themes in these cases were: Potential collaboration – Adoption of Finnish educational aspects – Challenges of the collaboration - And opportunities.

Table 5 presents the different case studies with excerpts and themes aggregated. Case study 1 represented the agreement between the University of Helsinki Centre for Continuing Education HY+ and the Ministry of Education in Saudi Arabia and the other case study is related to the experience of one Saudi Arabian teacher in this programme. Case study 2 presented the testimonials of Saudi Arabian teachers at the University of Turku who participated in the six-month

professional development program. Case study 3 highlighted the collaboration between the University of Helsinki Centre for Continuing Education HY in Finland and the Sharjah Education Academy in UAE and more details regarding this collaboration were mentioned in the interview with the education export expert in the EDTech solutions.

Table 5. Case studies Data categorization

Case study	Excerpts/ Data	Theme
Case study 1	The university is planning to collaborate again and bring a new batch due to the success of the first collaboration. Saudi Arabia is interested in Finnish schools and curricula.	Potential collaboration
	The first batch faced many challenges, and the most highlighted ones were the cultural differences and language barrier.	Challenges of the collaboration
	Teachers were keen to learn and receive new pedagogical thinking information to use in their schools back in Saudi Arabia. According to Raghda one of the teachers, she was so surprised by the huge implication of Finnish culture in schools and everything she has learnt here in Finland is willing to tailor it to suit their school back home.	Adoption of Finnish educational aspects

	This collaboration has strengthened the university's relations and raised interest in collaborating and focusing more on GCC countries.	Opportunities
Case study 2	Saudi Arabian teachers are willing to adopt some aspects of Finnish education in Saudi Arabia. Teachers are sharing their knowledge received in Finland back home. Teachers want to use formative assessment as Finnish teacher uses since it's helpful.	Adoption of Finnish educational aspects
Case study 3	The collaboration with Saudi Arabia encouraged the university to collaborate more with GCC countries and this PDG programme in Sharjah is a real example. The collaboration was a good experience to discover more the cultural aspect and helped the university to prepare well for the collaboration with UAE since they have many similarities with Saudi Arabia.	Opportunities

As a result of the analysis of both interviews and case studies, five different themes were highlighted.

4.1 Gamification in Saudi Arabia

Interviewees agreed and highlighted the potential success of incorporating gamification in Saudi Arabia. The excerpts from the three cases confirmed that gamification is not a passing trend in the country but a revolutionary movement

that fits and matches Saudi Arabia's vision for 2030. Saudi Arabia and Saudi Arabian investors are keen to change the system of the whole country to reach its vision 2030. One of the interviewees found the country's effort so scary and mentioned *It can even be the first hub in less than one year if Saudi Arabia wants something it will reach it*. The country is investing 36,23€ billion according to Statista (2023) in digitalization to position gamification as a crucial element in the country's educational vision. Case 3 for instance, collaborated with Saudi Arabia in the field of programming. According to her, *This field was new to the country's teachers and students, and students needed to have a certain level to join our school however, in three months everything completely changed. It was a shock for me how the country developed in a short period of time, they were able to cooperate and provide training, materials, and courses to teach their people to understand the principles of this field.*

Therefore, the country is developing and has a well-established and planned vision when it comes to education and incorporating gamification in Saudi Arabia will be successful. If the country is able to incorporate a new programme in 3 months, then 7 years will be enough to become the largest hub*.* Resources, confidence and strategies are all factors which can contribute to the success of this new decision.

4.2   Benefits of gamification

The analysis showed that gamification has plenty of benefits according to the interviewees and the literature review. It enhances student engagement, facilitates the learning process and is a way of motivation.

According to case 3, the school is trying to incorporate gamification in many courses and modules to make them more joyful, enjoyable, and reflective. Another evidence of the benefits of games is the case two's experience. The participant expressed her support for gamification since her son started learning at the age of 4 because of games. Moreover, games are for everyone according to case 3, and not restricted to students only, even engineers use gamification at work. Therefore, gamification is not restricted to education but extends to a variety of professional fields.

However, all the participants shed light on the way of using gamification: it can be a double-edged sword. In other words, if not used properly gamification can be too dangerous.

4.3   Adoption of Finnish educational aspects

The analysis of the excerpts from case studies highlighted the eagerness and willingness of Saudi Arabian teachers to adopt some aspects of the Finnish education system. These key aspects are needed to enhance the Saudi Arabian educational landscape. Culture is a major aspect of the Finnish educational system and being able to incorporate Saudi Arabian culture in the educational system will be beneficial for the students. In addition to culture, one teacher from case study 2 shed light on the formative assessment process used in school and how practical it is to follow the student's journey. This method will be also adopted in Saudi Arabia and assess its efficacy.

Furthermore, the teachers who joined the educational training program at the University of Turku were learning but also taking notes on the methods that can be used and tailored to fit the Saudi Arabian school context. This highlights the benefits of this training but also the willingness to learn and to improve the educational system back home. The Finnish educational system has many similarities with the Saudi Arabian one and this was highlighted before in the literature review and supported by case studies.

However, Saudi Arabian teachers have experienced the Finnish school physically and also remarked on some differences. For instance, the flexibility that Finnish teachers have regarding the pedagogic methods and the contents of the classes while Saudi teachers need to follow the given programme, therefore Saudi teachers are trying to have the same flexibility and discuss its advantage to the ministry.

Adopting Finnish educational aspects in Saudi Arabian institutions was also a positive sign of the successful potential collaboration between both nations.

4.4   Potential collaboration

Both interviews and case studies confirmed the potential of the collaboration between Finland and Saudi Arabia in education in general and the gaming field specifically. The interviews highlight the high demand for Finnish education abroad and the interest of Saudi Arabia to collaborate with the country. This collaboration will help the country reach its 2030 vision since Finland is well experienced in gamification. Finland is a pioneer in the field of gamification which makes it an attractive partner for Saudi. Moreover, cases 1 and 3 also mentioned the interest in collaborating in other fields besides gamification, such as IT, computer science, cybersecurity, etc. In November, Case 3 had a discussion with the Ministry of Education in Riyadh; the main topic was the high interest in collaborating with Finland.

Finnish education export is new, however, there is a high demand for it due to its expertise in many fields. The country supports education exports: Business Finland, Education Finland and embassies are a few of many supporters of education exports. On the other hand, Saudi Arabia is strong financially and has the purchasing power and the willingness to collaborate with new partners. Therefore, the success of the collaboration is obvious.

4.5   Opportunities

Opportunities for this collaboration were one of the highlighted themes that were referred to and analysed in this research. The collaboration between both countries holds opportunities to cooperate in the longer term and in different fields. It is a win-win situation since it enhances both countries' reputations. Finland as a partner is new to the Middle East and GCC in general since their focus is mainly on the English-speaking countries. However, this collaboration with Saudi Arabia shed light more on Finland and raised the interest of Bahrain, Qatar and other Arabic-speaking countries to discover the country and initiate a collaboration with Finland too.

For instance, case 2 and study case 3 mentioned that the collaboration with the United Arab Emirates was based on the successful collaboration with Saudi Arabia, and they are aiming to collaborate with more countries such as Qatar

which showed a big interest in Finland and has a Finnish school and a full curriculum in Finnish.

Moreover, the Finnish-Saudi collaboration was a good experience to understand and discover more about the cultural aspects of Arabic countries since they have many similarities and helped for instance case study 3 to prepare well for the collaboration with UAE.

Furthermore, case 2 confirmed that the successful collaboration with other GCC countries was because they analyzed the challenges faced by Saudi Arabia and learned from the mistakes which made their second collaboration very successful.

Therefore, the collaboration between both nations is advantageous for both.

4.6 Challenges

The theme of challenges faced between nations when it comes to collaboration was highlighted by both cases and case studies during the analysis. One of the challenges was the cultural differences between both countries which might lead to misunderstanding and miscommunication. Overcoming this challenge will be helpful in the future to develop new strategies and strengthen the relations, therefore, before initiating a collaboration it is highly and strongly recommended to invest in providing cultural training for staff of both nations to foster a better understanding. Case 1 mentioned also the political factors that might affect the collaboration. Having political stability is crucial for sustaining long-term collaboration, therefore, both collaborators must take this factor into account and create backup plans in case.

Moreover, case 1 highlighted the strong competitors of Finland when it comes to collaboration with Saudi Arabia such as the US and UK. Therefore, Finland needs to put more effort into marketing to position the country as the first partner to Saudi Arabia. The collected data shed light on the language barrier as a challenge to overcome. Case 3, for instance, when collaborating with Saudi Arabia, had to translate all the material to English or sometimes even to Arabic which is time-consuming and requires financial resources. While collaborating, both sides need to overcome the language barrier to provide smooth and effective communication. Case 2 mentioned the religious context when receiving Saudi teachers in Finland. *It was a tough experience for the teachers to move to*

a new country and continent, deal with moving and looking for accommodation, and on top of that fast for 20 hours approximately. Therefore, while collaborating and scheduling a program, religious and cultural events need to be considered. All in all, this collaboration holds interesting opportunities but faces many challenges. Therefore, both countries have to put more effort into overcoming these obstacles and have successful collaboration.

5 CONCLUSIONS

5.1 Key results and findings

All the highlighted themes in this research were connected to each other and both theory and data supported the research questions of this thesis.
The analysis confirmed the potential success of incorporating gamification in Saudi Arabia and becoming the largest hub which aligns with the country's vision 2030.
Saudi Arabia's efforts are promising, the country is aware of the benefits of this decision which are illustrated in both financial and educational growth. This new decision will not only allow the country to compete in big competitions next to high rivals but also to have a big market for gaming.

Saudi Arabia is a strong country like many other GCC countries. For instance, Qatar is a real example of the determination of these countries: before hosting the World Cup 2022, the country did not even have a football national team, but with its sources, motivation, and capability the country hosted one of the best editions in the history of world cups. Therefore, as many interviewees mentioned, Saudi Arabia has 7 full years to become the biggest gaming hub and pose serious threats to other countries. The determination of this country is high, and Saudi Arabia gained confidence from the investors, the brains, and the financial sources it has.

Gamification is not a passing trend but a solution to be added to the Saudi educational system. The collected data and the theory both confirmed the benefits of gamification. It is a tool used to enhance student engagement,

facilitate the learning process, motivate the students, and create a joyful and enjoyable learning environment. Nobody can deny the advantages of gamification, even doctors such as psychiatrists use gamification with their patients. It helps them to break the ice, gain confidence, analyse and understand the patient's needs. Moreover, ortophonists, for instance, use games as tools to help patients speak and read. Indeed, this tool is new in Saudi Arabia therefore, to be used in the right way, the country needs to provide training for teachers, and financial sources for schools and universities to provide equal learning for all students of the country.

Moreover, Finnish expertise in gamification garnered Saudi Arabian institutions' attention. The country is inspired to investigate the potential of gamification by Finland, the pioneer in this field. This investigation helped Saudi Arabia to recognize the potential success of the collaboration between both countries. This collaboration holds many opportunities for both nations and in different fields not only in gamification, moreover, it strengthens their relations and encourages other countries to see Finland, Saudi Arabia or both as successful future partners. Furthermore, adopting Finnish Educational Aspects in Saudi Arabia is an advantageous factor that strengthens the success of the potential collaboration. This means that Saudi Arabia is highly interested in Finland and having it as a partner in the educational context.

Indeed, the cooperation might face challenges that need to be overcome to ensure a successful partnership, nonetheless, these obstacles are fixable and do not pose a serious threat.

5.2   Managerial implications

Since the results provided the success of gamification in Saudi Arabia and the high potential of collaboration between both nations, the education export experts of universities including the researcher's commissioner need to act fast and initiate collaboration in the field of gaming and other fields due to Saudi Arabia's high interest.

The commissioner can use the expertise of his university in the field of gaming as an opportunity to provide customized gamification workshops. For instance, the international office can consider developing a tailored short-term program dedicated to Saudi that aligns with the Saudi pedagogical system.

To ensure a good partnership, the partners must consider cultural integration training and workshops for staff members of both nations including administration and teachers. Moreover, in order to avoid delays in the collaboration, both countries need to fix the partnership language in English or provide financial sources for interpreters.

Saudi Arabia must learn from Finnish gaming expertise while considering the implementation of gamification, therefore, an orientation for Saudi teachers is needed and can be done through a teachers' exchange program. This program will help Saudi teachers to understand better the concept of gamification and how they can implement it successfully in their courses.

The commissioner can also collaborate with local agents in Saudi Arabia and provide joint programs between different universities or provide pilot Finnish-style pedagogical programs which will combine the Saudi curriculum with a Finnish approach.

Moreover, Saudi Arabia has a savvy and young population who has a high interest in gamification, both countries can organize hackathons for students, and it can be either online or a part of the exchange program for Saudis in Finland or Finnish students in Saudi Arabia. Visiting seminars and forums might also be a good opportunity for both nations to discuss the potential collaboration, and the effectiveness of attending these events and initiating a collaboration is high according to the researcher's experience.

Finally, the commissioner's university can consider initiating a program where half of the courses are done in Finland and the other half in Saudi Arabia to be a great experience for students to experience both countries' educational systems and cultures, opportunities and expertise.

5.3 Reliability discussion and future development

The reliability of this research is compulsory to answer the research questions and was based on the use of deductive coding, which is consistent with predefined themes highlighted in the literature review of this research. The literature review's framework enabled a targeted approach to data analysis, guaranteeing that themes were consistently identified in interviews and case studies. The results were given more depth by the use of case studies and open-ended interviews as qualitative data methods, which provided significant insights into the viewpoints and experiences of the participants. Even though the researcher was not able to conduct interviews with Saudi Arabian teachers, the case studies helped her to understand Saudi teachers' feedback regarding Finnish education which was helpful in drawing important and valuable data.

Moreover, the author's background in the international office of the university, her knowledge of the collaboration processes and Saudi Arabia's culture enhanced the credibility of this thesis.

In future research, a mix of qualitative and quantitative methods could be used instead in order to gain comprehensive insights into the potential collaboration between Finland and Saudi Arabia and the choice of incorporating gamification in Saudi Arabia. Indeed, deductive coding and qualitative research were helpful and provided useful insights, but the help of surveys and other quantitative tools could result in a deeper comprehension of the themes that were uncovered. Benchmarking Saudi Arabia's effort in the field of gamification against Finland can also be a future research topic.

Moreover, interviewing a broader range of participants would have been more helpful in this case. Since the collaboration has two parts, it is highly recommended to hear Saudi Arabian teachers, students and education export experts. However, due to the timeframe limitation, the researcher did not receive any reply from universities or experts on time. Therefore, this limitation provides an opportunity for future research.

While this research focused on the choice of incorporating gamification in Saudi Arabia, future scope can delve deeper into the strategies of gamification that can be utilized in educational collaborations and hear direct feedback from Saudi teachers regarding this new decision.

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