DIGITAL GAME-BASED LEARNING IN EARLY FOREIGN LANGUAGE TEACHING:

Perceptions of teachers

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Digitaaliset pelit ja pelillisyys ovat globaalisti kasvava ilmiö, ja pelien vaikutus on väistämättä levinnyt kieltenopetukseen. Tämä koskee myös varhaista kieltenopetusta (iät 6-9), jonka piirissä pelit ja leikit ovat tärkeimpien opetusmetodien joukossa. Varhainen kieltenopetus on kokenut yhden opetuskentän suurimmista muutoksista viimeisen vuosikymmenen aikana, kun Sipilän hallituksen lanseeraaman kärkihankkeen myötä A1-kielen opetus siirtyi alkamaan jo perusopetuksen ensimmäisellä vuosiluokalla. Varhaisen kielenopetuksen opettajilla on suuri vastuu opetuksen suunnittelussa, ja suunnitteluprosessissa myös digitaalisten pelien opetuskäyttö on tärkeä valinta. Tämä pro gradu - tutkielma kysyykin, miten digitaalisia pelejä käytetään varhennetussa kieltenopetuksessa, mitkä ovat niiden hyödyt opettajien näkökulmasta, ja mitä haasteita opettajat näkevät niiden käytössä. Tutkimuksen teoreettinen tausta on kaksijakoinen: ensimmäisenä tarkastellaan pelien käyttöä opetuksessa, sen aiemmin tunnistettuja hyötyjä sekä opettajien näkemyksiä aiheesta, jonka jälkeen varhennetun kielenopetuksen luonteeseen, opettajiin ja metodeihin tutustutaan tarkemmin.

Aihetta tarkasteltiin kyselytutkimuksen keinoin. Varhennetun kieltenopetuksen kärkihankkeen osana toimivien projektien opettajilta kysyttiin tutkimuksessa digitaalisten pelien käyttötavoista opetuksessa, heidän näkemyksistään niiden hyödyistä sekä mahdollisista haasteista. Kyselyn tulokset analysoitiin kuvailevan sisällönanalyysin keinoin.

Noin puolet opettajista käytti digitaalisia pelejä omassa varhaisessa kieltenopetuksessaan. Pelejä käytettiin erityisesti toistoon, oppilaiden motivointiin sekä opittavan asian eriyttämiseen. Opettajien näkemyksen mukaan digitaalisten pelien suurimmat hyödyt olivat pelien tuoma vaihtelu opetusmetodeihin, niiden synnyttämä innostus ja hauskuus oppimiseen sekä oppilaiden kokema motivaatio. Tärkeimpiä haasteita pelien käytössä oli sopivien pelien puute sekä tieto niiden käytöstä, opettajien saatavilla oleva riittämätön määrä digitaalisia laitteita sekä rajatun opetusajan tuomat haasteet.

Tutkimuksen tuloksia voidaan hyödyntää esimerkiksi pelipohjaisen pedagogiikan sekä oppimispelien suunnittelussa. Tuloksista käy ilmi, että varhennetun kielenopetuksen opettajakunta kaipaa lisää koulutusta digitaalisten pelien tehokkaaseen käyttöön sekä lisää resursseja digitaalisen teknologian hyödyntämiseen.

Asiasanat – Keywords game-based learning, DGBL, early foreign language teaching, digital games

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1 INTRODUCTION

Early foreign language education has been the environment of the largest alterations and changes in the Finnish context of language education during the last decade. Before the year 2016, most young learners started their curriculum-based language education during the third year of basic education. However, during the last decade, requirements for an earlier start to language learning have been expressed, partly due to growing internationalisation and the development of national language competences (e.g. Pyykkö, 2017:34). In 2016-2018, as part of the set of government key projects called New Comprehensive Education (Ministry of Education and Culture, 2015), a project called Government Key Project for Languages was started. This project focused on increasing and diversifying language teaching by innovative regional experiments.

The goals of this government key project were integrating early language learning into the Finnish education system as a whole, ensuring a larger foreign language repertoire for Finnish learners, as well as creating an encouraging atmosphere and attitude towards foreign language learning (National Agency for Education, 2018). Partly as a result of this government key project, changes to the Basic Education Act, 628/1998 (Ministry of Education and Culture 2018a, 2018b) were formed to ensure that each learner starts learning a foreign language already in the first grade of basic education. The volume of this change is illustrated by the fact that when surveying the teacher population of early foreign language teaching (henceforth FLT) taking part in the government key project, Huhta & Leontjev (2019) found that over four fifths of the population were teaching languages as early FLT for the very first time. The government key project also provided key insights into the methods of early foreign language teaching. However, more research is needed, and this thesis is written to answer that need.

This thesis is based on a survey-based research, conducted with teachers of early FLT in the spring of 2019. The teachers participating in this study were all taking part in projects that were, in turn, part of the larger Government Key Project of creating an earlier start to FLT in Finnish education during the years 2017-2019. As part of the survey, these teachers were asked questions concerning their perceptions of the use of digital games in early FLT.

The main goal of the study is to gain insights on early foreign language teachers' perceptions on the usage of digital games in their teaching. This includes questions regarding the ways of using digital games in teaching, the frequency of using digital games in the classroom, the perceived benefits of digital games for foreign language learning as well as potential challenges in the implementation of digital game-based learning in the FL classroom. As play, games and gamification are all seen as an integral part of early foreign language teaching in national core curricula (see National Agency for Education, 2019), the implementation of these phenomena into the classroom and pedagogy has to be researched further. The global process of societal digitalisation reaches all parts of our society, and language teaching is no exception: therefore, digital game materials are inevitably going to take their place as tools of early language education. The aim of this thesis is to provide policymakers, teachers and educational game designers information and tools to guide that process into the most efficient direction possible by providing insight into how digital games are used currently and what kind of challenges lie into the deployment of digital games in the early FLT classroom.

In this study, we will firstly explore the fundamentals of games in education in Chapter 2. First, insight into the different types of games and use of them in education is provided. After this, the elements that make digital game-based learning a suitable teaching method are explored, accompanied by information on how games have been priorly used in language education, and what the attitudes of teachers are towards them. In Chapter 3, we examine early foreign language education: we delve into

questions of what makes early language education effective, who are the teachers of early foreign language teaching, as well as what kind of methods are typical to early FLT. In Chapter 4, the methodology and research question of the present study are investigated. The fifth chapter consists of the results of the survey on digital game usage conducted as part of this study with early FLT teachers. Finally, the main results of the thesis are summarized, the methodology of the study is evaluated, and insights into what could be the next step in this field of research are given.

2 EDUCATIONAL GAMES AND GAME-BASED LANGUAGE LEARNING

In the following chapter, a top-down definition of digital education games is discussed, drawing on prior research. A brief exploration on the process of developing a definition of a game is introduced, and definitions between close and neighbouring concepts and phenomena (e.g. second language learning and second language pedagogy, game-based and game-enhanced pedagogy, educational and vernacular games) are explored. After defining the main concepts, the major beneficial elements of games are presented, first generally and afterwards in terms of language pedagogy. After this, an account on the proven methods and outcomes of the pedagogical use of games in the classroom is suggested.

2.1 Defining digital educational games

While it has been suggested that games in themselves do not possess a mutual element or characteristics that would make them comparable, and some have gone even as far as arguing that due to the inherent ambiguity and versatility of the word *game*, it cannot be defined (Wittgenstein, 1958:32), attempts have certainly been made. A comprehensive discussion of all the definitions is beyond the scope of this thesis, but a summarized "meta-definition", composed by Juul (2003) on the basis of prior attempts to create a definition of what a game is, is included. According to Juul's (2003:36-38) "classic" definition of a game, games have six shared features, which are presented below.

1. Fixed rules. Games have rules, which have to be sufficiently well-defined. The act of playing a game often includes a process of definition and agreement of the game's rules. This is especially relevant with analogue board games.

2. Variable and quantifiable outcome. In order for the game to work accordingly, the rules of the game should allow for the provision of different outcomes. The quantifiability of the outcome of games means that the outcome is beyond discussion.

3. "Valorization" of the outcome. This means in its simplest form that some of the outcomes of the game are understood to be better than others for the player.

4. Player effort. The player's actions have an impact on the outcome of the game.

5. Attachment of the player to the outcome. There is a convention by which the player is attached to specific aspects of the outcome. This attachment is often somewhat psychological: the player may feel happy or sad depending on the outcome of the game. This attachment is often (but not always) related to player effort, as the effort put into the game makes the player partly responsible for the outcome.

6. Negotiable consequences. A game is characterised by the fact that it can be assigned consequences in the setting of real life.
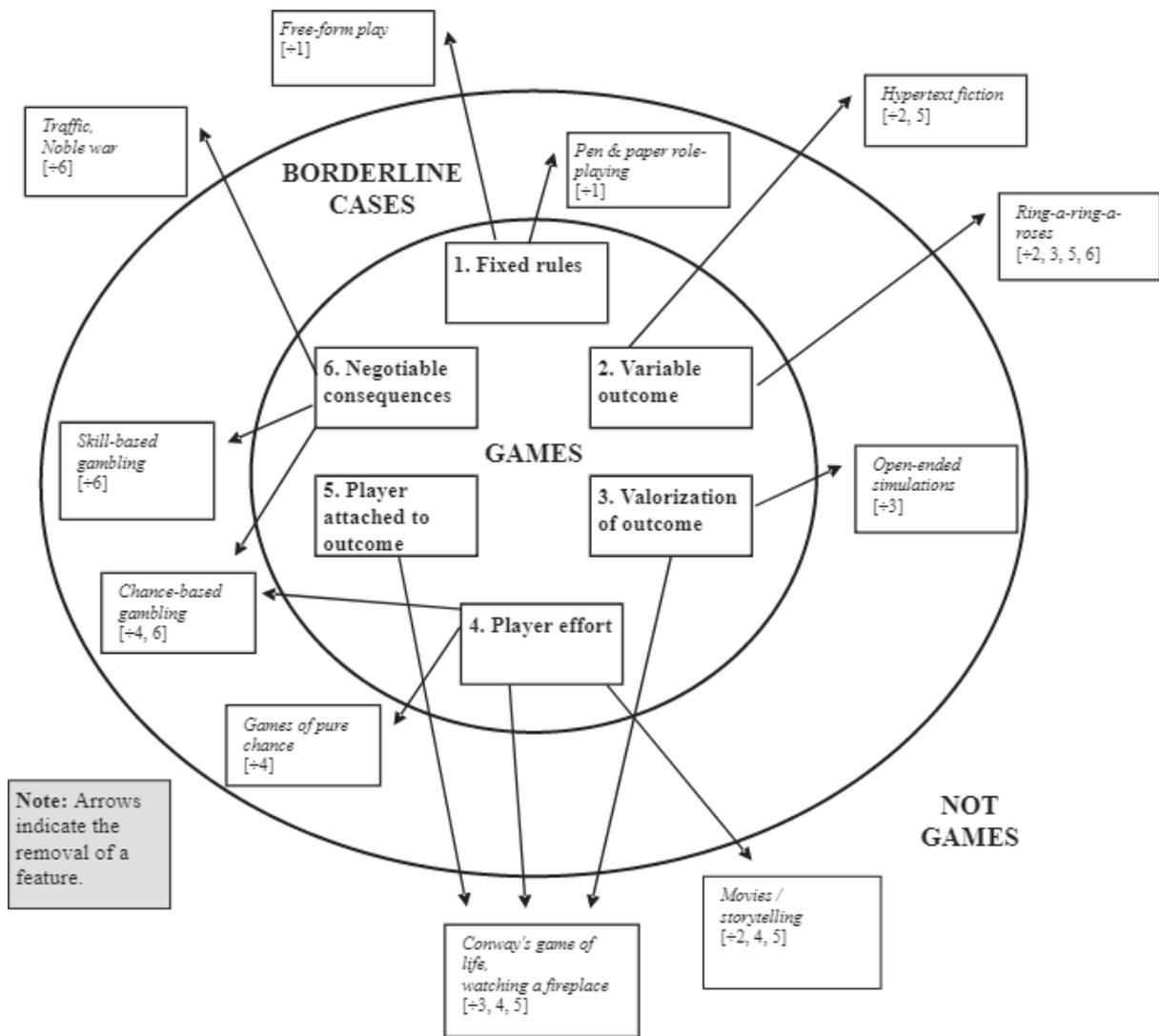
Figure 1. The defining qualities of a game set onto other, game-like instances and phenomena in order to create disparities between them. Adapted from "The game, the player, the world: looking for a heart of gameness" by Juul, J., 2003, Level Up: Digital Games Research Conference Proceedings, p. 39.

In Figure 1 above, Juul (2003:8) divides games, non-games as well as borderline cases by the qualities they contain. In the inner circle are games, in the middle are cases that can be seen to be either games or not games, and the outer ring includes non-games. The cases are divided in rings based on the qualities they possess. The arrows in the figure above by Juul (2003:39) indicate the removal of the corresponding feature. The numbers after different media address the different elements that lack in these media,

thus making them not games. For example, open-ended simulations (on the right side of the outer sphere) are not considered games due to the fact that in these simulations certain outcomes are not "valorised" and are not perceived as better than others from the point of view of the player (feature number three in Juul's (ibid) division).

Prensky (2001) approaches the definition of a game from a different viewpoint, declaring that games involve the following qualities:

1. Rules

2. Goals and objectives

3. Outcome and feedback

4. Conflict, competition, challenge, and opposition

5. Interaction

6. The representation of a story.

One can see multiple similarities between the definitions of games made by Juul and Prensky. Additionally, Reinders (2017: 4) mentions that the qualities declared by Prensky are actually also characteristics that are shared by task-based language teaching as well as many other successful language education strategies.

Naturally, every attempt to define the concept of game has faced some criticism. Arjoranta (2014) has called the process of defining games a language-game itself, as the question in this context has become not what games *are,* but what elements are considered important parts of the definition of *game.* Using a definition of game is, however, extremely necessary in order to set boundaries to what this thesis involves, and what it does not. While Juul's description of a game is suitable for this thesis, there are still some grey areas involving e.g. the role of simulations as educational games, due to the ambiguity of valorised outcomes and the potential lack of competition.

All (digital) games can be divided based on a variety of methods, the most usual of which is based on genre. While this categorisation is verified and functional with

games that have a focus on entertainment, genre-based division rarely works for educational games. Therefore, in this thesis a categorisation based on their outcomes and impacts is enforced, as this has been proposed to be helpful in order to distinguish vernacular games from educational games (Connolly et al, 2012: 662).

While Juul's (2003) definition of games provides an apt view of what games are and how they differ from neighbouring concepts, one must admit the obviously rapid development in the field of games in the last 17 years. Games play a much larger role in culture, economy and, most importantly, pedagogy. More specifically, the use and accessibility of games in education has rapidly expanded in the past decade, with new technologies such as mobile gaming as well as augmented and virtual reality providing possibilities for teachers, learners, and instructional designers worldwide. Thus, we must take into account the changed nature of the game industry, as it essentially alters what games provide to language education.

What are educational games and digital game-based learning?

In its simplest form, digital game-based learning is "any marriage of educational content and computer games" (Prensky, 2001:145). The definition of educational games, as well as games in general (as seen above), is varied and under constant discussion. The main element which underlies every definition is that these games are designed with the intent of using said game for development, learning or instruction.

The first definition of a game used for learning is from Abt (1970), who, while introducing the subjects of his study, states:

"We are concerned with serious games in the sense that these games have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement."

While this definition is mostly valid, it refers more aptly to game-enhanced learning rather than game-based learning, as in his original definition, the educational elements do not necessarily have to be introduced in the game's mechanisms and design, but merely in the exogenous learning effects that the game could have (Breuer et al 2010). In this thesis, both game-based and game-enhanced learning are taken into account, but the focus is heavily on game-based learning.

A fresh and convincing definition on the difference between game-enhanced and game-based learning has been created by Reinhardt and Sykes (2012), who argue that game-enhanced learning is defined by the use of commercial, vernacular, "off-the-shelf"-games as a part of language education. Game-based learning, however, is thought to be the use of digital educational games (defined above) designed solely for the purpose of learning and educational use. In addition to the division between game-based and game-enhanced, Reinhardt and Sykes (ibid) introduce the term "game-informed", which implies that e.g. teaching solely follows game play principles, while not using games themselves. This thesis follows Reinhardt & Sykes's (ibid) framework and makes a distinction between game-enhanced, game-based and game-informed learning.

While the term *instructional games* could, in many cases, be substituted in for the concept of educational games, the term *educational games* is used in this thesis due to the ambiguity of *instructional games*. *Instructional games* as a term could be more aptly suitable as a term for games, which are strictly simulating a real-life situation (e.g. a nurse-patient-simulation, Koivisto 2017) and are thus used for professional and personal development. *Instructional games* could be seen to belong into the category of *educational games*.

The term *serious games* has also been used by a multitude of researchers in the field, and it can be seen to be somewhat synonymous to *educational games* (Corti, 2006). This

label has been, however, seen to be misleading due to the rising trend of e-sports (playing fast-paced digital games competitively).

A set of principles that describe game-based learning is introduced by Perrotta et al (2013). The five principles are intrinsic motivation, learning through intense enjoyment (or "fun"), authenticity, self-reliance and autonomy and experiential learning. How game-based learning involves said principles is explained in Table 1 below.

Table 1. Principles of game-based learning, as described in Perrotta et al (2013: 9).

Intrinsic motivation	Games are intrinsically motivating, due to it being by large a voluntary activity. Therefore, game-based learning is most aptly implemented in the context of invitation and persuasion.
Learning through enjoyment	Prior studies have suggested that both vernacular and educational games can be vehicles for engaging the students in a state of "flow", which is described as a state where the learner is in control of their action and completely absorbed in the task at hand.
Authenticity	In terms of authenticity, contextual skills are prioritized over decontextualized and abstract notions that are valued in "traditional" teaching. Therefore, "good" use of games in instruction reflects real and actual learning

	processes which are based on specific processes.
Self-reliance, autonomy	Using games as a form of instruction encourages independent exploration: interests can move over from the individual game elements into specific subjects and skills.
Experiential learning (i.e. the process of learning through experience, Lewis & Williams 1994)	Use of educational games can provide an alternative to learning by doing in various settings. This can, in turn, lead to more cost-effective instruction.

Due to the young age of the learners of early language instruction, this thesis mainly discusses foreign language teaching (henceforth FLT), as opposed to informal learning outside the classroom. This choice was made to avoid misconceptions between the use of games in instructional, explicit language learning and informal language learning outside the classrooms While the latter has been and continues to be heavily researched from a variety of viewpoints (e.g. Reinhardt & Sykes (2012), Reinders (2012)) due to its familiarity, recognisability and real-life implementations, this thesis focuses on how games are used as a tool and resource for FLT in the early language classroom. The definition of early FLT is discussed in more detail in chapter 3.

When considering using games in early FLT, the concept of gamification is brought up into the discussion. In its simplest form, gamification is "the use of characteristics commonly associated with video games in non-game contexts" (Landers, 2014:753). While gamification of learning refers to the use and implementation of game design elements into learning and instruction, gamification rarely involves the use of games

themselves. For example, a course built upon collection of "experience points", advancement to further levels and consideration of e.g. grammar exercises as quests could be seen as a gamified course, while not in itself including any games (educational or vernacular) in its contents. In practice, the concepts of gamification and educational games, however, overlap. The process of gamification involves identifying, extracting and implementing individual game elements, while educational games include a mixture of game elements, while changing some aspects of them (ibid, 754). While gamification can be seen as a key concept when discussing using games in early FLT, it is not explored in this study, as the focus is on digital game-based learning and educational games.

2.2 Using digital educational games in pedagogy

According to Ke (2009), prior empirical studies on game-based or game-enhanced learning can be classified into five major research purposes. In his qualitative meta-study, Ke summarized prior studies into five main research purposes: the assessment of computer games' effects on learning (with 65 out of the 89 studies designed for this purpose), instructional game design (17 out of 89), exploration of game-based pedagogy and learning activities, (9 out of 89), evaluation of learner properties and characteristics on GBL processes (10 out of 89), and investigating cognitive or motivational processes during gameplay (4 out of 89).

The following subchapter is structured partly following Ke's (2009) qualitative meta-study, which explored the perspectives that digital game-based learning has been studied from. This subchapter is divided in three perspectives: the beneficial impact of DGBL on language learning, effective educational game design, and teacher attitudes and perceptions toward DGBL.

The beneficial impact of DGBL on early language learning

In their meta-analysis on studies regarding the beneficial aspects and use cases of DGBL in language learning, Hung et al (2018) found that most of the students' learning outcomes reported in studies in the field were either in the area of language acquisition or affective or psychological states. In short, this means that in prior research the most beneficial impact of implementing DGBL into language teaching scenarios across age groups fall into those two categories. The first category of beneficial impact includes benefits such as the four skills, vocabulary acquisition, grammar and pronunciation, while the other consists of areas such as motivation, self-efficacy and learner autonomy.

45 of the 50 studies in the meta-analysis (Hung et al, 2018) adopted a specific game to facilitate language learning. 21 studies involved immersive games, i.e. games that provide narrative experiences for the player to assume a character and interact with other players. Most of these games were massive multiplayer online role-playing games (henceforth MMORPGs). 13 of the games selected in the studies included in Hung et al's (ibid) analysis were tutorial games, i.e. games that can be identified to be designed for the purpose of learning. The mechanics in tutorial games include drills, questions and answers, quizzes and puzzles. Tutorial games can be seen as more relevant means of instruction and training in lower age groups such as early FLT, as immersion games can be seen to be more often used in higher age groups due to the games' innate requirements for higher learning strategies, language competence and application of learned aspects. Most of the game materials that Finnish early FLT teachers mentioned to have used fall under the category of tutorial games (e.g. Huhta & Leontjev, 2019).

Most of the games that were used to study DGBL in the studies included in Hung et al (2018) were developed by the researchers or an accompanying team. This is due to the fact that custom-built games provide larger flexibility in terms of the research

setting and alignment of game contents with learning objectives. While this is understandable due to the short-term nature of most DGBLL research, it raises the question of educational game availability: if most games are developed by the researchers for the study in question, how can evidence-based educational games that have been designed and researched for the sole purpose of education be accessed by educators?

Table 2. Frequency of the relationship between types of student learning outcomes and orientation of the results. Adapted from Hung et al (2018: 99).

Frequency of the relationship between types of student learning outcomes and orientation of the results.

Student learning outcomes	Orientation of results					Total (n = 105)
	Positive	Negative	No sig.	Mixed	Descriptive	
Language acquisition (n = 37)						
listening	0	0	1	0	0	1
speaking	1	0	0	0	0	1
reading	0	0	0	0	0	0
writing	2	0	0	0	0	2
vocabulary	11	0	0	4	0	15
grammar	1	0	0	0	0	1
pronunciation	1	0	0	0	0	1
mixed or integrated	9	0	4	0	0	13
L1 literacy	1	0	2	0	0	3
Knowledge acquisition (n = 4)						
subject matters	2	0	0	0	0	2
cultural learning	2	0	0	0	0	2
Contemporary competences (n = 3)						
critical thinking	0	0	0	0	0	0
creative thinking	0	0	0	0	0	0
collaboration	2	0	0	0	0	2
communicative competence	1	0	0	0	0	1
Affective or psychological states (n = 38)						
general perceptions or attitudes	15	0	1	0	2	18
motivation or engagement	7	0	2	0	0	9
technology acceptance or evaluation	5	0	0	0	0	5
self-efficacy or confidence	2	0	0	0	0	2
cognitive load	1	0	0	1	0	2
learner autonomy	1	0	0	0	0	1
willingness to communicate	1	0	0	0	0	1
Participatory behaviors (n = 17)						
classroom interaction	8	0	0	0	0	8
in-game linguistic interaction	1	0	0	0	2	3
beyond-game linguistic interaction	2	0	0	0	0	2
gaming culture or linguistic ecology	4	0	0	0	0	4
Correlational outcomes (n = 6)						
individual differences	1	0	1	4	0	6
Total (n = 105)	81	0	11	9	4	105

As one can see from the table above, the largest numbers of positively oriented student outcomes in studies researching language acquisition outcomes can be found within vocabulary acquisition. This can be seen to be highlighted within lower age groups such as elementary school learners, where vocabulary learning is seen to be one of the most important aspects of language learning modules within early language education curricula (e.g. Mihaljević Djigunović, 2012: 66). Naturally, the number of positive outcomes in studies in this area is affected by the fact that this area accounted for the largest share of studies in total (see the last column of the table above). A large number of studies also reported positive results from a mixed set of language skill

affordances, thus reflecting the real-life setting of DGBL implementations providing a multitude of effects. In the realm of affective and psychological states, the fields with the most reports of positively oriented learner outcomes were general perceptions or attitudes, motivation, and technology acceptance. The set of general perceptions and attitudes contains items such as self-efficacy, learner autonomy and willingness to communicate in the target language. One of the main elements within the area of affective and psychological states that provide beneficial effects towards language learning is the fact that while using DGBL, the focus of the young learners is not on the learning itself, even though they can be extremely aware of their linguistic development acquired via the usage of digital games in language learning. This was one of the main results of the study conducted by Aghlara and Tamjid (2011) with Iranian learners on their vocabulary retention, where the researchers used an audiovisual game material called GexCALL, a game designed for research and language learning purposes, in order to study the implementation of DGBL in FLT. The results of their study followed the outlines of the results drawn by the studies that were part of Hung et Al's (2018) analysis: supporting second language education with proper implementation of DGBL provides better results in vocabulary acquisition. The study by Aghlara and Tamjid (2011) also underlines the note that studies conducted in the field are not in isolation, and analysing effects within one area of expertise can often provide information within the surrounding areas.

In addition to the genre and nature of the games used as part of the DGBL studies, Hung et al included the platform, age group and the target language of the instruction into the scope of their evaluation. Not surprisingly, the most prominent platform for the use and design of games in language teaching in this study were PCs (featured in 58% of the studies included). No division between laptops and desktop computers were made in this label. The fact that PCs are in the majority poses a question to the potential mobility of DGBL as well as to its suitability for earlier language education. However, most of the studies part of Hung et al's (2018) metastudy were conducted in the first half of the 2010s, thus posing the question of further development in this

field, with mobile technology becoming more accessible to both learners and teachers. For example in 2019, the most preferred device for pedagogical use in Finnish second year basic education was the tablet by a wide margin, with 66% of learners having access to a tablet, with only 14% able to access a personal computer during instruction (Tanhua-Piiroinen et al, 2019:19).

Considering age, the meta-analysis reveals that only one of the studies included preschool learners as their target group, while 12 of the studies included elementary level learners. This is partly due to the short-term nature of DGBL studies in language learning: researchers could consider senior learners more technically orientated, thus saving time from learning the usage and navigation within the games involved in the study. This, however, conflicts with the fact that play and games are seen as important aspects of teaching languages to early language education learners (e.g. Mihaljevic Djigunovic, 2012: 66). Hung et al (2018) do mention that with the trend of widespread growth in the usage of games within the early language education population both inside and outside of the classroom, the number of studies regarding the implementation of DGBL in the early language education setting will grow in the near future. This thesis and its results will do its part in providing more input towards the successful and meaningful implementation of DGBL into early FLT.

While the benefits and positive affordances of DGBL in language learning and teaching are evident, Reinders (2017) explores the challenges and issues concerning the implementation of DGBL into language education, especially in the classroom. In his text, Reinders (ibid) includes a threefold division of challenges facing implementation of DGBL in the classroom: operational, methodological and pedagogical. The first of the three, operational, includes issues regarding e.g. privacy and security that the usage of games brings about. In addition to those, operational challenges regard technical issues: mainly the possible lack of technical skills and training needed in order to fully reach the potential of DGBL in the classroom, as well

as the lack of resources towards either utilities, devices or games themselves to use DGBL effectively in language teaching.

The second of the three, methodological challenges, includes issues that revolve around the methods of DGBL research in language teaching settings. While digital games are today not new concepts to learners of this age (or of any age for that matter), using them in the classroom might often be, as games may not be the most accessible affordance in language teaching. This possibly creates an unearned sense of novelty to the learners. This could provide findings of higher motivation in the learner population, thus creating a bias within the effects of DGBL towards the affective and psychological states of the learner. This effect is amplified by the short-term nature native to DGBL studies in language teaching due to operational and pedagogical issues. Additionally, studies in the field often focus on the affective or psychological effects of DGBL (see Hung et al 2018), thus not purely focusing on DGBLs effects on language acquisition and its mechanics. Moreover, the mechanics and experience of learning language via digital games are still under scrutiny and while the positive effects of DGBL are evident and there are multiple hypotheses on the innate learning mechanisms of game-based language learning (see e.g. Reinders (2017: 11-12)) mention some sources from the text below), no consensus on the inner mechanics of learning through games is found.

The final and perhaps the most important group of challenges within DGBL in language teaching are pedagogical challenges. In most prior studies (Hung et al, 2018), the researchers that carried out the study have also been teachers that already used DGBL in their own teaching. What Reinders (2017:339) points out is that the integration of digital games into existing language education curricula is often seen as a challenge. Thus, it could be argued that for most teachers not familiar with digital games, using digital games in their own classroom could be seen as a considerable learning experience. However, many examples of using games in language learning and teaching are merely add-ons to existing curricula. In this sense of adding digital

games as an external part on top of a pile of existing pedagogical choices, incorporating digital games is not seen as a challenge to current practice. This is one of the key questions in DGBL in language teaching: are games seen as an external bonus to existing curricula, or an integral part of pedagogy, considered when curricula are being designed?

Effective educational game design

In order to use games for FLT and to make activities in games into meaningful tasks for learning, learning elements and curricula content have to be incorporated into attractive game characteristics (Butler 2015). A classic instructional model of educational game creation and research has been introduced by Garris et al (2002). In this input-process-output based system model (as seen in Figure 2), the initial goal is to combine instructional content with game characteristics and features. After that, these features launch a cycle that includes learner reactions (e.g. interest, motivation), learner behaviours (e.g. persistence, time on task) and further system feedback. In the situation where instructional content is successfully combined with game characteristics, this process results in learners playing the game repeatedly and independently. This engagement in the educational game leads to specific learning outcomes.
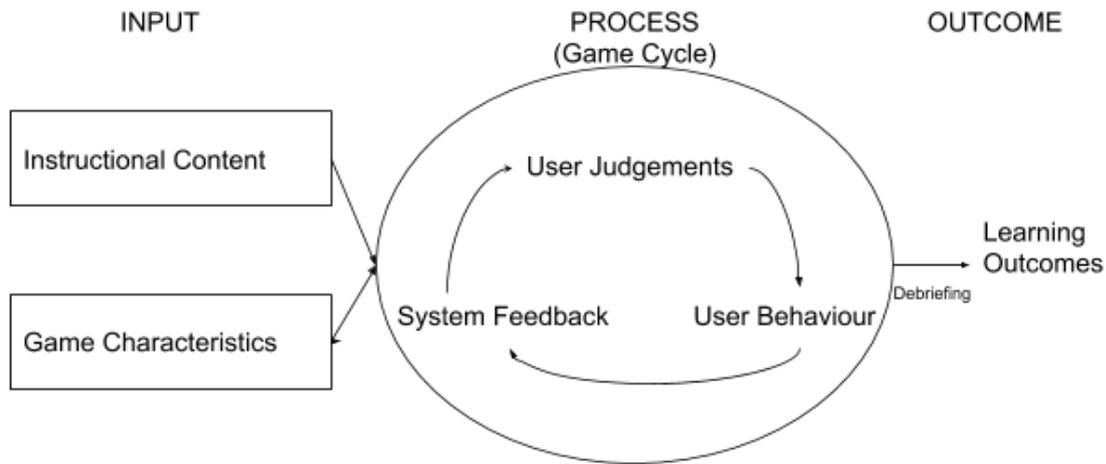
Figure 2. Input-Process-Outcome Game Model for educational game design, as described by Garris et al (2002: 445).

According to Butler (2015: 736), game and curriculum creators tend to design their work intuitively, focusing on what they find motivating, interesting or challenging, while ignoring the target group and their needs. In their study, Butler (2017: 738-741) instructed learners to design digital instructional games (henceforth DIGs) in small groups. The learners first examined existing games, identified motivating elements and discussed these in groups. Afterwards, the learners gathered into smaller groups and created their own DIGs, which were presented and peer evaluated. The games were designed to be used towards English vocabulary learning. The learners (ages 11-12) identified all the major motivational elements which are shared in prior research (e.g. rules, goals and objectives etc.) while adding for instance repetition, the role of which is highly recognized in L2 task research. The learners, however, indicated that repetition is a source of enjoyment and fun, in addition to being a defining motivational element of a game. In addition, the game elements found most important and valuable were stories, challenge, fantasy and control. While the learners' own game creations incorporated most of these elements, only few involved interaction and collaboration, even though this was seen as an important element in discussions.

Teacher attitudes towards DGBL

Teachers, instructors and educators play a key part in the integration of video games into instruction and the classroom, both in the appropriate use of educational games as well as providing motivational elements to the learners (Akcaoglu, 2013). For this reason, the attitudes that teachers hold towards the implementation of DGBL in their teaching are crucial in order to successfully design and create digital educational games as well as curricula implementing them.

One factor that is central in introducing DGBL in a classroom is the attitudes and values towards DGBL that teachers have. In a nationwide survey conducted by Millstone (2012), where American teachers (N=505) were asked about their habits, attitudes and potential benefits regarding DGBL, teachers who identified as "very or moderately comfortable" with the use of video games in the classroom also used them quite frequently. 32% of all respondents reported using games in their classroom 2-4 times a week, and the frequency of using video games in teaching was higher with K-5 (from kindergarten to fifth grade) teachers than with middle school teachers. 70% of the respondents agreed that using digital games in their classroom provided an elevated engagement level with the content learned, while around three fifths of the respondents reported that games made differentiation easier for a multitude of contents and helped personalise instruction and assess learner competence.

The familiarity of video games to the teachers is a considerable factor in creating a game-based learning environment and using educational games in the classroom. In their study, Takeuchi & Vaala (2014) found that 78% of the teachers that played digital games for entertainment or other non-professional reasons used games in their own teaching. This percentage was only 55% within the non-game using teacher population (2014:14). In addition to this, the researchers found that teachers who

played games in their free time also used games slightly more frequently when compared to teachers who did not play digital games for non-professional purposes.

In this chapter, a comprehensive view on the different concepts and definitions regarding the pedagogical use of games and game-based learning was offered. Earlier studies on the methods and target groups DGBL in foreign language teaching and learning were explored, as well as the benefits of properly conducted DGBL. In addition to these, this chapter shed light on the elements of effective educational game design as well as teacher attitudes towards the use of DGBL in the classroom.

3 EARLY LANGUAGE EDUCATION: TEACHERS, METHODS AND A LOCAL POINT OF VIEW

In the following chapter, I will first shed light on the fundamentals of early language teaching and learning. Afterwards, the teachers, methods, and pedagogy in early foreign language teaching (henceforth FLT) are discussed, with focus on the research and development of early FLT in the Finnish context in the last few years. This chapter will reflect these issues from the point of view of digital educational games, their benefits and limitations, and attitudes towards their use as well as further training and development needs.

A large share of prior research explored in this chapter refers to data researched surrounding a Finnish government key project of earlier language education conducted during the years 2016-2018. This government key project consisted of over 100 municipalities as well as project organisations that were granted special subsidies for organising regional experiments within the sphere of early language education in the first two years of basic education (e.g. Skinnari & Sjöberg (2018)). More information about the Finnish government key project can be found in Chapter 1.

3.1. Early foreign language teaching

This thesis follows the outline created by Skinnari & Halvari (2018) in defining early language education as instructed language teaching aimed at the age group of 6-9, as in the Finnish context of "earlier" language education, early language education is most often defined to be FLT within the first two years of elementary education. In most European countries, early FLT is part of curricula for learners aged 6-8, with residents of multiple countries starting their FLT as early as before the age of 5 (e.g. European commission/EACEA/Eurydice 2017:5). However, as Skinnari & Halvari (2018) note, early FLT is not tied to a certain age group, but always varies depending

on the context of national and local curricula as well as the starting age of both education in general as well as the starting age and forms of foreign language education. Even though the focus of this thesis is on the first two years of elementary education due to the national setting, studies including preschool contexts are naturally taken into account.

The goals and mission of early FLT have mainly been in oral production and vocabulary development in the European setting (Inha & Huhta, 2019). On a more general level, Nikolov and Mihaljević Djigunović (2011) divide the main goals of early FLT into achieving three distinct outcomes: achieving higher language competence in general, higher motivation to learn multiple languages, as well as a grown awareness and acknowledgement of different cultures and languages and a positive disposition towards them.

There has been some research on the reasons for municipalities or schools not to provide early FLT in the Finnish context. As part of the reporting for the government key project in Finland, Skinnari & Sjöberg (2018) inquired the decision-makers of Finnish municipalities about reasons not to partake in projects testing an earlier start in language education. The main reasons could be divided into two major categories: reasons related to resources and reasons related to the teaching personnel. The first set of challenges included financial aspects surrounding the organisation of early FLT, as well as the small size of the municipality in which the teaching was to be held. Issues regarding the small size of the municipality included both the lack of resources that the municipality had for organizing early FLT, as well as lack of belief for a guarantee for the continuation of early FLT. The area of resource-related reasons also included the lack of space in the curriculum for an extra subject in the first years of elementary stage education.

The latter, reasons related to teaching personnel, included a more varying set of aspects. Some of the municipalities involved mentioned that the reason not to partake

into the key project was simply that there was no interest towards an earlier start to FLT. This can possibly be seen to be a larger problem in smaller municipalities: with more limited teacher personnel resources, the personal views of individual teachers play a larger role. A neighbouring issue to this is that some education providers saw that foreign languages are not seen as essential basic skills that are vital to be taught in the first year of education. In addition to these, one of the main reasons in this category is quite simply the lack of teachers in the area with proficiency to teach early FLT.

While early FLT has gained support in both domestic and international settings, and its benefits can be argued for from a variety of angles, there has naturally been some critique towards starting FLT as part of curriculum-based education. Munõz (2008:590) criticized the naïve vision of comparing results gained from early FLT to results of learners who have gained constant exposure to the target language from a young age (e.g. immigrant children in a new linguistic environment). Muñoz(ibid) criticizes the fact that even though the research settings of naturalistic and FLT-based second language acquisition are completely different, they are often misinterpreted as mutually comparable. Muñoz (ibid) argues that the former compares younger and older starters by their final level of competence after e.g. 10 years of residence, while the latter compares younger and older learners in a setting where the rate of learning is much more crucial, and the time of learning as well as exposure are much more limited (often confined to the FLT classroom).

Muñoz further highlights that the generalization that an earlier start with the same amount of input provides better results (as with naturalistic SLA) has been widely accepted in the field. To avoid this, the focus on studies regarding the results and success of FLT should mainly concern the content and methods of FLT pedagogy, rather than the starting age with a similar amount of input. This has been supported as early as 2003, as Garcia Mayo (2003) pointed out that one cannot expect higher results from early FLT without a focus on enhancing the quality of teaching as well as

adding more time into the curriculum. Inha & Huhta (2019) continue along the same path and highlight that the research field has moved away from focusing on starting age and transferred towards other possible variables (e.g. amount of input, methods, and teacher proficiency).

Another critical point of view has been provided by Myles & Mitchell (2012), who point out that while younger learners can be seen to be more enthusiastic and motivated to learn, starting FLT with older learners could be seen to be easier as the learners are already equipped with more advanced learning strategies as well as a more clear idea of grammar.

In their publication on early language education in the domestic context, Skinnari & Sjöberg (2018) inquired about the needs that Finnish teaching personnel had in order to make quality early FLT continuous and meaningful in their own municipality or school setting. This inquiry brought up two main needs: pedagogical training overall towards early language education, with special interest towards action-based teaching, and financial resources towards teacher training and extending the early language education framework.

3.2 Elements for effective early foreign language teaching

What are the major variables that contribute towards successful early FLT? Rixon (2015) compared early FLT in various countries as part of their study and found that successful early FLT is affected by five major quality attributes: age-appropriate goals and assessment, transfers between educational stages, qualities of teachers, methods and materials, and ensuring participation. Firstly, the goals of early FLT should be adjusted for age and context, as well as the evaluation and assessment of learners in these classes. Secondly, transfers between age groups and educational stages should be transparent, continuous, and overall handled with the learners' process in mind.

The third of Rixon's attributes is teachers. In their view, to provide successful early FLT to young learners, the teachers must be able to face the learners in an empathetic and age-appropriate manner. The teachers should be proficient enough in the target language; Rixon (2015:40-45) emphasizes that in order to keep the motivation of the learners high, the confidence of the teachers in their own language competence is of high importance, as it is reflected onto the learners in the classroom. Additionally, in order to provide the teachers with these qualities, broad and meaningful teacher training is required.

The fourth attribute in Rixon's (ibid) classification is teaching methods and materials: using the target language, interaction and communication, participation, as well as oral skills, play and games are all highlighted in Rixon's point of view. What stands out from the approach of this thesis is Rixon's mention of accessibility. In accordance with oral skills being one of the main learning points in early FLT, Rixon argues that learners with linguistic and learning difficulties cannot be excluded with the use of written materials. This creates, if not further questions, a cause for scrutiny towards the use of digital games in early FLT: teachers need to be provided with training on selecting and using games in early FLT in order to avoid issues such as this. This binds well with Rixon's final attribute of ensuring participation.

Enever (2015) provides another set of affordances for quality early FLT. While they are largely identical with Rixon's (2015) set, Enever includes the recognition and mapping of FL learning outside the classroom. With large amounts of e.g. English input from various sources, young learners absorb knowledge of the target language in their everyday life. This especially comes into play with Finnish young learners and games, as many games do not have Finnish labels or discussions with NPCs (Non-Playable characters), thus providing the learners with possibilities (and, in fact, the challenge) to use the target language in order to succeed in the game (e.g. Rankin et al 2008).

In their overview of methods on the methods of early FLT, Nikolov & Mihaljević Djigunović (2011) found out that across all providers of early FLT, learner-centeredness is seen to be a key factor in successful early FLT pedagogical design. This is achieved through a multitude of methods, but in Mihaljević Djigunović (2010)'s earlier study including multiple interviews with early FL teachers, the main methods included games, songs, and role-play.

During the Finnish government key project concerning the earlier start to language, early FLT pedagogy was developed aligned with the national curricula (Inha, 2018): in early FLT, language education is designed and implemented stemming from the learners themselves. According to Inha (ibid), teaching that was part of the key project was centred around the motivation of the learners, with special focus on developing oral communication. This was achieved through action-based teaching methods, which includes utilizing methods such as games, play, singing and drama. The effectiveness of teaching can be altered by affecting the learners' motivation towards foreign language learning (Garcia Mayo 2003). As we have seen from other research in the field, games can be seen to be a great tool for this purpose. Additionally, Becker & Roos (2016) highlight that in early FLT, learners should be offered possibilities to use the target language creatively and thus support the learners' interaction and communication skills from a young age.

A case study in Sweden conducted as part of the ELLiE (Early Language Learning in Europe) project in 2011 revealed that when teaching early FLT, A variation of activities like TPR (Total Physical Response, a "language-teaching approach based on the coordination of language and physical movement" (Bui 2018:927)), games, songs, rhymes, picture books, everyday talk, dialogues and film/TV-series were proven the most effective and liked by the learners, with special notion to games and films being motivating. The teachers taking part in this study also mentioned that arranging

classrooms into smaller groups enabled the meaningful use of games. The size of learner groups when using DGBL in the early FLT classroom is one of the aspects discussed within this thesis in chapter 5.2.

Early FLT is often taught by both classroom and language teachers. Based on the results and trials created within the government key project of 2016-2018, Huhta & Leontjev (2019) wrote a final summary on the key project, including analysis of the teacher population within early FLT. 36% of the teachers taking part in projects within the key project were class teachers by profession, 34% were language teachers, 12% were both, and 11% were class teachers specialising in teaching the target language. Quite unsurprisingly, over 70% of respondents taught English as their most-taught language in early FLT.

During the government key project of early FLT, the disposition of the teacher population within schools and municipalities taking part in the key projects towards early FLT was overwhelmingly positive, with 91% of the population seeing early FLT as a very positive or positive thing. (Skinnari & Sjöberg, 2018). This can partly be explained by the fact that, as mentioned, some actors did not take part in the key project due to the teachers' negative disposition towards early FLT as a concept (Skinnari & Sjöberg, ibid). According to a teacher survey made as part of the Finnish government key project (Inha, 2018), one of the main reasons why teachers see early FLT as a positive idea is that the learners themselves are excited about language learning and the teaching is more action-based and based on oral skills than teaching FLT to older learners in elementary stages of education.

When asked to evaluate if and how earlier FLT differs from FLT provided in the third grade of comprehensive school (ages 9-10), over two thirds of the teacher population saw a major difference between teaching these two age groups. (Skinnari & Sjöberg, 2018) When asked to elaborate, teachers responded that in terms of areas of language skills, teaching especially pronunciation and oral skills were much easier and more

rewarding with younger learners. In terms of methods, games and play were seen to be much more useful and motivating with younger learner groups.

The role of the teacher in early FLT has also been under scrutiny in prior research. In some prior studies (see Nikolov & Mihaljević Djigunović, 2011), teachers have perceived that in order to succeed in FLT at this level, they are forced to take the role of a caretaker instead of a teacher. This could be seen as a negative perception towards early FLT from the perspective of language teachers. Other teachers saw that young learners at this level needed a leader alongside a teacher, and thus the teachers needed to balance between these two roles in the classroom.

The projects that were part of the Finnish government key project setting included the development of early FLT materials by individual teachers (Inha 2018). This is partly due to the scarcity of early FLT materials readily available by major domestic publishers. This raises the question of resources and availability: if teachers feel they are not trained enough for early FLT (e.g. Huhta & Leontjev, 2019; Hallila, 2019) and readily available materials are not abundant, are teachers equipped with enough materials to provide the quality of teaching they would desire? In terms of DGBL, this issue is provides an additional dilemma: games are seen as a great method of early FLT, but teachers are not provided with sufficient materials or resources to use games in their teaching and are therefore forced to either create their own games with physical materials or scout web-based resources in search of short-term, one-off game-based solutions (see also Huhta & Leontjev (2019) for more information materials used by the early FLT projects within the government key project).This, in turn, might not provide teachers with a solid foundation for their usage of games in their curriculum. This issue is discussed further in chapter 5.4, where the challenges towards the use of games within the early FLT teacher population are discussed.

As the focus of this thesis is exploring different aspects of DGBL in early FLT, these insights into the nature, teachers and methods of early FLT are crucial for the basis and methods of our survey-based research. Based on prior research, it can be argued that play and games are essentially linked to early FLT, as they have been found to be key methods for early FLT in both earlier and later research, in domestic settings as well as globally. The importance of the teachers and their disposition towards early FLT is also seen as a crucial part of effective early FLT. However, in a digitalised world, the field of digital game-based learning in early FLT, as well as the teachers' disposition towards it, requires more insight. This is an area which this thesis aims to complement.

4 THE PRESENT STUDY

This chapter will discuss the present study, what the aims of the study are, how it was conducted, and how the results were analysed. The chapter consists of three parts. Firstly, the aims and objectives of the study are explored. Secondly, the data collection process as well as the participants of the survey are examined. Finally, the methods with which the survey data of the study was analysed are discussed.

4.1 Aims and research questions

This survey-based mixed research explores the perceptions Finnish early foreign language teachers have on the usage of digital games in their teaching. This includes their perceptions on suitable usage, good principles and practices, benefits, challenges, and their visions on what the role of digital games is (or should be) in early language learning.

The main goal of this study is to gain insight into how digital game-based learning is implemented in early foreign language teaching. As Finnish teachers hold a large autonomy over the methods and materials of how foreign language education is conducted in the classroom, insight into their choices regarding digital game usage is extremely valuable. While the scale of the study is relatively small, the participants are selected accurately, with focus on prior experience and insight into the topic. The results of this study could hopefully shed light on questions regarding the implementation of DGBL into the early FLT classroom, helping publishers, teachers and game developers create early FLT resources with more insight into the matter.

The present study aims to answer the following research questions:

1. What is the role of digital game-based learning in early foreign language teaching?

2. What are the beneficial elements of digital game-based learning that make it suitable for early foreign language teaching?

3. What are the challenges for digital game-based learning in early foreign language teaching?

4.2 Data collection

The data collection was done via a survey sent through the online survey portal Webropol. The participants were collected via a centralized source at the Finnish National Agency for Education of teachers and schools who have participated in the Government Key Project of earlier language education. The National Agency for Education was not otherwise involved in the process of creating or analysing the results of this survey. The teachers and schools have taken part in the government key project in order to develop methods, materials and training for early foreign language education. Therefore, the participants of the survey and this thesis are teachers with experience of early foreign language education in some form. You can find more information on the Government Key Project in Chapter 1.

The survey method was chosen due to multiple reasons. Firstly, by sending out a web-based survey, the researcher could receive responses and insights into the research topic in a relatively short period of time, while still enabling the participants to respond to the questionnaire at a time they found suitable, thus making the experience of participation much more pleasurable for the respondents. Secondly, the survey provides a fast way of collecting background information and factors that could affect the insights into the use of DGBL in early FLT. Thirdly, the nature of the research topic could be approached within the closed and briefly formulated open questions. This is, however, where the survey can have its drawbacks: while the questions are relatively short and easy to answer, the form and shape of the questions does not incite the

teachers to deep dive into the issues at hand. This was a recognized risk while compiling the survey, and it is one of the key issues that are associated with surveys and questionnaires (see e.g. Dörnyei & Taguchi, 2009:9).

The total number of participants in the survey was 71. The data was collected during April-May of 2019 via a centralized survey. The participating teachers were contacted by a government official in the Finnish National Agency for Education. Before sending out the survey, it was piloted by an early foreign language teacher not taking part in the survey. In this pilot testing, some alterations to the word choices as well as the initial introductory text of the survey were made. The survey form can be found in its original Finnish form as well as translated into English in the Attachments of this thesis.

As background information, the following information was collected from the participants (the numbers indicate the ordinal number of the question on the survey form):

(1) Occupational title (closed question)
(2) Experience (closed question)
(3) Region, in which they are teaching (closed question)
(4) Gender (closed question)
(5) The languages they teach in early FLT (open)
(6) If the participants also teach other classes besides early FLT, and if they did, which age groups(open)
(7) Frequency of non-work-related gaming (closed)
     (8) The genres of games played (closed, multiple choice)
(10) if they had heard about the usage of games in the classroom (true/false)

The first question after answering classification questions on the background information (question number 9) was if the participants used games in their own teaching. This question divided the survey participants into two groups. The participants who did use games in their teaching, were asked a series of questions on the nature and functions of their usage of games in their teaching. The questions were the following:

(12) What genres of games are used in their teaching (closed, multiple choice)

(13) With what appliances/platforms games are used (closed, multiple choice)

(14) What are the group sizes in which games are used in their teaching (closed, multiple choice)

(15) For which purposes are games used in your teaching (closed, multiple choice)

(16) What is the nature and role of the usage of games in their teaching (open)

(17) Name some (max. 5) game titles that are used in their teaching (open)

(18) The frequency of using games, how often games are used (closed)

If the participants did not use games in their teaching, they were asked the following questions:

(11) What are the most important reasons for not using games in their teaching (open)

After these questions, all participants were asked questions on the perceived benefits and challenges of the usage of digital games in early FLT. The participants were given some options based on earlier research, as well as space to introduce their own benefits and challenges. These were asked with both open and closed questions: the closed questions (20 and 22) contained a set of priorly recognized challenges and benefits of DGBL in early FLT. The open questions (19 and 21) were asked before the closed questions in order to shield the respondents from drawing conclusions from the options to the other questions, as well as from excessive social desirability bias (see e.g. Dörnyei & Takuchi, 2009:8).

4.3 Analysis

The results from the closed questions of the survey were analysed descriptively. The results were analysed based on the background information variables and summarised into tables and figures that characterize the main results as well as the

outliers of the results. Descriptive analysis is conducted for both independent variables as well as combinations of variables. The most important elements of the background information were the work experience of the teachers, the purposes which they are using digital games for, if the teachers are classroom or language teachers by their education and occupation, and the gender of the teachers. The responses to one element of game usage (e.g. the frequency of use of digital games) were additionally mirrored to other questions in the same sections in order to find patterns that would provide more insight into the usage patterns of digital games among Finnish early foreign language teachers. In addition to the background information, these findings are naturally mirrored onto prior similar research (e.g. Takeuchi & Vaala (2014)).

The responses to open questions of the survey were analysed by using content analysis. The open questions 11, 16 and 17 could be seen as behavioral questions (asking the participants e.g. about their prior methods of using games in the classroom), while questions 19 and 21 were more attitudinal, asking the participants on their perceptions on the possible challenges and benefits of using DGBL in early FLT (Dörnyei & Taguchi 2009:5). The responses were summarised to a few key points and coded, translated to English, and the number of mentions for each key point were calculated. By doing this, a classification on the answers to a certain open question could be formed, and the insights could be ranked based on their popularity within the participants. This way, a clear view on the shares of different perspectives on each question could be created.

5 RESULTS

This chapter consists of three parts. Firstly, the background information of the participants as well as some of their pedagogical choices are examined. In the second part, the methods of implementing DGBL and using games in the early FLT classroom are explored, with focus on the genres, specific titles as well as the purpose and role of games in their teaching. Finally, the teachers' views and perceptions on both the benefits and the possible challenges and obstacles in the usage of games in early FLT are examined.

5.1 Teachers of early foreign language teaching

Teachers are perhaps the most important factor in the implementation of digital game-based learning into early foreign language teaching, as they design curricula, plan and conduct lessons as well as evaluate the success of those lessons and curricula after completion. In the process of designing, teachers evaluate different methods, and in this evaluation, they choose if and how they include DGBL into the early FLT classroom. Due to this reason, the background information of the participants was collected in order to see if any of these variables factor into the implementation of DGBL in their teaching.

Experience

The respondents' work experience was asked as part of the questionnaire. As one can see, most of the teachers taking part in the survey are very experienced, with 65% (N=46) of the respondents having more than 10 years of experience, and ⅚ of the participants having more than five years of teaching experience. The range in the amount of work experience of the respondents can be seen from Figure 3 below.
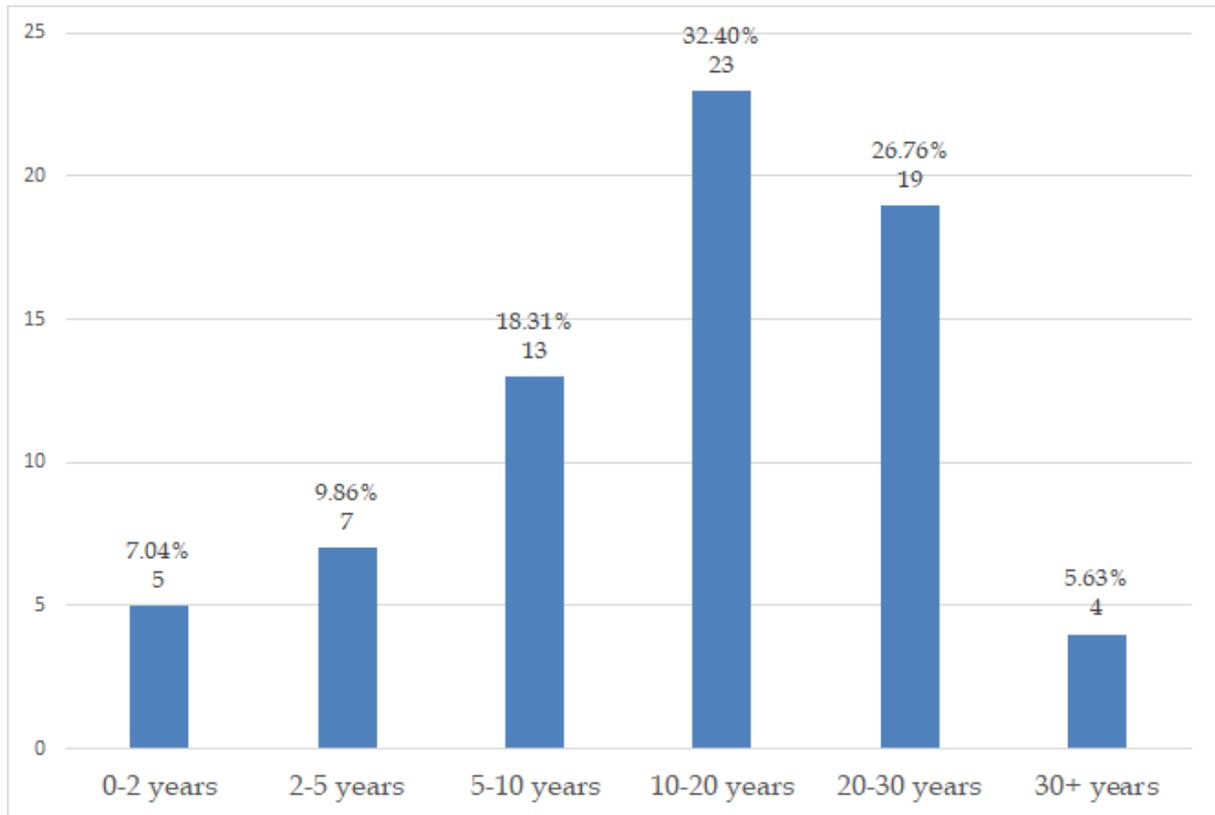
Figure 3. The variation of participants' work experience.

Gender of the survey population

86% (N=60) of the survey population identified themselves as female, while 13% (N=9) identified themselves as male. One respondent preferred not to answer this question. Gender differences (as part of the background of the teachers) in the usage of games in teaching have been discussed at a large scale in prior research in the field (e.g. Takeuchi & Vaala (2014)) and therefore, gender is one of the background factors based on which the participants' usage of digital games is compared.

Location

The working location of the teachers participating in the survey was also a factor that was inquired. As one can see from the Figure 4 below, most respondents are from regions with major centres of growth (e.g. Uusimaa and Pirkanmaa).
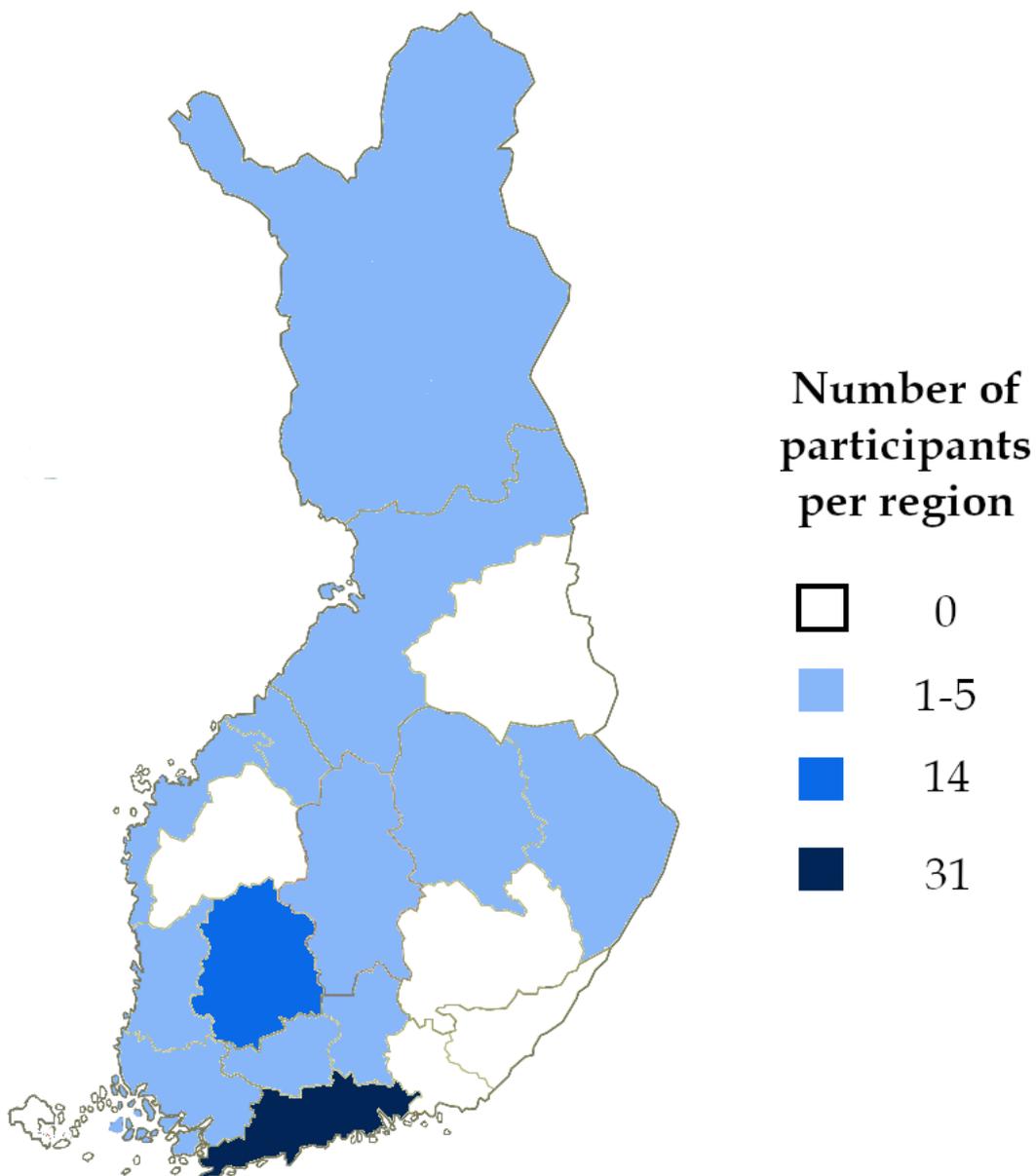
Figure 4. The geographical variation of the participants over Finnish regions.

Occupation

According to Finnish legislation, there are no special conditions for teaching eligibility for early language education. Instead, the general act on the language teaching eligibility in elementary classes is followed: classroom teachers, language teachers as well as special education teachers with the eligibility to provide classroom teaching are qualified to teach in early foreign language education (Teaching Qualifications Decree, 986/1998).

By occupation, 47% (N=33) of the survey population were classroom teachers, and 42% (N=30) were language teachers. Three of the respondents were both classroom and language teachers, and two respondents were teachers of Finnish language and literature. The remainder of the respondents answered to be some other educational professionals. This group included titles such as special education teachers and heads of different municipal units regarding education.

Teaching other age groups

Four fifths of the research population taught other age groups aside from those involved in early language education (ages six to nine). Most of the respondents who did teach other age groups aside from the age group of earlier language education taught the age groups of the Finnish primary school (ages 7-13). The most usual grade to teach aside from earlier language education was the 4th grade (usually age 10), with 70% (N=40) of the respondents teaching this grade. 26% (N=15) percent of the participants, who did teach other age groups, taught in secondary school as well (grades 7-9). Outside the frame of basic education, a few respondents taught pre-school, and two respondents taught adults.

Languages taught by early foreign language teachers

The languages taught by the teachers taking part in the survey were Finnish, Swedish, German, Spanish, English, French and Russian. In addition to these, the respondents taught multilingual programs, which included multiple languages over the course of a semester or two (e.g. the KIKATUS-project in the greater Tampere-area, which includes weekly lessons on four different languages over the course of a year, see Huhta & Leontjev (2019:19)). For most of the survey population, the language(s) they taught as part of earlier language education was the same language they taught for other age groups as well.
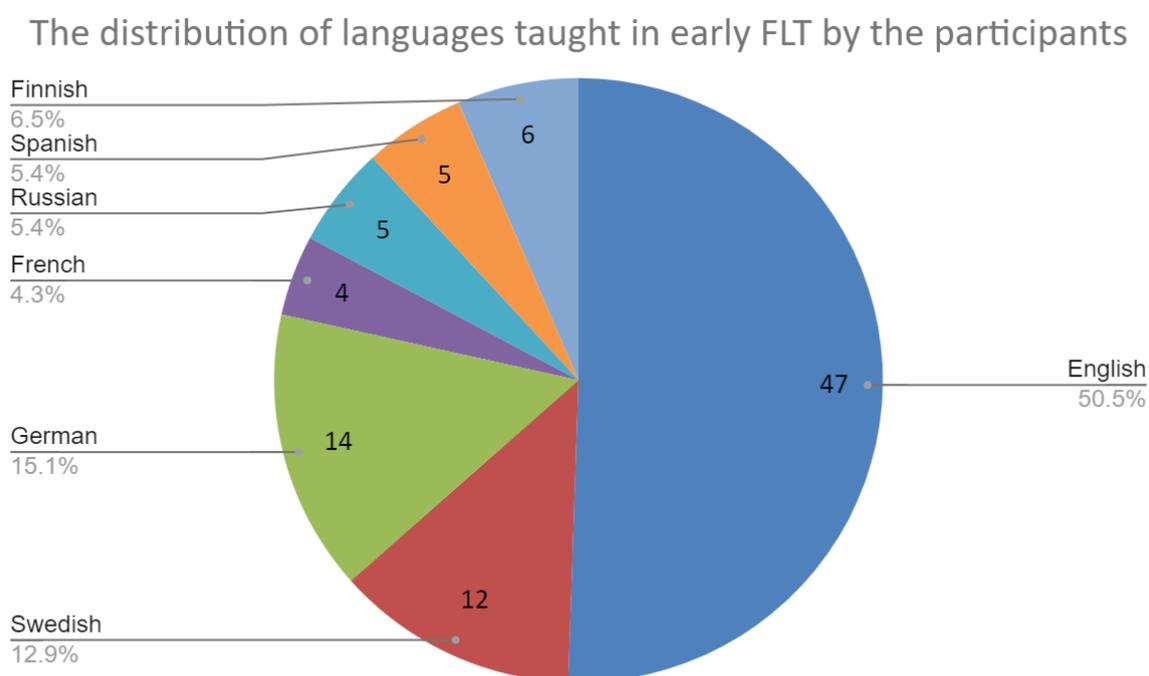
Figure 5. The distribution of languages taught in early foreign language education by the participants.

Among the languages taught as part of earlier language education, English is the most prominent. This comes as no surprise, as English has generally been the most often chosen first language in Finnish earlier language education, with 71% of the language-learning first-grade population selecting this as their A1-language in 2018 (Vipunen

2020). The amount of German being taught as part or earlier language education was somewhat surprising, with 15% of the responses including German as one or the only language being taught. This is contradictory to what has been found in prior studies on the choices that are made on the first language learned in school. According to the national educational statistics service Vipunen (2020), only 0.7% of first-grade learners selected German as their first language in 2018. Naturally, the schools, municipalities and the number of learners influence the available selection of languages that can be studied as part of earlier language education. Additionally, the advent of an earlier compulsory start of A1-language education has created some alteration to the percentages, and this is not yet reported in the Vipunen service. What was interesting is that the percentage of teachers teaching more than one language as part of earlier language education is merely 20% (N=14), while the rest of the respondents teach only one language in this age group. Four out of the 71 participants took part in some sort of multilingual teaching projects, including language showering sessions.

Experience playing games

As part of the background data, the teachers' game playing habits in their free time were inquired. 28% (N=17) of the respondents played digital games weekly or more often, and 44% (N=31) did not play digital games at all in their free time. The remaining 23 participants played games several times a year.

The two most popular genres by a wide margin within the participant group were mobile games and learning educational games, with around half of the teachers who played games mentioning these two genres in their responses. The distribution of the games played can be seen in the figure below. Naturally, selecting multiple genres was allowed. As we can see later in subchapter 5.2, many the games that teachers have chosen to use in both their own time and classroom time can be seen to be included in

a variety of subgenres. This might, on its behalf, explain the large percentage of teachers responding with educational games to this question.
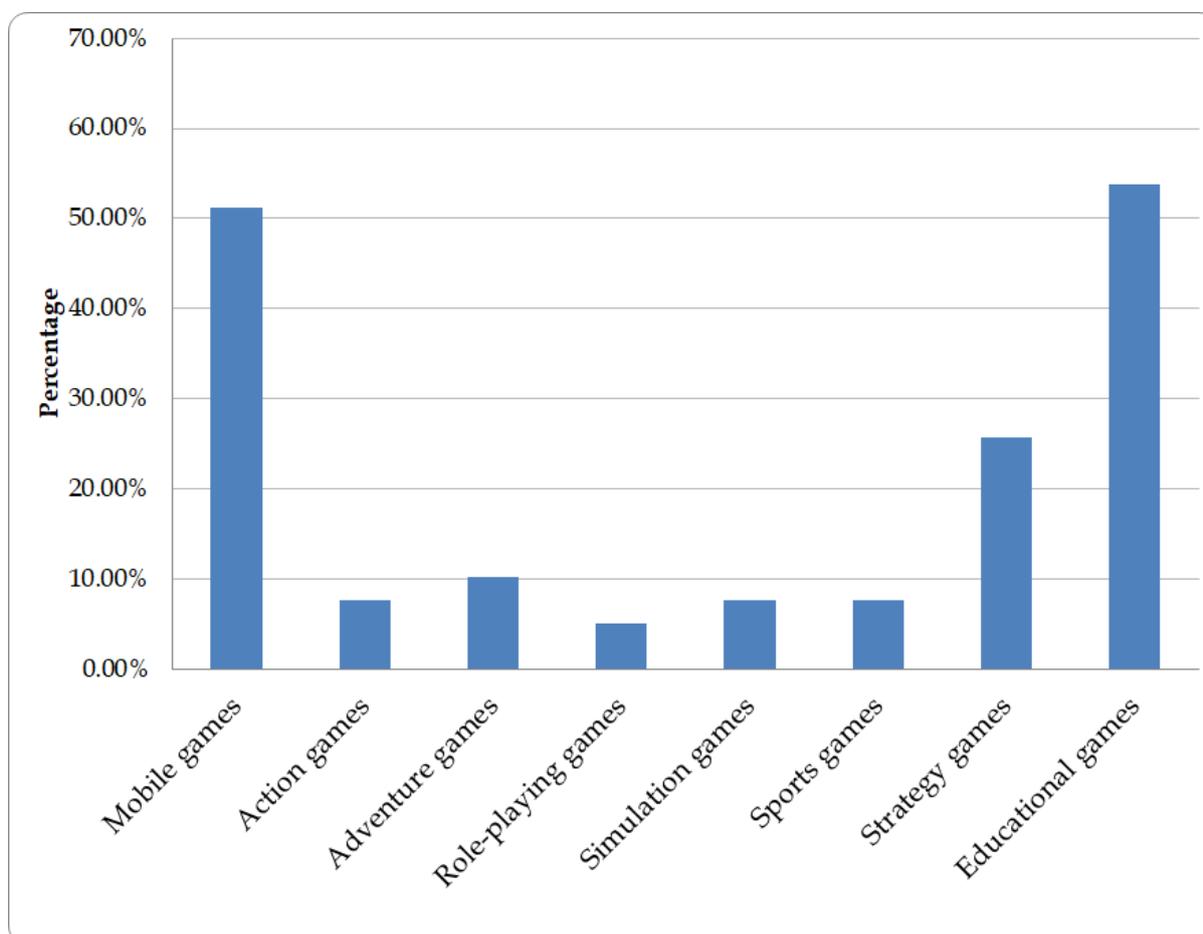
Figure 6. The percentages of respondents playing games in their free time, divided by genre.

5.2 Digital game usage in early foreign language teaching

The participants were asked about the frequency of using digital games in teaching, the genres of games used in language teaching, in how large groups were the teachers using digital games as a learning tool, and the platforms these games were played on. Additionally, the survey included open-ended questions on the nature and methods of digital game usage in their teaching. In this chapter, the results of this section of the survey are analysed and compared with the teachers' background information. The

most important elements of the background information are the work experience of the teachers, the purposes which they are using digital games for, if the teachers are classroom or language teachers by their education and occupation, and the gender of the teachers. The responses to one element of game usage (e.g. the frequency of use of digital games) are additionally mirrored to other questions in the same sections in order to find patterns that would provide more insight into the usage patterns of digital games among Finnish early language education teachers. In addition to the background information, these findings are naturally mirrored onto prior research (e.g. Takeuchi & Vaala (2014) as well as Hung et al (2018)).

The distribution between using games in teaching was relatively even, with 51% (N=36) of the teachers using digital games in their early language teaching, while 49% (N=35) did not.

Teachers who used games in their teaching played games slightly more often in their own free time, with 28% (N=10) playing games weekly or more often, and only 39% (N=14) not playing digital games in their free time at all. Within the non-game using population, these percentages were 20% (N=7) and 48% (N=17), respectively.

Frequency of using digital games

The data presented in this subchapter consists of findings within the share of the participants which reported that they used games in their early foreign language teaching. The percentages refer to the game-using participants only.

Around half (53%, N=19) of the teachers who used digital games in earlier language teaching reported using them circa once a month. A surprisingly high number of teachers, 36% (N=13) of those who used digital games overall, used them weekly. Four teachers used digital games in almost every lesson.

There is little variation in the frequency of digital game usage based on the work experience of the teachers. Somewhat surprising is the fact that while teachers with 5-10 years of work experience used digital games in their teaching only monthly or more rarely, teachers with both less and more experience used digital games more frequently.

Table 3. The distribution of the frequency of using digital games, based on the years of experience held by the game-using teachers. Note that the participants could choose multiple options, thus making the total percentage over 100% in some cases.

Years of experience (number of game-using participants)	Using digital games in almost every lesson	Using digital games weekly	Using digital games monthly	Using digital games a few times a year
0-2 (N=3)	0 (0%)	1 (33,3%)	2 (66,6%)	1 (33,3%)
2-5 (N=3)	0 (0%)	3 (100%)	1 (33,3%)	0 (0%)
5-10 (N=5)	0 (0%)	0 (0%)	4 (80%)	1 (20%)
10-20 (N=14)	2 (14,3%)	6 (42,9%)	7 (50%)	1 (7,15%)
20-30 (N=8)	1 (12,5%)	3 (37,5%)	3 (37,5%)	1 (12,5%)
30+ (N=3)	1 (33,3%)	0 (0%)	2 (66,7%)	0 (0%)

When comparing game-using male and female teachers, female teachers are using digital games slightly more frequently, with four (13%) female teachers using digital games in almost every lesson, and 33% (N=10) using them weekly in their teaching. With male teachers, these figures are 0% and 40% (N=2). While the gap between these numbers is narrow, showing that using digital games is not a gender-oriented practice, it has to be taken into account that the number of total male participants was low (N=9, with five reporting using digital games in their teaching). However, the percentages are aligned with prior research on the gender differences in DGBL: in a prior nation-

wide survey in the US, Takeuchi & Vaala (2014) found that while differences between genders in the amount and nature of DGBL are not staggering, female teachers used them slightly more frequently when compared to their male colleagues.

Based on the title and occupation of the respondents, the participants who were language teachers were found to be slightly more active users of digital games as tools in their teaching. Four game-using language teachers used digital games in almost every lesson. This number was zero for classroom teachers, as they preferred to use digital games on a more infrequent basis, weekly or monthly. This could be seen to be related to the narrow availability and accessibility of suitable educational game material: classroom teachers, who have to divide their attention to multiple different subjects, do not have as much resources to delve into possible further materials. This issue is discussed in more detail in Chapter 3 as well as in subchapter 5.3.

Genres of games used in education

The respondents were asked on the genres of games that they are using in their own teaching. The selection of genres was the following:

- Educational games designed for teaching (e.g. Kahoot, Baamboozle, Elevspel)
- Educational games designed for independent learning (e.g. Duolingo, Babadum, Lola's English)
- Educational games designed to support other learning materials (e.g. Alex et Zoe, Hallo, games that are designed as additional parts of textbooks)
- Games designed for entertainment (e.g. Minecraft, Wheel of Fortune, Kerbal Space Program)
- Educational versions of entertainment games (e.g. MinecraftEDU, KerbalEDU)
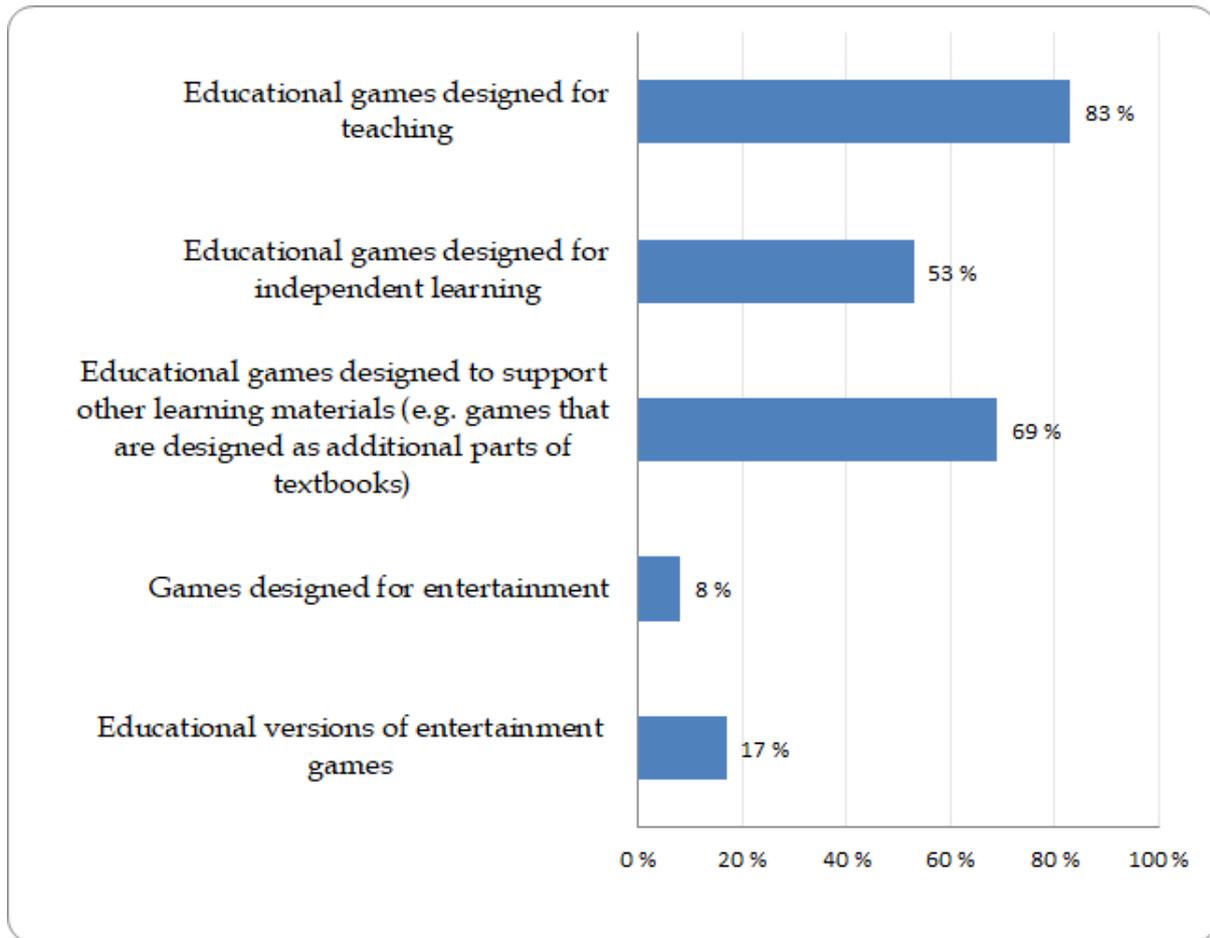
Figure 7. The genres of games participants used in early foreign language teaching.

In general, the most frequently selected answer was the first, educational games designed for teaching, with 83% (N=30) of the respondents using them in their own teaching. 69% (N=25) of the teachers responded that they use games that are part of other learning materials. This is somewhat surprisingly high number, as the lack of materials and consistency in quality of materials for teachers in earlier language education has been one of the major concerns voiced by teachers in these key projects (e.g. Hallila 2019: 47). Entertainment games were only used in education by three participants. This is in line with the fact that none of the participants used either a gaming console or handheld game consoles in their teaching. Educational versions of entertainment games were also only used by six participants.

Based on the work experience of the participants, there was little to no variation between the types of games used. However, while only two (40%) male teachers used digital games that were attached to learning materials and textbooks, the same number for female teachers was 23 (77%). The largest variation could be, however, seen within the titles and occupations of the teachers. While 90% (N=19) of the language teachers population used games designed for teaching, this percentage was 60% (N=6) with classroom teachers. Classroom teachers also used more digital games that were attached to learning materials. See Table 4 below.

Table 4. Division of responses concerning the genre of games used. The percentages refer to the share of teachers selecting that option from the participant demographic in question.

Participants using digital games, divided by demographic (N = number of participants in that group)	Number of responses reporting use of educational games designed for teaching	Number of responses reporting use of educational games designed for independent learning	Number of responses reporting use of educational games designed to support other learning materials
Female teachers using digital games (30)	24 (80%)	16 (53%)	23 (77%)
Male teachers using digital games (5)	5 (100%)	2 (40%)	2 (40%)
Classroom teachers using digital games (10)	6 (60%)	4 (40%)	8 (80%)
Language teachers using digital games (21)	19 (90%)	11 (52%)	13 (62%)

Digital games used in early foreign language education

The participating teachers who used games in their teaching were asked to name a maximum of five digital games that they use in their own teaching with pupils. Below, these games are collected into a table, with indicating categories to mark which genres of educational (or entertainment) games they fall into. In this section, the categories or genres of games will not be similar to what was used in the survey, as for the categorisation in this section to be of use, further detail has to be used in describing these games. The titles of the games in the table below have been edited in cases of possible errors or uncertainty in terms of the title that the teachers have referred to.

The titles mentioned in the survey are divided into two tables below. In the first table, the digital games that the teachers have mentioned are fitted into a genre according to the classification framework of genres in section *Genres of games used in education*. In addition to this, the number of mentions for each title is presented. The latter table consists of titles mentioned as responses to the survey question which cannot be considered to fit any of these genres. These titles are presented with a description of what the material consists of.

Table 5. Titles mentioned as responses to question number 17 in the survey. The table includes the title of the game, the subgenre of educational games that it best fits into, and the number of mentions for that title.

Title of the game	The genre of games that the game represents	Number of mentions in the survey
ActionTrack	Educational games designed for teaching/Other	1
Alex et Zoe	Educational games designed to support other learning materials	1
Baamboozle	Educational games designed for teaching	3
Babadum	Educational games designed for independent learning	5

Bingel	Educational games designed to support other learning materials	4
Cadeau	Educational games designed to support other learning materials	1
Duolingo	Educational games designed for independent learning	2
Elevspel	Educational games designed for teaching	1
Felix und Franzi	Educational games designed to support other learning materials /Other	1
Fun English	Educational games designed for teaching	6
Fun German	Educational games designed for teaching	1
German-games.net	Educational games designed for independent learning	1
GimKit	Educational games designed for teaching	1
Hallo	Educational games designed to support other learning materials /Other	1
Kahoot	Educational games designed for teaching	15
Lola's English	Educational games designed for independent learning	1
Memory games online	Educational games designed for independent learning	
Moomin Language School	Educational games designed to support other learning materials	1
Perunakellari	Educational games designed for independent learning	1
PuppetPals2	Educational games designed for teaching/ Other	1
Quizizz	Educational games designed for teaching/Educational games designed for independent learning	5
Quizlet	Educational games designed for teaching/Educational games designed for	18

	independent learning	
Reetta Bizet - *epäreilupeli* (The Unfair Game)	Educational games designed for teaching	1
Seppo.io	Other/Educational games designed for teaching/Educational games designed for independent learning	1
Socrative	Educational games designed for teaching	1
Spellic/Glosor.eu	Educational games designed for teaching/Educational games designed for independent learning	2
Wheel of Fortune	Games designed for entertainment	1

Table 6. Titles mentioned as responses to question number 17 in the survey, that did not fit under the distinct subgenres of educational games.

Title of the material	Description of the material	Number of mentions in the survey
Book Creator	"An app that lets you create digital books combining audio, video and text"	1
Chatterpix Kids	"An app that converts pictures of inanimate objects into pictures that talk"	2
Chirp QR	"An app that lets students create shareable QR codes for sound files"	1
Draw and tell	"An app that lets students draw, colour and animate pictures and stories"	1
IncrediBox	"A music app that lets learners create their own music"	1
LearningApps	"An application to support learning and teaching processes with small	1

	interactive modules"	
Vocaroo	"A web-based voice recording service"	1

As one can see from Table 5, most of the individual games that the teachers mentioned using in their own teaching were either educational games designed for teaching (57 mentions in total) and educational games designed for independent learning (36 mentions). Naturally, multiple games could be seen to overlap these two genres, and this is reflected in the second column in the Table above. The author of this thesis was forced to provide some sort of a boundary with some answers, as many of the games or interactive materials can be seen to either be part of multiple of the abovementioned genres or be sorted into another, vastly different genre of games.

Some of the distinct titles mentioned were games that were part of some sort of pedagogical material, most often provided by popular educational publishers or web-based collections of materials either by individual teachers or by companies in the field of education. The group of games that are part of publisher materials includes titles such as Alex et Zoe, Cadeau, Felix & Franzi, Hallo and Bingel. It is interesting to note that popular domestic early FLT teaching material titles such as Jump in! (Otava) and Go (SanomaPro) are absent from this list. It could be argued that while the most well-known domestic publishers have provided widely used traditional materials, they have not provided digital **game** materials that are as popular within the early FLT teacher population.

As mentioned in prior research (e.g. Skinnari & Sjöberg 2018) as well as in this survey analysis, the lack of suitable resources for early FLT is a prevalent issue, as well as within the field of game-based learning (Reinders 2017). The fact that most of the games that are used are not part of other early FLT teaching materials or textbooks underlines this fact on its own part.

In the analysis of the titles mentioned, it could be seen that the perceptions of what an educational (or any) game *is* were varied. The titles mentioned in Table 6 could be seen more to be interactive materials or just websites that contained language learning exercises. This can be seen to be both troubling and promising for the future development of DGBL. Pilot testing games with teachers is an integral part of educational game development. If early FLT teachers are unaware of the division between educational games and digital language learning exercises, they cannot expect the games to include motivational or fun elements that are crucial to the functionality of the games. This can impair the game development process by creating a false sense of learner needs (see e.g. Perrotta et al 2013:9). On the other hand, this "relaxed" definition of what can be seen as games could provide game developers with an enlarged area of possibilities, methods and media which to incorporate in the world of DGBL.

Platform the games are played on

The technical platforms that the games were played on varied. The distribution between the different platforms can be seen below.

Platforms digital games used on

| Platform	Percentage
Tablets	91.67%
Interactive whiteboards	50%
Laptops (incl. Chromebooks)	47.22%
Mobile devices	41.67%
Personal computers (excl. laptops)	8.33%
Handheld gaming devices	0%
Gaming consoles	0%
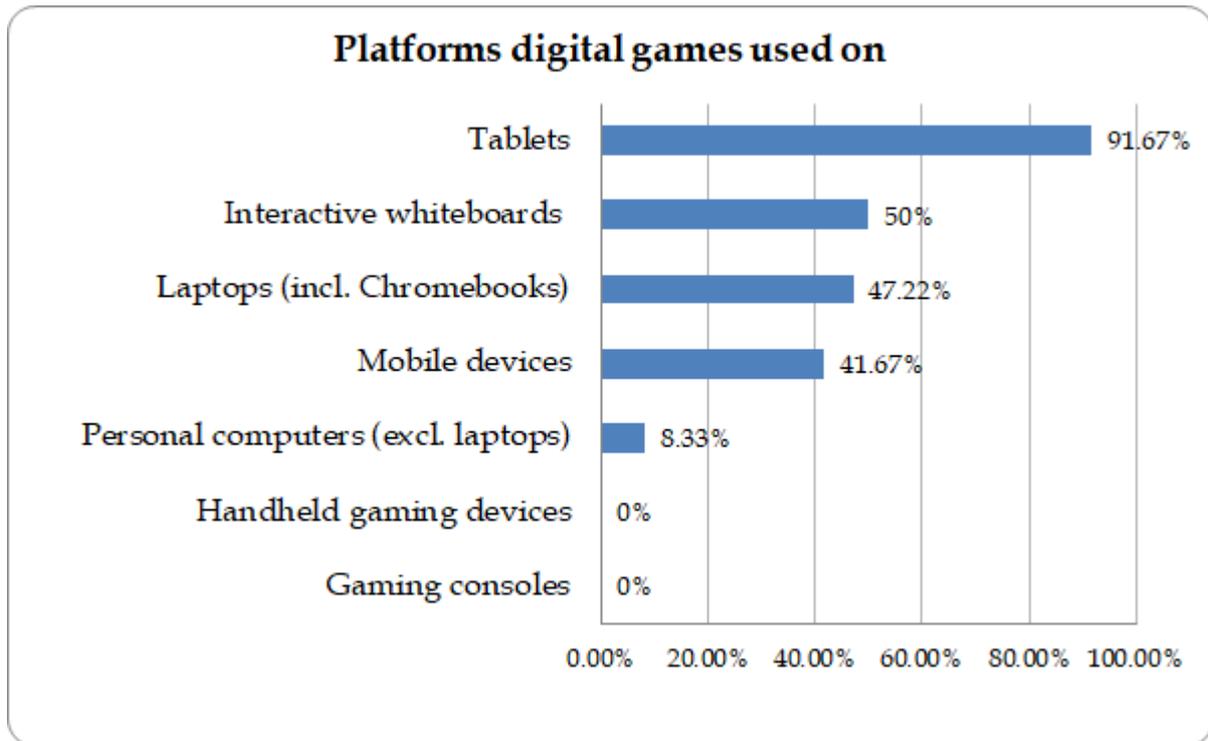
Figure 8. The platforms that digital games were used on in the participants' teaching.

As one can see from Figure 8 above, tablets are the most popular platform for DGBL in early language education, with 92% (N=33) of the game-using survey population using them while teaching with digital games. There are several reasons for this: during the 2010s, tablets have entered the Finnish school system, with most primary schools currently carrying tablets as the main tool for interactive, interdisciplinary learning (Tanhua-Piiroinen et al, 2019). In addition to this, tablets are relatively intuitive and easy to use, thus the learners can access the games easily and quickly, providing more time for learning itself. Using interactive whiteboards (e.g. Smart-boards) are also relatively common, with half of the game-using survey population reporting using them. The usage of interactive whiteboards was seen to be more popular with teachers with less experience: while two thirds of teachers with 0-5 years of experience used them in their teaching, only one third of teachers with 30 or more years of experience used interactive whiteboards. Language teachers were more apt using mobile devices in their teaching than classroom teachers, with 13 language teachers and only one classroom teacher using games with mobile devices. None of

the respondents used either handheld gaming devices or gaming consoles as part of their earlier language teaching. This comes as no surprise, as these devices are mostly designed and used for entertainment games, and only three teachers used entertainment games in their teaching.

Group sizes

The size of the groups in which games were used was one of the key issues asked regarding the teachers' use of games in early FLT. The most prevalent sizes of game usage within the survey population were alone (26 respondents using this method in their teaching) or in pairs (N=27). The third most prevalent option was to use games with the entire classroom at a time. This makes sense, as many of the games that the teachers have used are designed with teaching the whole classroom in mind (see Genres of games used)

As part of the question regarding group sizes, the teachers were asked if they utilized games as part of e.g. homework, i.e. if the learners used games at home as part of the curricula. What sprung out from the data is that only eight language teachers utilized this possibility, and more interestingly, none of the classroom teachers gave out game-based instruction as homework. The reasons for this can be seen to be quite simple: first-grade students are not given much homework in general in early FLT (Huhta & Leontjev, 2019:29), and while the early FLT provided by the participants was both intra- and extracurricular, the teaching was still mostly part of experiments in relation to the key government project. Thus, the low percentage is perhaps the most accurate indication of the current situation, and in order to gain more insight on what role DGBL plays in home exercises given out by early FL teachers, more accurate and controlled research into the subject is needed.

Purpose of using digital games

The purpose of using digital games had some variation, but certain aspects stayed similar through different factors of experience, gender, or occupation. Every teacher that used games in their teaching, used them for training and repetition of elements and skills that had been learned earlier. Additionally, motivating the students was one of the key reasons for using games in teaching, with 26 teachers using digital games in order to motivate students towards learning and completing the tasks at hand. Some teachers even mentioned that the digital form of the games also had a motivating effect on young students.
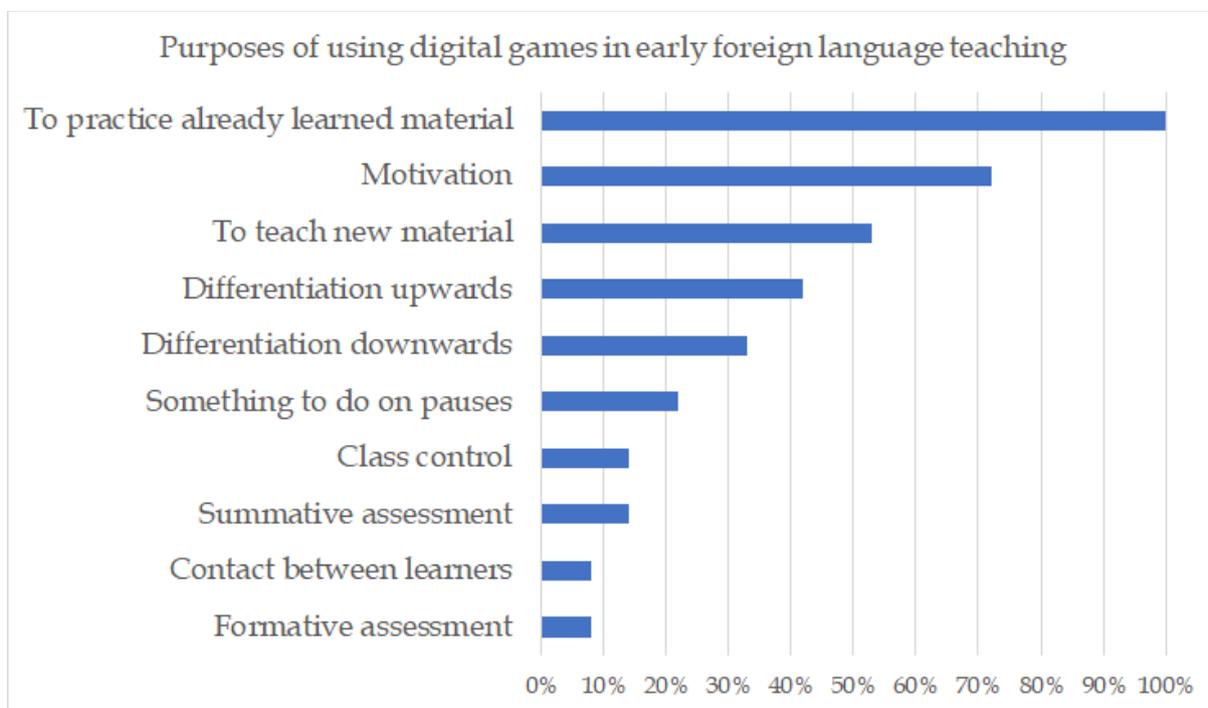
Figure 9. The purposes of using digital games in early foreign language teaching.

Some teachers also used digital games as a form of formative and summative assessment. Multiple teachers mentioned that as one could track the advancement of the learners while using digital games, the advancement could provide some input for formative assessment. This was more typical for language teachers, as none of those

identified as classroom teachers mentioned any form of assessment in their responses. Digital games and advancement data associated with them is also used as a form of differentiation for students: as many games have multiple levels or other stages through which the learners can advance at different speeds, this freedom to complete tasks in games was in itself seen as a tool for differentiation, as the learners can play the games on their own pace, and repeat tasks that they still need training in. While differentiation both upwards and downwards was mentioned, the former was slightly more usual, with 15 game-using teachers differentiating upwards, and 12 downwards.

In addition to the purpose of using digital games in their early language teaching, the teachers were also asked on the nature of the usage: what is the role of digital games in your teaching? While the majority of the respondents saw that digital games are useful, with some teachers even saying that they are not using them as often as they should, the main response on the role of digital games in earlier language teaching was that the role is very small, and seen as something additional to the teaching itself. According to the survey population, digital games complement and support learning and teaching.

The role of games in early foreign language teaching

The participating teachers who used digital games in their teaching, were asked about the nature of their usage of games. To be more specific, they were asked to describe the role that digital games had in their teaching in their own words. While this was seen as an important aspect of what DGBL is in Finnish early FLT, this question could have been formulated more accurately: in the responses to this query, the teachers evaluated the size of the role that DGBL had in their classroom compared to other methods and contents, the methods that games were used in, what effects the use of games had on the pupils and their learning, as well as which elements of language the games were used to teach.

In short, the role that the teachers perceived games to have in their early FLT was relatively small. Regardless of their background and teaching experience, many teachers saw that in early FLT, the role of digital games is not large. While the beneficial aspects of DGBL towards language learning games were recognized by the participants (as can be seen later in section 5.3), teachers saw that DGBL had a mainly supportive role in the classroom, with games being something that aids learning with other methods as well as provides fun and relaxing aspects to the early FLT lessons. One key method for using games within this population was using them for repetition of something that has been taught in prior lessons.

One key factor for the small role of DGBL in early FLT in this population was the digital nature of it. Multiple teachers reported that while games and play were seen as an integral part of their action-based pedagogy and lesson plans, games were conducted and designed either with analogue materials or through face-to-face interaction between the learners. This could be seen from the responses to multiple questions in the survey, especially those considering the challenges or the lack of using games in FLT (see chapter 5.3).

5.3 Perceived benefits of using digital games in early foreign language teaching

As part of the survey, all the respondents were asked about beneficial aspects that games or DGBL has on early FLT. This topic could naturally be approached in a multitude of prior questions, but the main channel for responses considering this issue was in questions 21 and 22 (see Appendix 1), where, in a similar manner as with the perceptions of challenges in DGBL, the teachers were first asked to list possible beneficial aspects in an open question, and afterwards asked to select the most

important aspects from a set of previously recognized beneficial aspects in a subsequent question.

The responses to the open questions were summarised to a few key points, translated, and the number of mentions for each key point were calculated. In the Table 7 below, we can see the key points that were mentioned more than once within the survey population. Naturally, the original expressions and sentences were formed differently than what is included in the table.

Table 7. Key benefits of using games in early FLT, as perceived by the respondents.

Key points	Number of mentions
"Games motivate learners to learn the target language."	25
" Games provide variation to the early FLT classroom."	13
" Games excite learners and can make tedious parts of learning more approachable."	11
" Games encourage learners to produce the language and lower the barrier for output."	5
" Games are fun and provide a fun aspect to early FLT."	5
" In addition to the target language, games can teach general digital skills or metaskills."	4
" Games can be used as an effective method for repetition."	4
" Games raise interest towards the target language."	3
" Games can help illustrate more difficult aspects of language learning."	2
" Learners can learn the language without noticing it through games."	2

In their responses to the open question, the participants saw that the most beneficial aspect that games bring to early FLT was motivation. In the responses from the participants, this was seen as a somewhat straightforward application; games, in themselves, provide an additional motivational element into the classroom and the target material. In addition to this, the mechanics of educational games are seen to be designed with the upkeep of motivation in mind. This was often seen to be hand in hand with both the fun elements that games bring to the classroom as well as the fact that games raise interest towards the target language and the theme of the lesson. This is natural, as most of the key points mentioned in Table 7 cannot be separated from each other in the evaluation setting of a FLT classroom.

One key point that 13 teachers saw as an important beneficial aspect of DGBL in early FLT was the variation that games provided to the methods of approaching the parts of the curricula, themes and target objects of the language in question. As in a prior question (see subchapter 5.2.), games were often seen as an apt tool for repetition and drills for previously learned content in responses to this question as well.
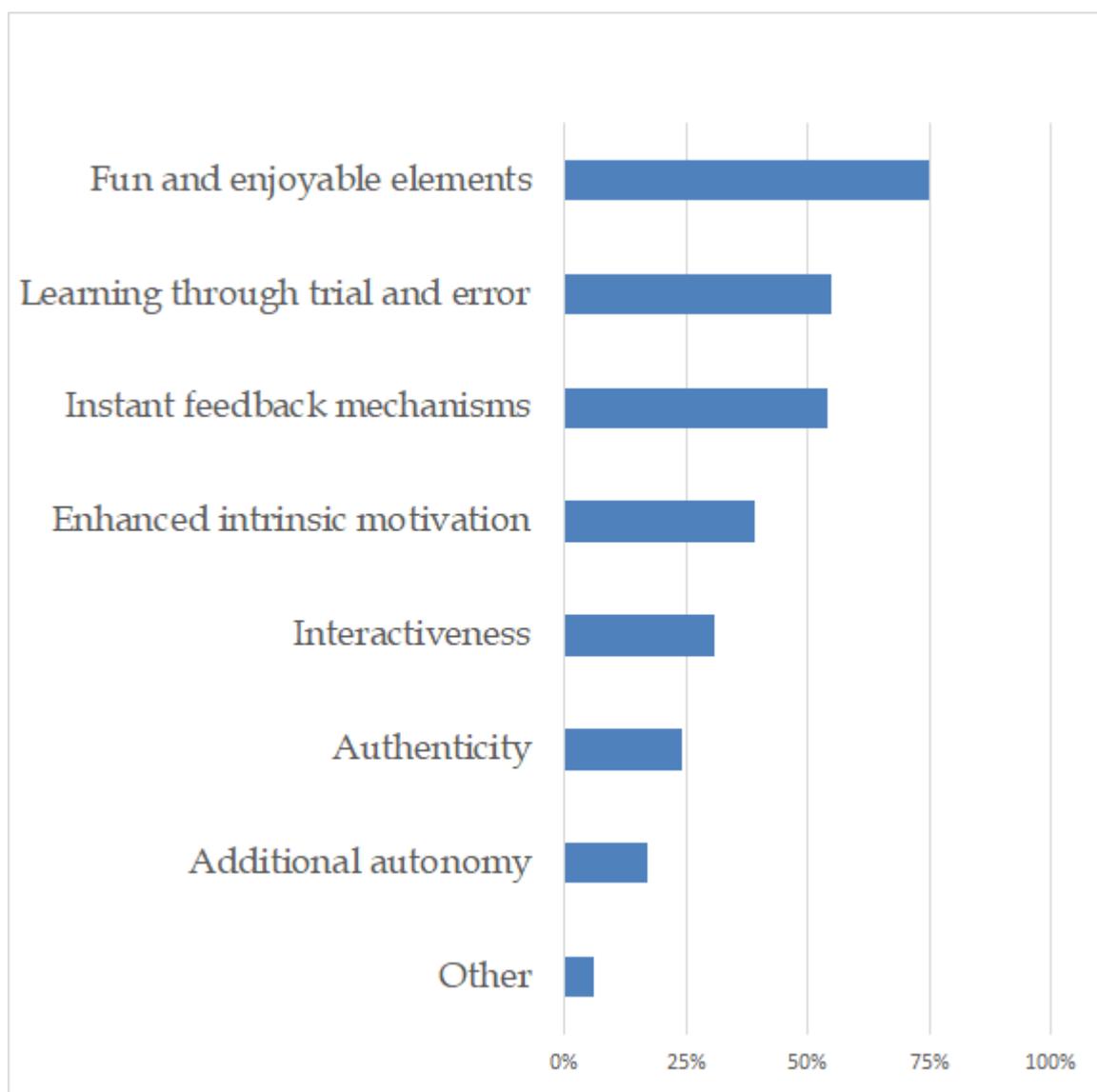
Figure 10. The most important benefits of games in early foreign language teaching, as perceived by the respondents.

As shown in Figure 10, fun and enjoyable elements of games were seen to be the most beneficial aspect of DGBL in early FLT within this closed set of options, with three fourths of the survey population responding that these were the main beneficial aspects of DGBL in early FLT. Alongside fun and enjoyable elements, 55% of the participating teachers saw that games' forgiveness in terms of failing and the ability to try again instantly (learning through trial and error) was one of the key aspects that made DGBL a suitable method for early FLT. This is tightly bound with the element of instant feedback mechanisms that is innate to most games, educational or

commercial; if the learner makes a mistake, they are accurately penalised or otherwise reminded of that specific issue, and thus the learner can more easily understand where the issue lies and what should be done instead in order to achieve the goal. As this is so clearly associated with the phenomenon of learning through trial and error, this was selected by a similar share of the participants (54%, N=38).

Four respondents selected "Other" as one of their three most important beneficial factors of DGBL in early FLT. When elaborating this selection, two of the four respondents mentioned variation as their one key beneficial element unto early FLT. This is aligned with what can be seen from responses to the open question and is obviously a key factor. It could be argued that the phenomenon of variation that games provide in relation to other materials and methods had not been adequately considered in both prior research as well as during the preparation of this survey.

5.4 Perceived challenges for using digital games in early foreign language teaching

When evaluating the challenges of using DGBL in early FLT, the participants answered two different questions within the survey. In order not to sway the respondents' answers excessively into a certain direction, the first question was an open-ended question, in which the participants were asked to assess possible challenges that they have experienced while implementing DGBL into their FL teaching, or challenges that may have possibly inhibited them from using games in their teaching in the first place. The second one included a closed set of perceived challenges derived from prior research (see Chapter 3). The participants were asked to select the three most prevalent challenges in their teaching from this set.
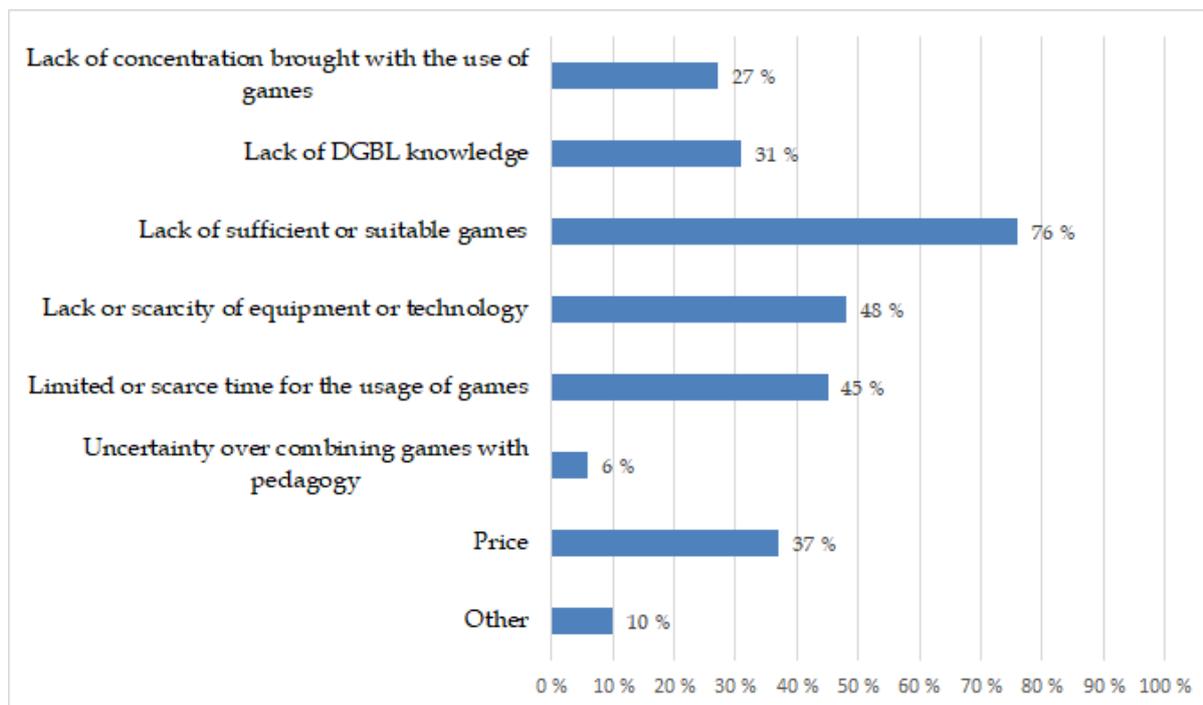
Figure 11. The most crucial challenges of games in early foreign language teaching, as perceived by the respondents.

As one can see from Figure 11, the most frequently perceived challenge was the lack of suitable games that fit the early FLT curricula. In their expansions on this subject in the following query, the theme of finding suitable games was extended by mentioning that, for example, finding games that did not rely on written language was seen as a challenge, and the level of language in these games was often not aimed for learners of this learner group: often games were seen to be designed for either L1 speakers of the language or for older L2 learners. While most research-based educational games are not suited towards early FLT (e.g. Hung et al 2018), a percentage as high as 76% (N=54) is still astonishingly high. In addition to this, only 29% (N=10) of the participants who did not use games in their teaching had heard of using games within the setting of early FLT. With both domestic and international research and curricula pointing to the fact that play and games are crucial methods in early FLT (see Chapter 3.2), this is an extremely alarming issue which needs to be addressed in future research and educational game design in an ever more digitalised world.

In addition to the availability of suitable material, teachers found that prevalent challenges included e.g. lack or scarcity of necessary technological equipment in order to utilize DGBL (34 participants (48%) saw this as a major challenge) as well as limited time towards the usage of games (45%, N=32). These themes were equally represented in the responses to the open question regarding the challenges of using games in early FLT. In these responses, the focus of the answers was on more practical issues of the organisation and pedagogy of early FLT. As one can see from the Table 8 below, the most prevalent key point derived from these answers was that organising tablets or other devices for the classroom and accessing digital game materials took too much time from the limited amount of weekly instruction time that these teachers had for early FLT. This was intertwined with the two other most crucial issues: the limited number and functionality of devices available, and the lack of literacy skills that learners at this level have. As the learners are still learning to read as part of the general curriculum, the preparation of devices and game materials can take up a large share of the perhaps only 45 minutes of language instruction of the week.

In addition to the challenges mentioned in the analysis of the closed question set above, the responses to the open question offered insight into more varying challenges or even obstacles for DGBL in early FLT. One example was the teachers' worry for the learners' increased time spent looking at digital screens, and the possible consequences this has on their general health. Many respondents saw that as the learners receive loads of screen time in their daily activities both in school and in their free time, they chose to include as little usage of digital devices as possible into their early FLT lessons, while focusing on action-based and even physical games, play and exercises with a large focus on oral communication.

Table 8. Key challenges in the use of games in early FLT, as perceived by the respondents.

Key challenges in the use of games in early FLT, as perceived by the respondents	Number of mentions
The limited number and varying condition of game devices	23
Technical preparation for digital game usage takes up too much time from instruction	16
Digital games often contain written text, and the target learner group has limited literacy skills	11
Lack of suitable game materials	9
Lack of knowledge of or training for DGBL	8
Adjusting for differences in learners' digital literacy	5
Worry about increased screen time and possible consequences for learners' health	5
Prefer other methods over DGBL, due to limited instruction time	4
The lack of time for using digital games	1

The participants who did not use games in their early FLT were additionally asked to provide reasons for not using them in their teaching (see Appendix, question 10). This query provided a variety of answers with some similarities to the responses mentioned above. This question was analysed in similar manner to questions 19 and 21: the responses to this question were summarised to a few key points, translated, and the number of mentions for each key point were calculated.
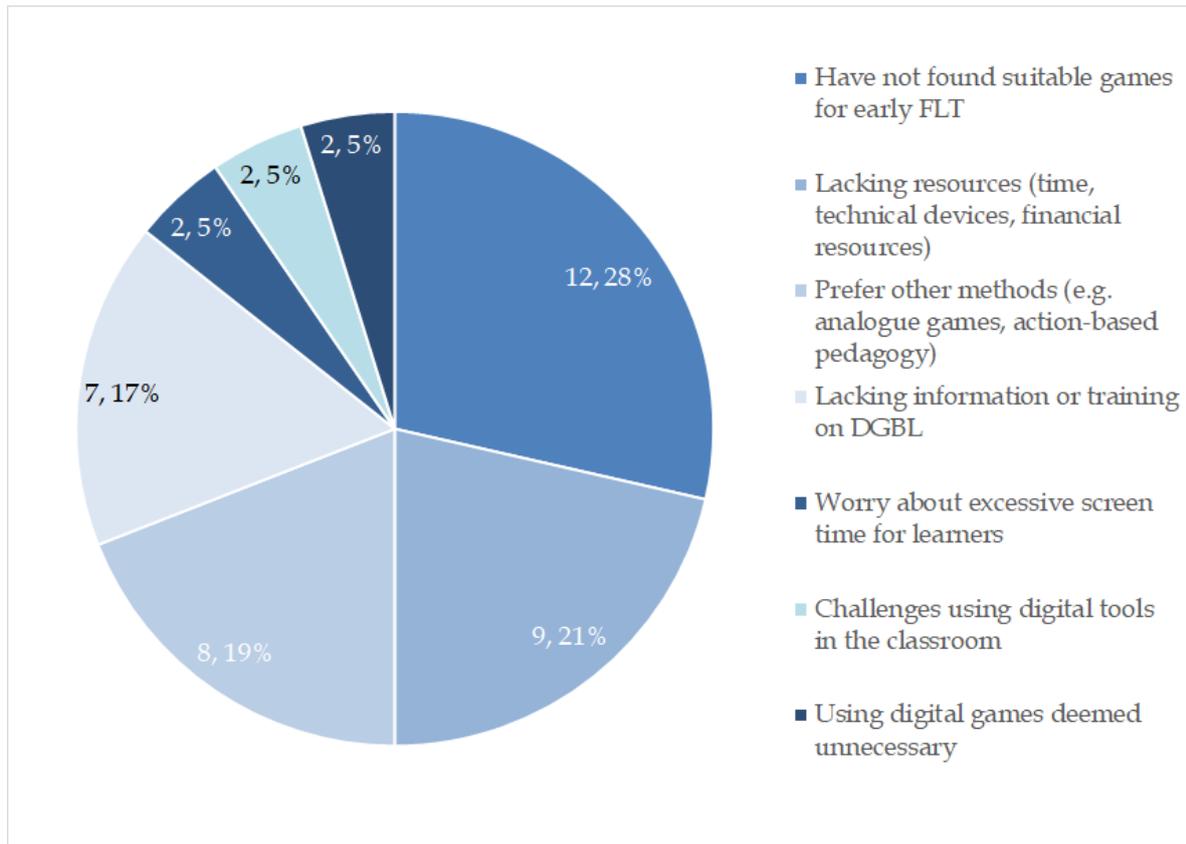
Figure 12. The reasons for not using digital games in early foreign language teaching. The first digit within the segments of the chart are the number of mentions for that certain key point, while the latter digit refers to the percentage of mentions from all mentioned key points.

As we can see from the Figure 12 above, the most prevalent reason for choosing not to include digital games into the early FLT curricula was not finding suitable games for teaching, with 28% of the responses to this question relating to this issue. Most of the teachers commenting this saw that they either would not know where to find suitable games or had not had time in order to search for games of their liking. This is related to the lacking resources (with nine mentions) for the implementation of DGBL: searching and preparing games to use with first graders takes its time. Most often the issues regarding resources referred to the number of technical devices available.

The third most prevalent claim for not using digital games was using other methods, with 8 mentions of preferring either action-based, analogue or face-to-face methods instead of digital games. A weekly instruction time for FLT in the first grade is limited

and was especially limited at the time of query. Teachers have to make decisions on what they spend this time on, and these teachers prefer other methods that DGBL. While this is extremely understandable, these responses showed an interesting sense of choice or even conflict between analogue and digital methods: as these teachers explicitly mentioned preferring action-based or face-to-face methods to digital ones, as if these two could not co-exist in the classroom.

6 CONCLUSIONS

This chapter concludes the current study by exploring the main results of the survey as well as the results' implications for early foreign language teaching. First, the study and its research methods will be evaluated, discussing some potential gaps and errors in the research process. Secondly, the main results of the study will be summarized, and the implications of those results for the methodological environment of foreign language teaching as well as for future language teacher training, educational game development and language education policy will be assessed. Finally, some propositions for future research in the field of DGBL in early FLT will be presented.

6.1 Evaluation of the present study

The survey designed as part of this study successfully provided answers to the research questions, providing insights into the perceptions that Finnish early FL teachers have of the implementation, benefits and challenges of DGBL into early FLT. There were, however, issues that could be altered in order to provide more accurate details on the role and nature of the usage of games in the early FLT setting. For example, in addition to a survey form sent out from a central source, some interviews with a few select early FL teachers would have expanded the study, providing some more detailed insight into the role and methods of DGBL into early FLT. While the open questions of the survey provided sufficient input into those themes, they were often relatively briefly worded, as the survey as a method in general does not encourage respondents to dive too deeply into the issues at hand (e.g. Dörnyei & Taguchi, 2009:7).

Under scrutiny, the composition of the survey could also be benefited from some changes. While it seems natural to insert inquiries about the teachers' background in the beginning of the survey, this does not necessarily invoke the necessary interest in the receivers of the survey. Therefore, by transferring the key questions of the survey

to the beginning of the form (i.e. questions related to the role, purpose, benefits and challenges of using digital games in early FLT), the survey could have received both a larger number of responses overall, as well as more detailed answers to the open questions regarding key phenomena. This could have possibly been achieved through further piloting of the survey with the target population.

One of the ways the study could have more insightful results is the timing. The survey was conducted during April-May of 2019. As this time period occurred simultaneously with the preparation of the alteration to the national curriculum, and learning a foreign language as an A1-language at the first grade of schooling became compulsory only a few months later or, at the latest, 7 months later (Finnish National Agency for Education, 2019), the nature of early FLT has already changed as a result of these changes. However, it can be argued that the timing is not necessarily a detrimental issue to the study. If the survey HAD been carried out at a later stage and aimed at a larger population, the study would have potentially received a larger number of responses. These responses could have been received from a population with perhaps only a few months, even weeks of experience with early FLT. On the other hand, by aiming the survey at teachers with some experience in early FLT and its methods, the study received a lower number of responses, but the quality of those answers can be seen to be higher.

6.2 Main results of the study

The study provided various insights into the current implementation of digital game-based learning in early foreign-language teaching.

With slightly more than half of the survey population (51%) using digital games in their teaching (and less than half (47%) of that 51% using them weekly or more often), it could be argued that DGBL is not a largely preferred method in early foreign language teaching. However, when asking to list digital games that were used in

teaching, multiple teachers reported using interactive materials, creating more questions about what teachers actually perceive as a game. Based on the results of the survey, language teachers use games slightly more frequently in their lessons than classroom teachers. There was no large variation in the use of DGBL between geographical locations or experience, but teachers who used games in their teaching also played games more frequently in their free time. Female teachers were also slightly more likely to use games in their teaching: however, the number of male respondents who used games in their teaching was low (n=5), thus creating low generalisability for results considering gender.

The purposes of using digital games in early FLT were varying. While all teachers using digital games used them for repetition and reciting what has been learned in earlier sessions, some used them for motivating learners to learn the target language and its usage. In fact, most of the teachers participating saw that the provision of motivation was the key benefit that digital games brought to early FLT. Another key purpose for using games in the early FLT classroom was differentiation: due to digital games' innate mechanisms, differentiation is rather simple through games. For example, the learner cannot continue if they do not achieve the goal of the level, which in educational games can be not achieving a high enough accuracy in production of the target language. Due to this, the learners at a higher skill level can proceed to following stages, while those who still need practice can repeat the current stage and use more time on learning the more difficult parts.

The main perceived benefits of DGBL in early FLT were, in addition to risen motivation, the fun, exciting and encouraging elements that games provide first-year old learners with while learning the target language. Teachers perceived this as a welcome variation to the methods of early FLT: while the teachers often highlighted the importance of action-based methods as well as oral communication, they saw that digital games provided a fresh new method that the learners enjoyed working with. Some teachers saw that DGBL provided a way to learn languages without paying

attention to the learning process in itself; this phenomenon is tied to the enjoyable experience of playing educational games.

There are still major challenges in the implementation of DGBL into early FLT. The results of the survey indicate that, despite the growth of the educational game industry in the past decade, teachers are still having difficulties finding games that are suitable for early FLT. This is affected by a multitude of different factors: the availability of age-appropriate game content, resources aimed towards early FLT as well as training and information on how to implement games into early language pedagogy. Multiple teachers reported that they did not use digital games in their teaching due to simply not knowing where to look as well as not knowing how to assess the suitability of educational games.

The lack of devices available for early FL teachers is one of the key challenges facing the implementation of DGBL in Finnish FLT. The teachers participating in the study saw that the lack as well as the questionable functionality of devices creates difficulties for the use of digital games in the early FL classroom. With a limited number of devices shared by an entire school, lessons using games have to be planned potentially weeks in advance. Even more challenging is the fact that even though devices are available, the process of pupils taking the devices into use and accessing game materials takes a large quantity of time in the already limited weekly lesson time afforded for early FLT in local curricula. With a lot of game materials loaded with written content such as labels and instructions, first-grade students with yet limited literacy skills require assistance in setting up and accessing the material, causing the teacher to have to spend time assisting the students with technical support. Many teachers rightfully argued that this time could be better spent teaching the learners the target language as part of the curriculum.

6.3 Suggestions for future research and policy

With the continuing growth of game-based learning as well as accessible educational game sources, the usage of the games needs to be inspected in more detail. While this thesis could explore the reasons for usage of digital games somewhat effectively, more research into the ways of implementing DGBL in teaching needs to be conducted. The process of using games can be versatile, and many of the challenges the teachers had with digital games had to do with the practical realm of using games in the classroom. Therefore, the practice of using games needs to be evaluated: are the teachers using the games in front of the classroom? How much agency is given to the learners themselves in using games? What does the average DGBL lesson in Finnish early FLT look like?

The world of designing educational games can hopefully use the results of this thesis in order to provide early LT teachers with games that are more apt for the learner group in question. However, in order to do this, more research could be conducted into what teachers see as games, as opposed to e.g. interactive materials. As can be seen from chapter 5.2, the division of what teachers perceived as games could be developed, and this could affect the learning experience of the learners themselves. Therefore, more research and training into the nature of educational games as well as the implementation of them in early FLT is needed. User testing with the learners themselves together with functional educational design could provide much needed results into the world of educational games at this age group. This further design of educational games must consider current and emerging technologies (e.g. virtual and augmented reality as well as the increased accessibility of mobile devices) and their possibilities.

In terms of policy, it can be seen that as early curriculum-based foreign language teaching at this grade level is a young discipline, more training is needed into the methods and pedagogy of teaching young learners. While the necessity of further

training has been discussed in prior research (e.g. Hallila (2019), Huhta & Leontjev (2019)), the results of this study highlight this need. While the national curriculum encourages teachers to use gamified elements and GBL in their teaching (Finnish National Agency for Education, 2019), teachers can be seen to be left alone with the implementation of those phenomena in the everyday early language classroom. Therefore, more training into what educational games are and how they can be used is needed in order to fully achieve the full potential of digital games in early FLT.

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APPENDICES

Appendix 1: Survey in its original form

Note: the survey was sent through the web-based survey portal Webropol. Due to this, while the contents are identical, the format of the original survey is not similar to what is seen below.

Kysely digitaalisten pelien käytöstä varhennetussa kielenopetuksessa

Tässä kyselyssä kartoitetaan varhennetun kielenopetuksen opettajien (sekä kielen-, luokan- että muiden opettajien) näkemyksiä ja kokemuksia oppimispelien käytöstä omassa opetuksessaan. Kyselyn ensisijaisena kohderyhmänä on Suomen 2015-2019 hallituksen varhennetun kielenopetuksen kärkihankkeeseen osallistuneet koulut, opettajat sekä muut toimijat, mutta myös muuten varhennetun kielenopetuksen parissa työskentelevien toimijoiden vastaukset ovat erittäin tarpeellisia. Kyselyn tuloksia käytetään Jyväskylän yliopiston pro gradu-tutkielman aineistona. Kyselyyn on aikaa vastata 30.5.2019 saakka. Tutkielma löytyy julkaisun jälkeen (syys-lokakuussa 2019) JYX-julkaisukirjastosta. Kyselyn aineisto tuhotaan pro gradun julkaisun jälkeen, ja anonymiteettisi säilyy koko kyselyn ajan. Kyselyyn vastaamisessa kestää noin 5-10 minuuttia.

TAUSTATIEDOT

1. Oletko

kieltenopettaja

luokanopettaja

muu opetusalan ammattilainen, mikä?

2. Opetuskokemuksesi vuosissa:

0-2 vuotta

2-5

5-10

10-20

20-30

30+ vuotta

3. Alue, jossa opetat

Ahvenanmaa

Etelä-Karjala

Etelä-Pohjanmaa

Etelä-Savo

Häme

Kainuu

Keski-Pohjanmaa

Keski-Suomi

Kymenlaakso

Lappi

Pirkanmaa

Pohjanmaa

Pohjois-Karjala

Pohjois-Pohjanmaa

Pohjois-Savo

Päijät-Häme

Satakunta

Uusimaa

Varsinais-Suomi

4. Sukupuoli

nainen

mies

muu

En halua vastata

5. Mitä kieltä/kieliä opetat varhennetusti ja ovatko kielet samoja mitä opetat muutenkin? Opetatko monikielisiä kokonaisuuksia (esim kielisuihkutusta, kielikokeiluja tms)?

6. Opetatko myös muita luokka-asteita kuin varhennetun piiriin kuuluvia?

Kyllä, mitä?

En

7. Pelaatko digitaalisia pelejä vapaa-ajallasi? Kuinka usein?

Päivittäin

Muutaman kerran viikossa

Viikoittain

Kuukausittain

Muutaman kerran vuodessa

En pelaa digitaalisia pelejä

8. Minkälaisia / minkä genren pelejä pelaat vapaa-ajallasi?

Mobiilipelit

Toimintapelit

Seikkailupelit

Roolipelit

Simulaatiopelit

Urheilupelit

Strategiapelit

Oppimispelit

9. Käytätkö digitaalisia pelejä kielenopetuksessasi?

Kyllä

En

10. Et käytä digitaalisia pelejä opetuksessasi. Mitkä ovat sille suurimmat syyt?

11. Oletko kuullut digitaalisten pelien käytöstä varhennetussa kielenopetuksessa?

Kyllä, keneltä?

En

12. Millaisia pelejä käytät opetuksessasi?

Opetuskäyttöön suunniteltuja oppimispelejä

Itsenäiseen oppimiseen suunniteltuja oppimispelejä

Oppimateriaalia tukevia oppimispelejä (esim. kirjasarjojen mukana tulevia
pelimateriaaleja)

Viihdepelejä

Viihdepeleistä johdettuja oppimiseen tarkoitettuja versioita

13. Millä laitteilla käytät pelejä opetuksessasi?

Mobiililaitteet

Tabletit

Smart-taululla tai muulla interaktiivisella valkotaululla

Kannettavalla pelilaitteella

Kannettavalla tietokoneella (sis. Chromebookit)

Pöytätietokoneella

Pelikonsolilla

14. Millaisissa ryhmissä pelejä käytetään opetuksessasi?

Yksin

Toisen oppijan kanssa

3-5 ryhmissä

Koko luokan kesken

Kotona itsekseen

15. Mihin tarkoitukseen käytät pelejä?

Opettaakseni uutta materiaalia

Jo opitun harjoitteluun

Formatiiviseen arviointiin

Summatiiviseen arviointiin

Oppijoiden motivointiin ja/tai palkitsemiseen

Oppijoiden väliseen yhteydenpitoon

Luokanhallintaan

Ajan kuluttamiseen tai taukotekemiseksi

Ylöspäin eriyttämiseen

Alaspäin eriyttämiseen

16. Miten kuvailisit digitaalisten pelien käyttöä opetuksessasi? Mikä rooli peleillä on opetuksessasi?

17. Nimeä enintään viisi peliä, joita käytät omassa opetuksessasi.

18. Kuinka usein käytät digitaalisia pelejä opetuksessasi?

Lähes joka oppitunti

Viikoittain

Kuukausittain

Muutaman kerran vuodessa

Harvemmin kuin muutaman kerran vuodessa

19. Mitä haasteita näet digitaalisten pelien käytössä varhennetussa kielenopetuksessa?

20. Ohessa lista pelien käytön tunnistettuja haasteita. Valitse niistä kolme, jotka näet yleisimpinä

omasta näkökulmastasi.

Rajattu/riittämätön aika pelien käytölle

Hinta

Teknologian/välineiden puuttuminen/vähäisyys

Tietämättömyys pelien käytön pedagogisesta metodiikasta

Epävarmuus siitä, miten yhdistää pelit opetettaviin aiheisiin

Tarpeeksi hyvien/sopivien pelien löytäminen

Digitaalisten laitteiden mukanaan tuoma oppilaiden keskittymisen vaikeus

Muu, mikä?

21. Mitä hyötyjä näet pelien käytössä varhennetussa kieltenopetuksessa?

22. Ohessa lista pelien opetuskäytön tunnistettuja hyötyjä. Valitse niistä ne kolme, jotka näet

tärkeimpinä.

Autonomian lisäys

Interaktiivisuus

Oppimisen mielekkyyden lisääminen

Pelien tuoma oppimateriaalien autenttisuus

Oppiminen kokeilun ja kokemisen kautta

Sisäisen motivaation korostuminen

Nopeat palautemekanismit

Muu, mikä?

Appendix 2: Survey in English

Survey on the use of digital games in early foreign language teaching

In this survey, the perceptions and experiences of early language teachers (language, classroom and other teachers) on the usage of educational games in their teaching is surveyed. The primary target group of this survey are the schools, teachers and other actors taking part in the government key project of earlier foreign language teaching conducted by the Finnish government of 2015-2019. The results of this survey are used as material for a pro gradu thesis in the University of Jyväskylä. The time to answer this survey ends on the 30th of May 2019. The thesis can be found in the JYX publication library after publication. The material gathered as part of this survey is destroyed after publishing this thesis, and your anonymity is preserved during the whole process. The duration of this survey is around 5-10 minutes.

BACKGROUND INFORMATION

1. Are you a

Language teacher

Classroom teacher

Other pedagogical professional, which?

2. Your teaching experience in years

0-2 years

2-5

5-10

10-20

20-30

30+ years

3. Region where you are teaching

Åland Islands

South Karelia

Southern Ostrobothnia

Southern Savonia

Tavastia Proper

Kainuu

Central Ostrobothnia

Central Finland

Kymenlaakso

Lapland

Pirkanmaa

Ostrobothnia

North Karelia

Northern Ostrobothnia

Northern Savonia

Päijänne Tavastia

Satakunta

Uusimaa

Southwest Finland

4. Gender

female

male

other

Prefer not to answer

5. Which language(s) do you teach as early FLT? Are these languages the same as you teach otherwise? Do you teacher multilingual projects (e.g. language showering, language experiments)

6. Do you teach other grades in addition to those part of early language teaching?

Yes, which?

No

7. Do you play digital games in your free time? How often?

Daily

A few times a week

Weekly

Monthly

A few times a year

I do not play digital games

8. What genre(s) of games do you play in your free time?

Mobile games

Action games

Adventure games

Role-playing games

Simulation games

Sports games

Strategy games

Educational games

9. Do you use digital games in your FLT?

Yes

No

10. You do not use digital games in your FLT. What are the main reasons for that?

11. Have you heard about the usage of games in the classroom?

Yes

No

12. What kind of games do you use in your teaching?

Educational games designed for teaching

Educational games designed for independent learning

Educational games designed to support other learning materials (e.g. games that are designed as additional parts of textbooks)

Games designed for entertainment

Educational versions of entertainment games

13. Which platforms are you using digital games within your teaching?

Tablets

Interactive whiteboards

Laptops (incl. Chromebooks)

Mobile devices

Personal computers (excl. laptops)

Handheld gaming devices

Gaming consoles

14. In what kind of groups are you using digital games in your teaching?

Alone

With a partner

In groups of 3-5

With the whole class

Independently at home

15. Mihin tarkoitukseen käytät pelejä?

To teach new material

To practice already learned material

Formative assessment

Summative assessment

Motivation

Contact between learners

Class control

Something to do on pauses

Differentiation upwards

Differentiation downwards

16. How would you describe the usage of digital games in your teaching? What role do digital games have in your teaching?

17. Name a maximum of five digital games that you are using in your own teaching.

18. How often do you use digital games in your teaching?

Almost every lesson

Weekly

Monthly

A few times a year

Less than a few times a year

19. What challenges do you see in the use of digital games in early FLT?

20. Below you can see priorly observed challenges in the use of digital games in early FLT. Select three you see as most frequent from your perspective.

Limited or scarce time for the usage of games

Price

Lack or scarcity of equipment or technology

Lack of DGBL knowledge

Uncertainty over combining games with pedagogy

Lack of sufficient or suitable games

Lack of concentration brought with the use of games

Other, what?

21. What benefits do you see in the use of digital games in early FLT?

22. Below you can see priorly observed benefits in the use of digital games in early FLT. Select three you see as most important from your perspective.

Additional autonomy

Interactiveness

Fun and enjoyable elements

Authenticity

Learning through trial and error

Enhanced intrinsic motivation

Instant feedback mechanisms

Other, what?