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# OPPORTUNITIES AND CHALLENGES OF ALLOWING SMARTPHONES IN THE CLASSROOM

"A qualitative study on teachers' perspective"

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# ABSTRACT

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The increased use of smartphones among teenagers has become a global phenomenon, prompting opposing discussions about whether to incorporate them in educational settings or enforce prohibitions in the classroom due to their disruptive nature. The integration of technology is widely accepted, and students are allowed to use smartphones for educational purposes in Finland. This study sought to reveal Finnish teachers' perceptions of students' smartphone use, to identify both potential benefits and challenges they encounter when allowing these devices in their teaching environments. Semi-structured interviews were conducted with nine educators, teaching in upper secondary schools in Finland. The thematic analysis revealed three primary themes that enclose the viewpoints of teachers. The first theme highlighted teachers' experiences with students' smartphone use, emphasizing the potential advantages of integrating them into their teaching practices. The second theme underscored teachers' reservations regarding students' non-educational smartphone use and its consequences on their learning effectiveness and well-being. The main challenges of teachers stemming from the permission of these devices in the classroom including issues related to enforcing recent policies and the impact on their autonomy and emotional well-being were addressed on the third theme. The findings enrich the existing literature by providing valuable insights into teachers' perceptions of smartphone use in the classroom and can be instrumental in shaping recent smartphone use policies to create a conducive learning environment that harmonizes the integration of technology with educational objectives and considers main stakeholders, including students and teachers who are directly involved in the educational process.

Keywords: Smartphones, teacher, student, perception, classroom

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# 1 INTRODUCTION

In the last decade, smartphones have penetrated the world, becoming one of the most popular gadgets of the current era due to their multi-functional features and importance in our daily lives. Smartphone users have access to a potentially limitless number of content and information channels and are able to carry out a wide range of tasks, including sending and receiving text messages, playing games, listening to podcasts, taking pictures, and utilizing social media platforms. As a result, in recent years, there has been a consistent increase in research dedicated to incorporating smartphones into the educational system and academic settings (Anshari & Alas, 2015; Kukulska-Hulme 2010).

A survey conducted in 2022 revealed that Finland had a smartphone penetration rate of 97% (Clausnitzer, 2023). Ninety-nine percent of respondents who were 16 to 24 years old owned a smartphone. The data further indicated that in 2017, 88% of respondents reported smartphone ownership, with the proportion of smartphone users increasing annually (Clausnitzer, 2023). The statistics highlight Finland's notably high smartphone penetration rate, which prompts inquiries about the implications of smartphone usage within the classroom.

The Finnish government's strategic plan for 2015 prominently emphasized the digitalization of education as an essential objective (Lavonen & Salmela-Aro, 2022). According to the program, it was predicted that the use of digital learning environments and new pedagogical techniques would encourage the development of future skills, increase the rate of lifelong learning, lower dropout rates, and broaden the scope of possibilities for social renewal in Finland (Kupiainen, 2022). Although tablet computers remain the primary form of technology use in Finland, smartphones are the second-most used device among students in the classroom (OECD, 2015). Mobile phones are a constant and permanent element in Finnish upper secondary schools (Paakkari et al., 2019). Smartphone usage accounts for 20% of class time, yet there are numerous ways students use their phones. The most significant uses of smartphones, in the

viewpoints of the students, were communicating and sharing one's life with friends. Despite the high smartphone usage among upper secondary school students in Finland, teachers possess governance autonomy, an aspect of Finnish educational laws that empowers instructors to make pedagogical decisions independently, opt out of centralized interventions, and decide how to incorporate technology in the classroom (Kupiainen, 2022).

Students' use of smartphones in the classroom is traditionally dominated by debates over their benefits and distractions, which leads educators to decide whether to allow or prohibit them in the classroom. As laptops are the predominant technology used in Finland's upper secondary schools, limited research has been conducted on smartphones' use as learning tools. Conversely, prior researchers predominantly centered their attention on the integration of mobile devices in higher education through the lens of students. They primarily explored the potential advantages of incorporating mobile computing devices for student learning while also examining the barriers that hindered their engagement and academic performance (Gikas & Grant, 2013; Husbye & Elsener, 2013).

As technology usage in Finland is heavily influenced by teachers' autonomy, it is important to study teachers' perspectives on this subject matter. This study aims to fill that research gap by investigating how upper secondary school teachers perceive the use of smartphones in the classroom based on their experiences, in order to determine potential benefits or disadvantages. The study results offer valuable insights into teachers' experiences with smartphones, addressing the dual nature of these devices as tools for enhancing learning and potential distractions during the learning process. The goal of this study is to understand how smartphones can be effectively utilized to address the needs of the main stakeholders (students and teachers) involved in the educational process. Additionally, the findings of this study can provide crucial assistance to school administrators, helping them comprehend the impact of students' smartphone use on teachers and aiding in the formulation of well-informed smartphone use policies within classrooms. Given that the research problem is a controversial topic with relevance worldwide, the study's findings have the potential to benefit not only Finland but also various countries facing similar challenges in managing smartphone use in education.

# 1 LITERATURE REVIEW

This chapter constitutes a comprehensive review of the academic literature and a thorough discussion of the potential benefits and drawbacks associated with the integration of smartphones in educational settings, with a particular emphasis on their influence on student engagement and learning outcomes. First, I present an overview of mobile technology's implementation in education, define mobile learning, and examine the main theories underpinning this approach in education. Subsequently, I summarize the beneficial attributes of smartphones that can be effectively harnessed in educational environments to enhance the overall learning experience. Finally, I review the prevalent challenges that arise stemming from permitting the use of smartphones in the classroom, impacting both educators and students.

## *1.1 Mobile technology and education*

The rapid advancement of digital technologies and the extensive digitalization of societies has a profound impact on education across all levels, influencing administration and pedagogical approaches. Policies promoting the integration of digital technology into schools are substantiated by several reasons. Firstly, digital technologies offer the potential to enhance conventional learning experiences and are anticipated to address persistent issues such as lack of engagement and inequalities in educational opportunities (McQuiggan et al., 2015). Secondly, digital technologies have been portrayed as mechanisms for enhancing global equality, developmental prospects, and economic progress by positioning them as providers of material, cultural, and cognitive assets that enhance engagement, networking, productivity, and even democracy (Baran, 2014; Hall-Newton et al., 2019). Supporting instructional technology and student learning technology is the main responsibility of technology infrastructure. The adoption of technology is ultimately influenced by the teacher's perspective on it,

rather than solely by the inherent utility of the technology itself (Georgina & Hosford, 2009).

Mobile technology stands out as one of the prevailing and highly influential forms of digital technology in the lives of students. The term "mobile technology" refers to devices like smartphones, tablets, PDAs (Personal Digital Assistants), GPS, and portable gaming consoles (Pascopella, 2009). Learning has been more accessible on account to the accelerated development of mobile technology over the past ten years. This accessibility has empowered educators with the capability to facilitate learning both within and beyond the traditional classroom settings. Mobile technology combines a variety of tools and software that make learning dynamic and frees students from being confined to their desks to explore and interact with learning items (McQuiggan et al., 2015; Kukulska-Hulme et al., 2009). Tablets and smartphones have significantly altered the technological landscape, revolutionized how people access information and communicate, and have had an impact on the lives of "digital natives" (McQuiggan et al., 2015). Numerous academics have emphasized the significance of mobile technologies for youngsters, with some referring to them as "digital natives." As stated by Prensky (2001), "digital natives" are the younger generation who have been immersed in and accustomed to utilizing digital technologies as an integral share of their daily lives from an early age. Digital natives have an incredible capacity for multitasking, a craving for speed, and a preference for immediate results.

Smartphones are playing a crucial role in the lives of digital natives because of their multifunctional features. In the interviews held by Boyd (2014), teenagers reaffirmed that they believed messaging to be the most crucial aspect of a smartphone. Digital natives have been raised in an era of technology that enables instantaneous connection with the world, and they anticipate the same level of immediacy and responsiveness in their educational experiences which shows the importance of applying mobile technology in education settings.

### 1.1.1 Defining mobile learning

The rapid adoption of mobile technology in society has paved the way for a modern educational approach known as "mobile learning." In this approach, students can access information whenever and wherever they desire, allowing

them to engage in real-world tasks that are directly related to their learning (Traxler, 2007; Martin & Ertzberger, 2013). First, it is defined as: "e-learning through mobile computational devices" in mainstream business and technology literature (Quinn, 2000). Second, a more learner-centric definition characterizes it as follows: "any sort of learning that occurs when the learner is not at a fixed, predetermined location, or learning that happens when the learner utilizes learning opportunities provided by mobile technologies" (O'Malley et al., 2003, p. 6). Third, Traxler (2007) defined it as: ‘any educational provision where the primary or dominant technologies are handheld or palmtop devices”. Mobile learning underscores its adaptability to diverse learning environments and its potential to provide students with flexible and engaging educational experiences.

Mobile learning was defined in a more detailed manner by Patokorpi et al., (2007) as: “situated, collaborative and guided teaching, studying and learning, supported by mobile devices that utilize symmetric mobile communications channels by which the learners and the facilitator may use and mold specially designed learning objects for work, hobby or citizenship-related purposes or as an aid to traditional education” (p. 191). In terms of the classroom context, mobile learning was defined as: “learning across multiple contexts, through social and content interactions, using personal electronic devices (Crompton, 2013, p. 4). In this definition, mobile learning encompasses interactions between individuals and/or educational content within the learning context. Paradoxically, mobile learning does not inherently require physical mobility beyond the portability of the device itself. An examination of existing literature reveals that numerous mobile learning strategies do not actually necessitate physical movement, but instead, they focus on utilizing devices originally designed for mobility within an educational context (Berge, 2013, p.177). An additional noteworthy element in this definition is the inclusion of "using personal electronic devices." This broader perspective prompts users to move beyond the focus on individual mobile devices and consider the concept that, in the modern era, mobile learning extends beyond the use of specific gadgets. Instead, it revolves around the idea that as a learner, students have the capability to be mobile and utilize a diverse array of personal electronic devices to engage with the content and networks of their choice. (Berge, 2013, p. 357).

According to Kukulska-Hulme and Traxler (2007), mobile technologies facilitate a variety of teaching and learning pedagogies and offer advantages for individualized, contextual, authentic, and informal learning. A theory of mobile learning, according to Traxler (2007), "may be problematic since mobile learning is inherently a 'noisy' phenomenon where context is everything" (p. 6). A key concept in mobile learning is the context. Conventional classroom education relies on establishing a set location where students gather, share educational materials, include a single educator, and follow an established curriculum to maintain a sense of consistency in daily learning (Grant, 2019). Nevertheless, when these elements are taken away, a significant challenge arises in terms of establishing brief periods of permanent context that allow the creation of meaning from the ongoing daily activities (Kukulska-Hulme et al., 2009).

Mobile learning should not be perceived as a separate endeavor or phenomenon. However, as Grant (2019) suggests, mobile learning should be considered as an integral part of broader educational strategies. Abbott (2007) emphasizes that to unlock the full potential of mobile learning, we must establish methodologies for applying mobile technology to support learning, methods that may not be achievable through alternative technological or pedagogical means. According to Abbott, mobile learning has the ability to encourage and facilitate social inclusion more than anything else. The fundamental tenets of mobile learning are "leading to a second wave of e-inclusion which is collaborative rather than individually supportive, holistic rather than skills-based, and inclusive rather than separatist" (2007, p. 3). The objective is to identify learning prospects and make them accessible.

Mobile learning presents an innovative method for reaching students, as it enables flexible scheduling, personalized content, and the imparting of skills that are pertinent to the future. This approach could potentially cultivate a generation of students who perceive the world as their classroom, as noted by Pascopella (2009). According to research done in Northern Cyprus, teachers and students desire to employ mobile learning in the classroom and have positive opinions about it, however, they lack the necessary skills to accomplish and implement it (Ozdamli & Uzunboylu, 2015).

Mobile learning readiness represents a novel dimension of incorporating technology into the educational landscape for teachers. The exploration of

optimal approaches for the effective utilization of mobile devices to enhance the learning experience is a crucial subject that warrants comprehensive investigation (Cochrane, 2014). This is significant because tailored professional development initiatives play a pivotal role in guaranteeing the seamless integration of mobile learning within classroom settings. Educators must receive supportive professional development opportunities that cultivate not only their enthusiasm and willingness but also their proficiency in utilizing techniques to seamlessly incorporate mobile devices into their teaching practice (Christensen & Knezek, 2017).

Considering the increasing independence and decision-making capabilities that young people wield through their mobile devices, educators must integrate avenues for students to have control over how their learning experiences are structured (Kearney et al., 2015). Baran (2014) stated the existing body of literature should strive to establish strong pedagogical and theoretical frameworks. These frameworks would serve as guidance for teacher educators when conceptualizing mobile learning experiences for both pre-service and in-service teachers. The primary goal of these models should be to offer effective strategies that empower teachers with the knowledge and methods to seamlessly incorporate mobile learning into educational environments. Additionally, these models should emphasize aiding professional growth by leveraging mobile tools to support ongoing learning and development among educators.

Despite a growing inclination among teachers to leverage mobile devices and applications to enrich their classroom experiences and encourage active learning among students, there is a notable lack of comprehensive research focused on comprehending the seamless integration and real-world outcomes of mobile learning practices from the teacher's perspective. The existing gap in the literature underscores the need for in-depth investigations and studies that explore the challenges, successes, and overall impact of mobile learning initiatives through the lens of educators (Ken Nee Chee et al., 2017; Pedro et al., 2018).

## *1.2 Smartphones as mobile learning tools*

In recent decades, the prevalence of smartphones in education has notably increased across all educational levels, from elementary schools to universities. Thus, educators are actively attempting to determine effective smartphone methods as students consistently have these devices with them during class. A multitude of research studies have extensively investigated the integration of smartphones in mobile learning contexts. Their primary objective is to identify smartphone features that can be effectively utilized within educational settings to augment the overall learning experience. Smartphones are equipped with a diverse array of features, collectively positioning them as highly valuable tools for mobile learning. These features encompass portability, high-speed internet connectivity, multimedia functionalities, integrated cameras, and recording capabilities, accessibility to a wide range of educational applications, seamless integration with various platforms, and the ability to personalize the learning experience according to individual preferences and needs. This chapter will present an overview of these features, encompassing functions such as rapid responses, video creation, educational app usage, language learning tools, and educational gaming applications. These functionalities are implemented to enhance the learning experience, fostering active engagement, and encouraging increased participation with course topics within the classroom.

### 1.2.1 Smartphones for Scanning Quick Response (QR) Codes

QR codes are two-dimensional barcodes that contain information in a matrix or square pattern of black and white modules. QR codes are intended to be scanned and decoded quickly by a smartphone, tablet, or other image device (Brodie et al., 2020). Quick Response (QR) codes have proven to be a valuable tool to leverage mobile technology within educational settings (Rahmahani et al., 2020). When considering shyness and the potential for students to replicate the answers of those deemed as "high achievers," the conventional approach of raising hands and asking questions does not generate a significant level of involvement from students (Hashim et al., 2018). Thus, utilizing QR codes to present concise

queries and collect responses from the class on the topic is an intriguing method to attain this objective (Wang & Tahir, 2020).

QR codes offer several benefits, such as quick scanning and a high data storage capacity. They serve as a gateway to various types of information that can be accessed from anywhere through mobile devices equipped with wireless connectivity. When users install a QR code reader application on their mobile devices, they can decode the information contained within the code, which may include videos, web links, text, or other formats. For instance, Robertson and Green (2012) provided illustrations of how QR codes can be effectively integrated into the educational environment. They proposed that students could create their own QR codes with their mobile devices and affix them to images they had previously discovered online. Besides positive attitudes, Rivers (2009) pointed out various issues related to QR codes, including the limitation that not all mobile phones could scan these codes. In another study, a notable proportion of students highlighted issues regarding internet speed and offered suggestions for enhancements (Ali et al., 2017).

QR codes can be employed to facilitate the collection of student responses through efficient surveys conducted with the assistance of DirectPoll, Pollmaker, Survio, and SurveyMonkey software. Through the use of smartphones, every student had the opportunity to respond to surveys promptly and directly, maintaining the option for anonymity (Artal-Sevil et al., 2017; Cohn & Fraser, 2016). In a different study conducted by Husbye and Elsener (2013), QR codes proved to be effective in accessing instructional materials provided by the instructor. Teachers could record guidance for specific learning centers and link them with QR codes that students could scan using Audioboo, both a web and smartphone platform that permits registered users to record and store up to three minutes of audio. Furthermore, an experiment involving a Math Trail was conducted to explore the utilization of QR codes and mobile phones within the framework of Finnish primary education. The study highlighted that utilizing QR codes allowed for the creation of engaging and purposeful activities that motivated students with the assistance of smartphones and enhanced conventional teaching methods (Rikala & Kankaanranta, 2014).

### 1.2.2 Smartphones for creativity

Creativity is the human capacity to employ one's imagination, encompassing the generation of fresh ideas, concepts, or solutions that hold value and relevance within a specific context, as articulated by Welch and McPherson (2012). Previous literature has emphasized the effectiveness of smartphones in facilitating the creation of classroom-related videos, fostering students' imagination, and enhancing their problem-solving abilities (Clayton & Murphy, 2016; Gromik, 2015). A common foundation for pedagogical approaches to video and film is storytelling, together with concepts pertaining to the dramaturgical and plot development of stories (Spierling & Szilas, 2008). In contrast to traditional methods employed in fictional cinema, Finnish film and video educators have introduced a pedagogical framework. They have pioneered a methodology for understanding and representing moving images, commonly known as the "camera-pen" approach, which has gained prominence in Finnish educational settings. The core concept of the camera pen revolves around empowering students to creatively use the camera to document their problem-solving skills and as a tool for recording, analyzing, and evaluating their outcomes (Kiesiläinen, 2017). Camera-pen pedagogy was described as “The idea of the pedagogical framework of the camera-pen is to do carefully planned exercises in which the learner is challenged to think, act, and interact with a specific focus, using the camera solely as a tool” (Jaakkola, 2017, p. 42).

A study was designed to measure students' digital storytelling skills by requesting them to explore a target culture from the perspective of someone who is not native to that society. Students were assigned the task of creating a short, narrated film on a specific topic linked to the culture they were researching. They recorded video clips using smartphones or iPod Touches, then edited and assembled the clips to create a longer video on their devices. After completing their videos, students uploaded them to YouTube, where their peers could both view and comment. This method proved to be effective in terms of enhancing students' creativity and fostering greater engagement in the learning process (Koutropoulos et al., 2013).

In an innovative project to integrate cell phones into education, students were tasked with creating lessons in the style of YouTube videos to illustrate the

instructional use of mobile apps. Through this project, students realized the potential benefits of smartphone use in education as they produced short video tutorials on various smartphone applications. The impact was so immediate that one student promptly downloaded an app for use in their math lesson after viewing a video from another school, highlighting the effectiveness of this approach (Clayton & Murphy, 2016).

In another research endeavor, attention was given to utilizing smartphone video cameras as a tool for crafting digital narratives to aid in English language learning. Students were motivated to employ the video recording feature on their smartphones to generate a 30-second video every week for a duration of 12 weeks, each centered around a theme chosen by the teacher. The outcomes demonstrated that students successfully created video-based digital stories, effectively articulating their viewpoints regarding the themes chosen by the teacher. The insights gleaned from this study underscore that integrating smartphone-based video storytelling is a pertinent task for language learners, preparing them to engage effectively with this medium of learning (Gromik, 2015).

### 1.2.3 Smartphones as a language learning tool

Smartphones in particular show promise for language-learning applications in mobile technologies. The research findings demonstrated that the utilization of smartphones, along with their associated apps, has a positive impact on the learning of English as a foreign language. This impact is particularly pronounced in two key areas: the expansion of learners' vocabulary and their heightened motivation to engage in a language study (Akkara et al., 2020; Nami, 2020; Sarhandi et al., 2017; Yurdagül & Öz, 2018). Moreover, the investigation into the effects of smartphones on language education revealed that students value quick and simple access to information when learning a language (Yurdagül & Öz, (2018).

Metruk (2021) discovered that English Language Learning Applications (ELLA) play a significant role in assisting English as a foreign language learners in acquiring and developing their language skills. The study indicated that enhancing students' understanding of how ELLA can aid in improving all aspects of linguistic competence, including speaking, could enhance their motivation to

utilize mobile devices for language practice. Students can efficiently improve their vocabulary by utilizing mobile devices to access online dictionaries and language apps (Sarhandi et al., 2017). Mobile language apps play a central role in enhancing all four language skills—listening, reading, writing, and speaking, including the assessment of these skills. However, their most substantial influence is observed in the development and retention of students' vocabulary. For instance, as reported by Wu in 2015, students who use smartphone apps for learning English words remember a significantly larger number of words, approximately 89 words more, compared to those who do not use such apps. This positive outcome can be attributed to the diverse forms of media that these apps offer, which create a multifaceted and effective learning experience (Klimova & Poulová, 2016). Furthermore, they can engage in language quizzes with a variety of question types, such as multiple-choice, fill-in-the-blanks, matching, drag-and-drop, and translation exercises, after listening to or viewing short dialogues from various sources (Yurdagül & Öz, 2018; Nami, 2020).

A substantial proportion of teachers, comprising 84%, regarded smartphones as a valuable resource for teaching vocabulary (Sa'di et al., 2021). Interestingly, the duration of teaching experience was found to have a statistically significant impact on teachers' viewpoints, particularly those with teaching experience ranging from more than 5 to less than 10 years. Smartphones were recognized for their ability to sustain student engagement both inside and outside the classroom, providing a platform for students to encounter lexical elements from various languages within meaningful contexts.

An empirical study was carried out to assess the impact of a self-developed smartphone app called "Saving Alice" on the improvement of TOEIC (Test of English for International Communication) vocabulary and spelling skills among EFL (English as a Foreign Language) learners (Yang et al., 2020). The study's results demonstrated that the use of Saving Alice had a significant positive effect on students' learning outcomes. Furthermore, it was observed that the frequency of engagement with game-based mobile apps correlated with the extent of learning improvement, emphasizing the educational potential of these applications.

### 1.2.4 Utilizing smartphones for educational games

Games can serve educational purposes effectively when they are appropriately designed to inspire students to learn, as indicated by compelling evidence from a Spanish study (León Soriano et al., 2016). Engagement and motivation are crucial prerequisites for achieving meaningful learning and growth. Educators can attain these goals by creating instructional experiences that inspire and motivate students. Initially, teachers facilitate learning in an engaging and enjoyable manner, which stirs students' desire to study and actively participate in the subject. This, in turn, fosters a heightened interest in pursuing further education, whether in the same field or related areas (Laguna et al., 2016). According to Prensky (2002), the capacity to maintain students' engagement will increasingly influence their choice of courses, motivating educators to draw insights from game designers to create more enjoyable, captivating, and effective mobile learning solutions. The utilization of smartphone games in the classroom can have a positive impact on students' engagement and interest in the learning process.

The most popular game-based tool for encouraging student participation in the class was discovered to be Kahoot. The study findings indicated that more than 90% of students thought Kahoot was a fun assessment tool to use in the classroom. More than 75% of the students provided positive ratings for Kahoot, viewing it as a motivational tool that increased their engagement with the lesson (Hashim et al., 2018). Kahoot can significantly enhance the quality of student learning within the classroom, exerting the most prominent influence on classroom dynamics, involvement, motivation, and a general improved learning outcomes (Licorish et al., 2018).

On the contrary, findings from research conducted by Ebadi et al. (2021) demonstrated that despite the acknowledged advantages, a significant portion of students exhibited reluctance to utilize them for delivering students’ responses in classroom settings. Several reasons were put forward for hesitancy in using this application in the classroom, including concerns related to internet connectivity issues, the fast-paced nature of the game, and its competitive elements. Furthermore, Boden & Hart (2018) highlighted that in larger groups, students’ enthusiasm might create a noisy classroom environment, and students might

make guesses or respond to questions without thorough consideration.

In this study, an English blockade-running game inspired by Greek and Roman mythology was developed, and a research model was proposed to predict learners' future willingness to engage in game-based learning with smartphones after experiencing a state of flow. The findings underscored that when learners entered a state of flow during the game-based learning process, they exhibited a greater willingness and a more positive attitude towards using smartphones for learning in the future. This suggests that the more learners enjoyed the process and felt highly focused during game-based learning, the more inclined they were to continue learning through this method. The study also revealed that learner satisfaction with the app's interface design and game activities had a substantial impact on their level of focus and engagement during smartphone gameplay. This underscores the importance of the quality of the app's interface and the design of learning activities in shaping the learner's experience and immersion in game-based learning (Liu, 2020).

From the literature review provided above, the incorporation of smartphones in educational settings has demonstrated their potential advantages in enhancing students' learning and engagement. The utilization of QR codes has enabled the creation of purposeful and engaging activities that have motivated students, with smartphones playing a crucial role in this process (Artal-Sevil et al., 2017; Brodie et al., 2020). Students employed these devices to foster creativity and develop video-making skills by crafting educational content that aligns with lesson objectives (Gromik, 2015). Moreover, smartphones have proven to be effective tools for language learning through educational apps, which encourage and enhance students' language acquisition and proficiency across the four language skills (Yang et al., 2020). Lastly, the inclusion of educational games has been shown to increase students' engagement and motivation, fostering their continuous learning (Liu, 2020).

## *1.3 Challenges of incorporating smartphones in the classroom*

Although smartphones have numerous capabilities that can improve students' involvement and participation in the lesson, teachers are cautious to allow students to use their devices in the classroom due to the risk of various reasons.

Numerous studies have explored the potential barriers associated with allowing students to use smartphones, which may pose interference with the learning process. In this chapter, I will provide non-educational purpose of use of smartphones, common usage patterns, issues with problematic usage, the risk of cyberbullying, and teachers' experiences with disruptive student behavior in the classroom.

### 1.3.1 Non-educational smartphone usage

While there are advantages to utilizing smartphones in the classroom, many students can succumb to the temptation of using them, for non-academic purposes during class, which can have a detrimental impact on their learning outcomes. This often occurs when students believe they will not miss any new class material or when they feel disengaged, with common distractions including sending messages, checking email, and accessing their social media accounts (Vahedi et al., 2019; Flanigan & Kiewra, 2018). Furthermore, the use of digital devices for non-academic purposes can also limit the amount of time available for learning course materials. It is important to consider the duration of the complete recovery process. How long does it take for students, after being distracted, to fully re-engage with the original academic material? Even if the actual distraction is brief, its effects can linger, and it might take multitaskers up to 30 minutes to refocus and regain full concentration on their initial work (Gazzaley and Rosen, 2016).

The findings of a study examining the smartphone usage habits of undergraduate students revealed that on average, students spent approximately four hours and fifty minutes each day using their smartphones interacting with various applications an average of 380 times daily, whether these interactions involved the same or different applications. Students were observed using their cell phones for a variety of purposes. This included educational uses such as taking pictures of slide shows and whiteboards, while also for non-educational purposes like checking the time, making calls, and sending text messages (Kocak & Goktas, 2021).

Students' attitudes toward the non-educational use of smartphones are influenced by several factors, as reported in a study by Taneja et al. (2015). The

first factor that influences students' attitudes toward the non-educational use of smartphones is consumerism. Consumer-oriented students perceive educational institutions as consumer-driven marketplaces where they expect to earn degrees because they are paying fees, rather than viewing them as places where they will need to put in effort, face challenges, or receive potentially unfavorable feedback from professors (Obermiller et al., 2005; Meneley, 2018). Second, students often find themselves compelled to study topics that do not pique their interest, or are challenging to study. This can lead to a lack of enthusiasm for their studies, prompting some students to seek ways to disengage from the classroom environment. Third, when students lose interest or engagement in the classroom, they often resort to coping strategies. These strategies can include avoiding the challenging situation, and redirecting their attention to other matters, ultimately leading to further disengagement from the class (Chan et al., 2009). Fourth, the anxiety associated with cyber-slacking, which pertains to the use of the internet for non-academic purposes during class, is specific to particular situations (Gerow et al., 2010; Flanigan & Kiewra, 2018). Lastly, distraction by others' cyberslacking behavior was described as the perceived interference with or disturbance of students' learning brought on by other students' usage of technology for non-class-related purposes during regulated class time (Gerow et al., 2010).

### 1.3.2 Multitasking

Smartphone multitasking is a term used to describe the practice of using multiple smartphone applications at the same time or using smartphone apps while simultaneously engaging in other specified information-processing tasks. This can include actions such as reading while texting, talking on the phone while browsing apps, or any combination of tasks involving smartphone usage (Jeong & Fishbein, 2007; Grinols & Rajesh, 2014; Lim & Shim; 2016). Smartphone multitasking has become increasingly common in the modern era with the widespread use of smartphones and their diverse capabilities (Chen et al., 2021; Deng et al., 2022).

Multitasking, as explained by Shao and Shao (2012), involves the division and assignment of tasks to different regions of the brain, enabling it to manage

multiple thought processes simultaneously. This concept suggests that the brain can allocate cognitive resources to handle various tasks concurrently, allowing individuals to engage in multiple activities or thought processes at the same time. While the brain is indeed capable of handling multiple tasks, there are limits to effective multitasking, and overloading the brain with too many tasks can lead to reduced performance in some cases (Mayer & Moreno, 2003).

Students' perceptions of societal support, their experiences within an academic community, and their feelings of being valued and accepted by peers and teachers all contribute to their sense of belonging in a college environment (Goodenow, 1993). This sense of belonging often stems from the belief that one matters to others, and it can lead to various positive outcomes, including increased engagement, achievement, well-being, satisfaction, and optimal performance (Strayhorn, 2012). However, when students do not feel a sense of belonging in a classroom setting, they may be tempted to engage in off-task activities such as texting or interacting with friends on social media to fulfill their need for belonging (Chen et al., 2021).

During interviews with students, it was consistently reported that one of the primary reasons they use cell phones during class is due to boredom. While faculty members believe they provide hands-on and diverse tasks, students often attribute their behavior to boredom (Batch et al., 2021). College students frequently use their smartphones to access the internet, exchange text messages, check email, and access various social networking sites (Samaha & Hawi, 2016). With the abundance of communication opportunities available in today's classrooms, teachers face numerous challenges in maintaining students' attention (Chen & Yan, 2016).

In the effort to gain a deeper understanding of how multitasking impacts learning, Junco and Cotten (2012) concur that there are distinct information processing channels required for effective learning, encompassing auditory/verbal and visual/pictorial aspects. The existing research literature offers substantial evidence indicating that engaging in off-task multitasking can have detrimental effects on student learning. Chen and Yan (2016) conducted a review of 132 pertinent studies and found that smartphone multitasking, in particular, had a detrimental impact on learning and memory recall. In other words, using smartphones for multitasking activities unrelated to the learning task at hand can

hinder a student's ability to absorb and remember information effectively (Firat, 2013).

Research and empirical evidence consistently indicate that unstructured cell phone use can have a detrimental impact on academic performance and contribute to a culture of distraction. Students who engage in off-task activities on their smartphones tend to take fewer notes in class, perform poorly on tests, and achieve lower overall grades (Flanigan & Kiewra, 2018; Kuznekoff & Titsworth, 2013). Off-task smartphone use is believed to have an adverse effect on student engagement by fostering a cycle of academic underachievement, disinterest, and discouragement (Langmia & Glass, 2014; Batch et al., 2021).

Divided attention can become an issue when a teacher is delivering a lecture, attempting to ignore student cell phone use, and simultaneously monitoring the class to ensure comprehension of the material being taught. Divided attention refers to the process of trying to perform one or more tasks simultaneously while also attending to multiple streams of information (Craik et al., 1996). Teachers may find their mental effort stretched to its limits when they need to focus on delivering information to students who are actively engaged. However, if a teacher observes a student using a cell phone during class, it can be perceived as distracting and may be associated with the delivery of lower-quality lessons (Flanigan & Babchuk, 2022). Hence, it is in the best interests of both students and their teachers to understand how smartphone multitasking affects the completion of core coursework within the primary classroom. Exploring solutions where smartphones are leveraged as tools for enhancing learning may garner greater acceptance than efforts to outright ban phones from the classroom. Instructors have more control over students' learning time and environment within the classroom compared to outside of class (Chen & Yan, 2016; Grinols, 2014).

### 1.3.3 Smartphone addiction

Many studies incorporate the duration of smartphone usage as a key factor in predicting smartphone dependence. They have found that an increase in smartphone usage correlates with a higher likelihood of smartphone dependence (Augner & Hacker, 2012; Haug et al., 2015). In Finland, a study examined the

relationship between smartphone use and physical activity among high school students aged 15 to 19. An average of four hours and forty minutes a day were spent on smartphones. Snapchat, Instagram, and YouTube were the top three apps utilized by high school pupils. During a single day, Snapchat was utilized on average for approximately two hours (Lahti et al., 2020).

One reason students use their phones in the classroom is that it has become a habitual behavior for them. The repeated patterns of phone interactions led to the discovery of a very basic habit: the habit of checking (Oulasvirta et al., 2012). Research findings indicate that high-frequency smartphone use can have a notable impact on students' homework behavior. For instance, students who check their phones 39 times a day reported that it disrupts their homework more compared to those who check their smartphones less frequently (Furst et al., 2018). Checking habits involve automatic actions where individuals instinctively open their devices to either view the standby screen or access specific information within an application (Bae, 2017). This automatic behavior leads users to swiftly transition to other screens that offer information or rewards. By providing these rewards, users can alleviate feelings of boredom and a lack of stimulation in their daily lives (Oulasvirta et al., 2012).

Initial research primarily concentrated on the duration of smartphone usage, but more recent studies have revealed that the frequency of smartphone usage has a more pronounced influence on the development of smartphone dependence compared to the time spent using smartphones (Lin et al., 2015). The frequency of smartphone use is closely linked to habitual behavior and has the potential to lead to both smartphone dependence and internet addiction (Kim et al., 2017; Mak et al., 2014).

According to several studies, smartphone addiction is associated with attachment issues, and individuals who are addicted to smartphones often struggle with emotional control and social interactions (Kim et al., 2017; Ibrahim et al., 2022). These studies have found that materialistic individuals are more likely to consider their phones as attachment objects, and those deeply attached to their phones tend to exhibit more severe symptoms of nomophobia (the fear of being without a mobile phone) and smartphone addiction (Durak, 2019). Materialism, smartphone addiction, and nomophobia are identified as significant

predictors of Mobile Phone Attachment, as revealed in a regression study conducted by Elodie & Rowe (2020).

Excessive attachment to smartphones can lead to anxiety issues among students. Two theories, the attachment theory and the fear of missing out (FoMO), have been proposed to explain the link between excessive smartphone usage and anxiety in college students. More specifically, individuals who were without access to their phones but heard an incoming call reported significantly higher levels of anxiety compared to those who did not hear such calls. Fear of missing out, often referred to as FoMO, describes the situation where a student feels compelled to use their smartphone during class because they are anxious about missing out on something, especially on social media (Ibrahim et al., 2022). These findings suggest that anxiety among smartphone users is a consequence of both FoMO and attachment (Al-Furaih & Al-Awidi, 2021).

Students' smartphone addiction has a negative impact on their satisfaction with classroom connectedness, as per research findings. This suggests that the dependence on smartphones among students hinders the quality of meaningful interactions in the classroom and the development of a collaborative and supportive learning environment (Soomro et al., 2019). Moreover, the more time students spend on their phones while studying, the more detrimental it is to their learning and academic performance (Sunday et al., 2021; Yildirim & Correia, 2015). Therefore, there is an urgent need to explore ways to transform students' smartphone addiction, especially when used for irrelevant and non-educational purposes, into an opportunity that enhances the classroom learning environment (Soomro et al., 2019).

### 1.3.4 Text Messaging in the Classroom

Text messaging, commonly known as texting or short message service (SMS), refers to a service that enables users to send messages of up to 160 characters from a cell phone or a computer to another cell phone user (Faulkner & Culwin, 2005). Major teacher concerns include the disruption caused by texting and using *textese* (the abbreviated language and slang used when sending text messages to cheat (Larry D. et al., 2011). In the present day, "texting during class" appears to be a more concerning issue for many college professors when compared to

the disruption caused by a phone ringing during class. The reason for this concern is that it can be challenging for professors to monitor students' silent interactions. While, from the students' perspective, texting may not create noise that disrupts classroom teaching, professors tend to view it as a form of student misbehavior. They see it as a concealed problem in teacher-student classroom interactions that could hinder college students from actively participating in their classroom learning (Wei & Wang, 2010; Thomas et al., 2014).

Research conducted by Tindell & Bohlander (2012) found that 95% of students bring their phones to class every day, 92% engage in texting during class, and even 10% admit to texting during exams. Interestingly, many students believe that their teachers are mostly unaware of the extent to which texting and other mobile activities, such as browsing the Internet, sharing pictures, or accessing social networking sites, distract from classroom management and contribute to academic dishonesty (Vandoninck et al., 2018). Additionally, texting during lectures has been found to disrupt cognitive retention and the comprehension of lecture information. This was corroborated by post-lecture quiz results, which showed that the group that did not engage in texting significantly outperformed the text group on the quiz and reported higher levels of confidence in their performance (Gingerich & Lineweaver, 2014).

### 1.3.5 Cyberbullying

As defined by Slonje and Smith (2008), cyberbullying is bullying that occurs via messages sent through texts, emails, cell phones, images, and videos. According to Dehue et al. (2009), cyberbullying involves torturing, threatening, humiliating, embarrassing, or other attacks on teenagers who use the Internet, interactive technology, or mobile phones. Bullying and cyberbullying pose significant threats to the physical and emotional safety of students, and they can also have a profound impact on student’s social and academic well-being within the school environment.

The survey results indicated that the participants in Finland generally displayed a high level of tolerance and a strong belief that violence or bullying is not justified. Approximately 40% of the participants reported that they had recently witnessed instances of bullying or hate speech online. Just over 10%

had experienced some form of online bullying themselves. The prevalence of online bullying was similar between boys and girls, although girls reported being targeted based on their appearance or background. Moreover, about 10% of the participants admitted to sending negative comments, messages, or content online (Smahel et al., 2020). The exposure to cyberbullying among 12 to 18-year-old adolescents in Finland found that while adolescents were commonly exposed to cyberbullying, it was relatively rare for it to be frequent or considered serious and deeply disturbing (Lindfors et al., 2012).

Contrastingly, the concept of "teacher cyberbullying" highlights how students can leverage social media to challenge and undermine the authority of their instructors. This means that cyberbullying directed at teachers can manifest in various ways. On one hand, it might entail individual students making efforts to degrade and ridicule a specific teacher they are familiar with (Singh et al., 2023). On the other hand, it can involve a group of students collectively undermining the authority of teachers in general, using a particular teacher as an anonymous symbol of the entire teaching community (Kyriacou & Zuin, 2016).

A study conducted by Finnish researchers (Kauppi and Pörhölä, 2012) provided insights into the frequency of teachers being bullied by students. The results indicated that such incidents were relatively infrequent, with 25.6% reporting it occurring rarely, 3.3% experiencing it almost weekly, and 3.7% facing it daily. The teachers involved in the study identified several key factors contributing to the bullying, including issues related to puberty, family problems (such as inadequate parenting), problematic student behavior, and the complex dynamics stemming from teachers' authoritative roles, which could lead to diverse reactions from students. Regarding coping mechanisms, the study found that when teachers experienced bullying, they most commonly sought support from their colleagues (50%), followed by seeking assistance from the school administration (21.4%), or turning to their partners (11.4%) for help and guidance. A nationwide study in the Czech Republic focused on the cyberbullying of teachers and the risks associated with online friendships between teachers and students. The findings underscored that approximately 34% of teachers actively expose themselves to cyberbullying by connecting with their students as "friends" on social media platforms (Kopeck & Szotkowski, 2017).

### 1.3.6 Classroom management

Classroom management is the practice of establishing a conducive and effective learning environment for students (Brophy, 2006). It encompasses a range of skills and strategies that teachers employ to ensure that classroom activities proceed smoothly, without disruptions or misbehavior from students interfering with the teaching and learning process (Korpershoek et al., 2016). Finding an appropriate balance between allowing the kids enough autonomy to take advantage of smartphone opportunities in a school context while maintaining control of the class can be challenging for many teachers. The perceptions of some educators related to students' smartphone use in the classroom could lead to conflicts between school regulations and the interests of the students (and occasionally even their parents), who value being accessible to their classmates and parents during school hours (Nelson, 2010). Teachers sometimes worry that the use of mobile phones will hinder class management and reduce their control over the class (Vincent & Haddon, 2017; Thomas et al., 2013).

A significant study conducted in Sweden focused on how students utilize their smartphones as tools for practicing literacy skills related to specific subjects they learn in class. The teacher's role as an authority figure was challenged in terms of controlling and overseeing the various texts students use and engage within the classroom. It became crucial for teachers not only to acknowledge that students use cell phones in the classroom but also to understand the implications of this usage in order to address the obstacles and embrace the benefits they can bring (Asplund et al., 2018).

In the context of enforcing electronic device policies in the classroom, teachers engaged in discussions regarding classroom management strategies to effectively regulate student smartphone use. Their common consensus was that classroom management is most successful when it is consistently enforced (Morrin, 2022). This highlights the importance of maintaining a consistent approach to ensure a productive and focused learning environment.

## *1.4 Policies for Regulating Smartphone Use in the Classroom*

Mobile devices are employed in education in a variety of ways. The use of these devices in educational settings comes with specific responsibilities, which pertain to both the school and the students. Most college instructors acknowledge the potential pedagogical benefits of mobile phones while also recognizing the necessity for classroom policies to manage their use. In fact, at least half of the higher education teachers in the study strongly believed that undisciplined mobile phone use could be a distraction, leading to adverse effects on learning, attention, engagement, and the overall classroom environment (Morris & Sarapin, 2020). While instructors see the need for policies, they are also aware that strict and discouraging policies may be challenging to enforce, result in non-compliance, and foster negative attitudes toward instructors (Ledbetter and Finn, 2015).

In Finland, once a student reaches the age of 15, they have the autonomy to make their own decision regarding whether to bring their personal smartphone to class and use it as a learning tool (Paakkari et al. (2019). According to the Board of Education (2022), teaching in accordance with the curriculum involves employing technology in practice. Every student should receive sufficient knowledge of digital literacy to be able to contribute to society. Children and young people use digital media, particularly social media, as a major tool for communication, information access, and social engagement. Equal participation opportunities must be provided for children and young people, regardless of factors like socioeconomic background or special needs. On the other hand, young people and children need to be protected from the variety of problems and abuse that online services and the internet can cause.

Additionally, the school's policies cannot entirely forbid students from bringing mobile devices to class, but they can restrict their use when teachers are present in the classroom. During the class, smartphone use that is directly relevant to teaching might be permitted, but disruptive use is not permissible under the norms of order. If the school prohibits the use of a mobile device during the break, it must make sure the student can reach out to his guardians in an emergency (Francke et al., 2017).

In terms of smartphone usage policies, The National Board of Education (2022) stated that every student has the right to use his or her device as part of

instruction, even though the school's smartphone usage policies are dependent on local governments. A decision about the collection of mobile phones in 2020 was made by the Parliament's Ombudsman. If utilized voluntarily, cell phone lockers are available. A student cannot be forced to place their smartphone if it is against their preference. If a student refuses to place their device away after being requested to, the instructor has the right to take it away from them. The removal of the device must be disclosed to the student's legal representatives by the teacher. After a lesson or school day, the student must give the gadget back to the students (Opetushallitus, 2022).

## *1.5 The Current study*

The literature review indicates that while there has been extensive research on the advantages and disadvantages of students' smartphone use in the classroom, there is a lack of research focused on the experiences and perceived value of smartphones in the Finnish upper-secondary level context in teaching and learning. Furthermore, the majority of research findings have been based on students' experiences and perceptions, with limited qualitative research based on teachers' experiences in the literature.

More research is necessary to understand how Finnish upper secondary school teachers view their students' use of smartphones and how it contributes to their teaching. This study aims to fill this gap by analyzing teachers' perceptions based on their personal experiences and exploring their views on the benefits and challenges of integrating smartphones into teaching. Through data collection, the study aims to identify common patterns in Finnish upper secondary school teachers' views, experiences, feelings, and thoughts on the use of smartphones in the classroom by students. This study was guided by the following research questions:

1) What are teacher’s views on utilizing smartphones for teaching/learning in the classroom?
2) What challenges do teachers face in the classroom due to students' smartphone use?

# 2 METHODOLOGY

## *2.1 Research design*

The primary focus of this study was to investigate the viewpoints of high school educators concerning the utilization of smartphones by students in the classroom. In line with the research questions, I opted for a qualitative research approach to uncover teachers' viewpoints on whether smartphones are seen as distractions in the classroom or if they serve a beneficial purpose. Qualitative research involves a naturalistic approach, emphasizing understanding phenomena in specific real-world contexts without attempting to manipulate them, as outlined by Patton (2001, p. 39). This method allows for a deeper understanding of each teacher's unique perspective and their interpretations of the phenomenon, aligning with the research goals (Chan & Ross, 2014).

To delve into the distinctive and individual perspectives of teachers, I employed both semantic and latent coding within the qualitative research paradigm. This approach involved conducting semi-structured interviews with Finnish teachers to thoroughly grasp the content of the data and comprehend their opinions regarding students' utilization of smartphones in the classroom.

Given that the primary objective of this research is to capture the teachers' experiences, I focused on semantic coding, which involves extracting explicit or surface-level meanings from the data (Byrne, 2022). In this approach, I presented the data content exactly as communicated by the respondents. For instance, when I inquired about teachers' opinions on the advantages of smartphones for students in the classroom, I identified common patterns in the data to reveal their perspectives without delving into a deeper interpretation of the information.

On the contrary, latent coding searches deeper than the descriptive level of the data, aiming to uncover concealed meanings or underlying assumptions, ideas, or ideologies that may influence or underpin the descriptive or semantic content of the data. When employing latent coding, the analysis becomes significantly

more interpretive, necessitating a more creative and active role on the part of the researcher to identify essential concepts, codes, and themes, and to determine their relevance to the research questions (Byrne, 2022). This approach aligns with the insights of Braun and Clarke (2022), who emphasize the importance of this deeper exploration in qualitative research. For example, when evaluating teachers' frustration with students' smartphone use in the classroom, I attempted to disclose hidden meaning beyond the statistics in order to recognize and comprehend teachers' ideas in the context of the Finnish educational system and culture.

## *2.2 Participants and Research Context*

The study involved a total of nine participants, and pseudonyms were employed to ensure the participants' anonymity in their responses. The population of interest was Finnish high school teachers who had some experience with smartphone use in class. In total, participants included three male teachers and six female teachers. Table 1 lists the characteristics of the participants, including their teaching areas of expertise, years of experience, cities, classroom settings, and approaches for integrating smartphone technology into teaching.

**TABLE 1.** Participant Demographics

| Gender | Pseudonym | Subject Taught | Teaching Years of Experience | City | School level | Perspectives on applying smartphones into teaching |
|---|---|---|---|---|---|---|
| Female | Tuuli | Physics & Mathematics | 6 | Tampere | Upper secondary | Negative |
| Female | Aada | Customer service | 1 | Tampere | Vocational | Negative |
| Female | Isla | History & Social studies | 25 | Tampere | Upper secondary | Neutral |

| | | | | | | |
|---|---|---|---|---|---|---|
| Male | Leo | English langauge | 7 | Tampere | Upper secondary | Positive |
| Male | Emil | English & Swedish langauges | 10 | Tampere | Upper secondary | Positive |
| Female | Jasmin | Finnish language & Literature | 12 | Tampere | Upper secondary | Negative |
| Male | Matias | English & Philosophy | 5 | Tampere | Upper secondary | Neutral |
| Female | Venla | Psychology | 20 | Tampere | Upper secondary | Negative |
| Female | Emma | Finnish language & Literature | 20 | Hämeenlinna | Upper secondary | Negative |

The group of teachers involved in this study comprises individuals teaching diverse subjects, with only two of them sharing the same subject expertise. Their collective teaching experience ranges from 1 to 25 years. The majority of these educators reside in Tampere, the third-largest city in Finland, which encompasses a population of 249,009 according to Statista 2022. On the other hand, one teacher resides in Hämeenlinna, situated in the southern part of Finland, with a population of 67,615 as per Statista's 2022 data.

In terms of teaching settings, eight participants are affiliated with upper secondary schools (lukio), while one teacher instructs vocational school students aged between 16 to 19 years old. Additionally, the table illustrates the teachers' perspectives toward incorporating smartphones into their teaching methods, revealing that only two teachers exhibit a positive approach, while two others express a neutral stance.

## *2.3 Data collection procedures*

The participants for this study were recruited through multiple channels, including social media platforms such as Facebook, as well as with the collaboration of school principals and personal contacts who had connections to high school teachers. To expand the pool of participants, I also employed snowball sampling,

a recruitment strategy where current study participants are asked to assist in identifying and referring potential participants for the study (Emerson, 2015).

All participants recruited met either of the following criteria: they either teach in a vocational school or a Finnish high school (Lukio) with students between the ages of 16 and 19, and they have been integrating cell phones in their lessons or had experience in the past.

Teachers who expressed interest in my post through comments or direct emails received an email from the university mail address outlining the next steps. First, I sent them an email with a summary of the goals and methods of the study as well as a copy of the informed consent. Once teachers had given their consent, I arranged a 45-minute virtual interview with each of them (via Teams and Zoom). The online meetings were held from January to March 2023. The total duration of each interview session was between 30 and 45 minutes. All teachers participated voluntarily without any compensation.

I conducted semi-structured, open-ended interviews with the participants to better understand their expectations for appropriate smartphone use in class and the most prevalent challenges they encountered. Qualitative semi-structured interviews have the advantage of being participatory, which enables the researcher to address unexpected issues as they emerge. As a result, each open-ended question was designed to allow participants to answer with their own words or phrases, resulting in a process that may have appeared more like a conversation than an interview (Busetto et al., 2020). The interview questions were designed to mainly focus on two topics: instructors' opinions on students' smartphone use in the classroom and the most common challenges they encounter while teaching, consisted of a total of 22 questions in two parts. In Appendix 2, comprehensive interview questions are provided, outlining the entire structure and content of the interviews. The dataset comprises nine files, each containing interview transcripts, amounting to a total of 66 pages of text. The text is formatted in Arial font with a size of 12 and a spacing of 1.0. It is important to note that both the design and transcription of the interview questions were carried out in the English language.

## *2.4 Data analysis*

In this research, thematic analysis was employed as the method for analyzing the data. Thematic analysis involves identifying, analyzing, and interpreting patterns of meaning, referred to as themes, within qualitative data (Byrne, 2022). What sets this analysis apart is its versatility within the realm of qualitative analytical approaches where it offers a method that is not constrained by specific theoretical commitments. Unlike a methodology that adheres to a particular theoretical framework, it can be employed across a wide range of theoretical perspectives and research paradigms. Given the absence of a particular theoretical framework in my research, thematic analysis provides the flexibility to be compatible with various theories and research methodologies (Braun & Clarke, 2022). Another rationale for employing thematic analysis is its capability to uncover patterns within and among the data sets concerning the lived experiences, views, perspectives, behaviors, and practices of the participants. It aligns well with "experiential" research objectives, aiming to comprehend the thoughts, emotions, and actions of the participants (Byrne, 2022).

Since my research focuses on examining diverse perspectives of teachers, it offers a structured and accessible approach for extracting codes and themes from qualitative data. The unique context of smartphone use policies in Finland, where technology is actively encouraged within educational policies, necessitates a nuanced understanding of teachers' approaches (Paakkari et al., 2019). By utilizing thematic analysis, I could thoroughly dissect these approaches through codes, which represent the smallest units of analysis, capturing noteworthy features of the data that are potentially pertinent to the research questions (Clarke & Braun, 2017). Following the transcription of my data, I proceeded through the following phases of the thematic analysis process (Braun and Clarke, 2021).

*Phase 1: Familiarizing with the data* - In the initial phase, I familiarized myself with the data after transcribing it verbatim to comprehend both its scope and depth. Prior to transcribing, actively engaging with the video recordings necessitated active listening, aiding in the interpretation of the data and forming an initial grasp of the primary subjects covered in each interview. I ensured a thorough review of the entire dataset before initiating coding, allowing emerging thoughts and potential patterns in the content.

*Phase 2: Generating Codes* - During this stage, I carefully read and reread the transcriptions, specifically seeking thematic structures related to students' smartphone usage in the classroom. I focused on extracting content that was detailed, nuanced, or presented conflicting viewpoints. On the Microsoft Word platform, I began the process of generating codes, and categorizing singular ideas, thoughts, or statements that I believed would be necessary in addressing my research questions. These codes were derived from statements made by teachers concerning smartphone use in the classroom, such as "frequently looking at smartphones during the class" or "teachers' reactions to students' non-educational use of smartphones during class."

*Phase 3: Generating Themes* - I entered my transcripts into a program called Dedose to help with the coding process, which allowed me to find common patterns, develop subthemes, and eventually combine them into overarching themes. Dedoose is a cloud-based application that allows users to analyze research data while ensuring compliance with the General Data Protection Regulation (GDPR) and holds certification under the EU-US Privacy Shield framework (Dedoose, 2022). This tool was especially useful because it emphasized crucial ideas, allowing me to group similar concepts expressed by different participants in order to discover patterns. For example, two primary ideas that arose from this approach were "Smartphones as an educational tool" and "Smartphones as a disruptive device." I achieved this by prioritizing statements directly related to smartphone use during class, while also considering those that were less directly related to the topic.

*Phase 4 & 5: Reviewing Potential Themes & Defining and Naming Theme* - After reviewing the codes, I combined them into the main themes by defining the primary concept. This was achieved by giving precedence to statements directly associated with smartphone use in the classroom while simultaneously identifying those that held less significance. I determined that saturation had been reached when no further themes emerged after an extended examination of the data (Alase, 2017). I have formulated subthemes based on the research questions, grouped them into three primary themes, and assigned names to these themes according to the clustering of codes. *Phase 6: Writing the report* - Once the themes were defined, I proceeded to construct my report, providing a detailed account of each subtheme and theme. This involved

including excerpts from the transcripts and incorporating my own interpretations. During the report-writing process, some themes underwent changes or evolved, which is a standard occurrence in the paper-writing journey. Through this repetitive process of writing and revising, the themes become more refined and nuanced, ultimately enhancing the depth of understanding and interpretation of the research findings.

## *2.5 Ethical procedures*

After my research proposal was accepted, I started emailing and posting on social media to find participants for my study. There was no direct solicitation and participation was completely voluntary. I requested individuals who were interested in participating and wanted additional information to send a private direct message with their personal email address to protect their privacy.
Those who responded to emails asking for more information first received a consent form from my university email address detailing the study's goals and methods, protocols for ensuring confidentiality, an explanation of the voluntary nature of the study, and any possible risks and advantages for participating in my research.

Prior to the collecting of the data, participants were provided with a consent form, which can be found in Appendix 1. This consent form explicitly stated that participants had the option to withdraw from the study at any point. On consent forms, simply returning the form signified an agreement to participate and granted consent for interviews to be recorded, additionally before starting to record the interview, verbal consent was also requested.

The confidentiality and privacy of the respondents were another ethical issue that was taken into account in the course of this study. I have made several steps aimed at ensuring that the participants' privacy and confidentiality are preserved. These efforts included maintaining anonymity throughout the data gathering process, storing raw data securely on my computer, where it is protected by a password and inaccessible to anyone else, and committing to deleting raw data once the study is complete. Respondents were anonymized by using pseudonyms to refer to them in the study reports, and no personal information was collected from the respondents.

# 3 FINDINGS

In this chapter, I address my research questions through the exploration of three key themes. First, teachers encounter certain educational advantages associated with incorporating smartphones in the classroom. Secondly, teachers articulate their reservations regarding students' non-educational smartphone usage and its subsequent impact on the learning process. Thirdly, they face with various challenges stemming from the permission of students' smartphone use and current policies.

## *3.1 Theme 1: Educational benefits of smartphone usage in the classroom*

One dominant theme that emerged from the teachers' perspectives on smartphone use in teaching and learning was that smartphones can be useful in the classroom and have the potential to enhance the learning experience. This thematic category is divided into five general subthemes. Table 2 explains the main ideas behind this theme in detail, however, I will emphasize more in detail in the following chapters combined with teachers' thoughts related to students' smartphone use as a learning tool in the classroom.

**TABLE 1.** Educational benefits of smartphone use in the classroom

| Subthemes | Sample Codes | Definition | Example Excerpt |
|---|---|---|---|
| Secondary device | Performing a task on the smartphone while using the computer as a main device. | Refers to using smartphones as a second device to support the learning while doing the main task at the computer. | "When you have the laptop then you can sort of combine if you need to for example writing on your laptop and then check something on your phone." |

| | | | |
|---|---|---|---|
| Interactive game applications | Incorporating games and applications into teaching to promote student interaction | Refers to applying educational games and applications to increase students' engagement with the lesson. | "We had this one game called "My2050", it is about climate change and you can play it with your smartphone". |
| Creating videos | Creating videos with smartphones to demonstrate students' understanding of the subject matter | Refers to using students' smartphones to record, create, and edit videos to generate content, make lessons engaging and colorful. | "Last year our students, won a national competition and they make all video by those phones. |
| Relevant activity | Employing innovative activities to capture students' interest and involvement | Refers to a learning activity that is unfamiliar to students and pertinent to the subject improves both engagement and learning outcomes. | "With clear instructions and if they find the activity meaningful, then definitely it will increase the motivation and engagement." |
| Regulative use | Stating clear rules of using smartphones during the task to avoid potential distraction | Refers to ensure a balance between the pros and cons of smartphone use and mindful usage to mitigate potential negative impacts during the task performance. | "I would say, it is kind of structuring the tasks very clearly and having their tasks to be very transparent in terms of what they should be doing for how long with specific timetable for the task." |

### 3.1.1 Smartphones as a secondary device

Every interviewee highlighted computers are the primary devices utilized in classrooms, supplied by schools for all upper secondary school students. In contrast, smartphones are viewed as personal devices, offering students greater autonomy in deciding whether to utilize them for classroom activities. Additionally, according to the teachers, computers outweigh smartphones in terms of size, and more functional in terms of classroom tasks and were considered to be less distractive for students. Even though some teachers regarded student smartphone usage as redundant in the classroom, they still recognized their potential convenience on specific occasions.

> “Everybody has their laptop and there are so many things that you are able to do with your laptop. I think it is more beneficial to focus on that and then use the smartphone as a complementary tool.” (Emil)

Leo further emphasized the advantages of having an additional tool that students can utilize to reach the objectives of the lesson.

> “I think when you have the laptop then you can sort of combine if there is a situation that you need to for example write on your laptop and then check something on your phone and then you can work on your laptop, so it is always beneficial to have another tool at your disposal.” (Leo)

He expressed that in examples where students forget their devices or require fast access to information while engaged in the primary task on a computer, smartphones could serve as a helpful alternative. The teacher conveyed a willingness to incorporate them as a supplementary tool for classroom activities. He noted that even if students forget to bring their computers, they can resort to using smartphones, although the smaller screen size might present challenges for writing.

> “Usually, if they are doing something else on their laptop, they can kind of use that as a secondary device to search information with, or then if they have forgotten their laptop for some reason, it can allow them to use their smartphone. Do as much as they can. Obviously, it is not going to be as easy to write an essay on a smartphone, but whatever they need to do, I allow them to do.” (Leo)

Leo made an additional point, suggesting that students have the option to listen to music during class if it helps them focus on completing their tasks without causing distractions to their peers.

> “I would go maybe a step further and depending on how well I can rely on them to get the work done. I would also allow them to maybe fit into a bit of music, so if there is nothing that I am telling them at that moment that they need to hear and if they are just working independently and want to listen to a bit of music while they do that, I would be fine with that. As long as it does not become disruptive to the others.” (Leo)

Lastly, Jasmin brought up an insight regarding audio books, which depends on the subject stating that smartphones can serve as a tool for listening to them once students have completed their primary tasks.

> “If they want to listen to a novel, for example, instead of reading it, they can use the smartphone. Only if they have done everything else. I can say that, take your smartphone and listen to your audiobook.” (Jasmin)

In summary, smartphones were acknowledged as a supplementary tool during teaching, aiding students in learning by facilitating tasks like searching for information while concurrently engaged in the primary computer task or serving as a substitute when students forgot to bring their computers to class. Additionally, teachers were receptive to students listening to audiobooks and music once they had completed their main tasks, provided it did not cause a distraction to other students.

### 3.1.2 Games and educational applications

Teachers also highlighted the effectiveness of interactive games in enhancing students' learning. This was particularly emphasized when teachers utilized games to enhance engagement and facilitate teaching through interactive play, fostering the critical thinking and problem-solving skills of students. Leo pointed out that “Some games work better on a phone than on a laptop” which explains smartphones were preferred due to their ease of accessibility and user-friendly interface while playing games which supported their integration into the learning environment.

Even though Aada expressed reservations about incorporating smartphones in the classroom, she made an exception and utilized smartphones when students engaged in subject-related games. This approach was discovered to be beneficial and captivating for the students, providing an effective and engaging learning experience.

> “We only use the phone when we are playing Kahoot or we had this one game called “My2050”, it is about climate change and you can play it with your smartphone.” (Aada)

Regarding games, 'Kahoot' was the game platform most frequently mentioned by all teachers as a tool used or currently being used to engage students with the lesson. 'Kahoot' is a popular Norwegian online game-based learning platform that features educational live games, which involve user-generated multiple-choice quizzes accessible through a web browser or app

(Wang & Tahir, 2020). The quick accessibility of smartphones made them particularly useful for utilizing this game effectively in the classroom.

> "In terms of games, Kahoot is very easy to get into, and quick to access with the help of smartphones. You could just read a QR code or tap in a pin and students can access the game easily. Then, I would say the speed of it just is the quickest with smartphones." (Emil)

However, teachers primarily incorporated Kahoot into their teaching during the early stages of their careers, but its usage has declined over the years as students grew less interested in it.

> "Early on but my early on in my career, I did that when they introduced Kahoot, I think it was 2014, then I started using Kahoot more in my teaching. So, for instance, when I taught prepositions, it was really good for vocabulary, but it kind of reached its peak, and then it kind of slowed down." (Matias)

Leo presented a unique approach to leveraging interactive games on smartphones to transform the learning environment. When students appeared fatigued after lessons and struggled to focus on classroom materials, he introduced games that were more relaxed, creative, and adaptable compared to the traditional classroom setup. This approach aimed to enhance student interaction and stimulate learning by providing a different and engaging experience.

> "Another thing I do with smartphones is to associate them with a change of pace and a more relaxed mode of working (maybe even fun), so when I see that the class has had a long day or that they're just not in the mindset to get a lot of work done, I'll switch gears and start a Kahoot or something they might associate with fun." (Leo)

Tuuli, a math and physics teacher, expressed opposition to the general use of smartphones in her teaching as she believed they were not well-integrated with her lesson plans. However, she made an exception by permitting students to utilize measurement apps and conduct calculations, recognizing their utility in enhancing specific aspects of the subjects she taught.

> "Sometimes they can use phones as some measurement devices like sound meter, also calculator and I have multiple choice questions in every lesson and then I use some apps." (Tuuli)

Overall, interactive games and educational applications were deemed engaging and a novel teaching approach for students. Smartphones emerged as a valuable tool for implementing game-based teaching due to their quick accessibility and ease of operation, particularly when compared to laptops.

### 3.1.3 Creating videos

In terms of fostering creativity, smartphones were utilized as a tool for creating subject-related videos to boost student motivation and demonstrate their learning in an engaging manner. The convenience of operating smartphone cameras allows students to easily capture photos and record videos, emphasizing their imaginative understanding of the subject matter and enabling development of students' content creation skills which are significant in the digital age. Isla even cited instances of students' achievements tied to creating videos during class, submitting them for competitions, and securing victories at the national level. This demonstrated the usability of smartphones in conjunction with students' creativity, showing their potential for enhancing learning outcomes and encouraging achievement beyond the classroom.

> "Last year our students, won a national competition and they make all videos by those phones. They shot the video during the class related to the subject, then edited it and submitted it in the end." (Isla)

Isla also mentioned "camera pen pedagogy," which entails using a camera as a tool similar to a pen both inside and outside of the classroom. The teacher specifically emphasized its effectiveness if used in relevant topics to encourage students to act and interact with a specific goal, smartphones proved their usability in that sense.

> "Learning methods where we use camera which we call camera pen pedagogy in English so that I give them a topic, they need to take a short video of something. I think it is very beneficial to use it that way." (Isla)

Emma shared an innovative project her students undertook in the history subject, where they created a video relating to classical books to address a problem and stimulate their learning. This project, seamlessly incorporated into the lesson, piqued the students' interest due to its uniqueness. Smartphones served as the primary tool for crafting the video, illustrating a fruitful fusion of

technology and student creativity, fueling a spirit of curiosity, and encouraging unconventional thinking. She recognized the smartphones' value in nurturing students' video creation skills, problem-solving abilities, and motivation, particularly captivating students with a passion for filmmaking and content creation, making the lesson and task highly interactive and engaging for them.

> "Last week my students did a literature history work with their smartphones because they had to make a video form presentation of the classic book. They had been reading and had to create, fix situations where they were like interviewing the author from centuries ago. They filmed the videos with their smartphones and most of them also edited them with the phones." (Jasmin)

Leveraging smartphones for video production offers several benefits. Video projects require students to engage in critical thinking, purposeful performance, and interactive communication with a defined goal. The camera serves as a versatile tool that prompts students to step out of their comfort zones and embrace a fresh perspective, leading to a novel approach to education.

### *3.1.4 Relevant* activity

An alternative viewpoint regarding students' use of smartphones for educational purposes emphasizes the importance of ensuring that smartphone activities in the classroom are both relevant and meaningful to students. Teachers have observed that when the content and activities on smartphones align with the curriculum and are personally relevant to students, it tends to pique their interest and foster engagement in the lesson. The novelty and uniqueness of such activities can enhance motivation, concentration, and the ability to remain focused on the task at hand, ultimately leading to a more productive and engaging learning environment.

> "With clear instructions and if they find the activity meaningful, then definitely it will increase the motivation and engagement. Since it is something new, there is a novelty value in that." (Matias)

Venla and Tuuli emphasized that engaging students in unusual or unconventional activities using smartphones could have a positive impact on their learning experiences. They believe that stepping away from the ordinary and

introducing unique smartphone-based activities can enhance the learning process for students.

> "Maybe if we have something special that they have not done it before, students can be useful." (Venla)

> "Maybe if it is something that we do not use so often maybe then smartphones are beneficial." (Tuuli)

While relevant activities can boost student engagement with the lesson, it is important to consider varying perspectives. One concern should be noted that not all students might perceive the activity as relevant. Additionally, Matias raised the issue of potential distractions, noting that some students might struggle to focus on educational content when using smartphones, as it can inadvertently lead to non-educational usage and distractions for others in the classroom. Balancing engagement and minimizing distractions is a critical consideration.

> "I say that it is a tool, but depends on the smartphone, and the student as well. I am not going to say that no, there are no benefits. If they find it useful, it can be a useful tool, if they do not find the activity meaningful then, then they will find other things to do on their smartphones, definitely." (Matias)

Isla shared her positive experience involving a student who had an exchange abroad, using smartphones as a means of communication to share this unique experience with the class. She found this approach to be beneficial, engaging, and relevant to the classroom setting, as it provided valuable insights and fostered intercultural understanding. In agreement with Matias, Isla acknowledged the challenge of aligning everyone's interests, recognizing that what may be engaging for some students may not resonate in the same way with others. However, she emphasized that if an activity using smartphones successfully engages a significant portion of the class, it can still be considered a useful and effective tool for teaching in the classroom. Balancing engagement and adapting to diverse interests and learning styles is key to utilizing smartphones effectively for educational purposes.

> "For example, last year one of my students was as an exchange student in the United States and then she had the camera and we had those chats, of course when I told them that now she is with us by Teams or phone everybody came and said: Oh well, that is nice, but it was part of our studies, we were working on it. So, it was very interesting but if we have 30 students

> in the classroom, you cannot say that everybody liked it. It always depends. There are some students who like or do not. So, it is always like this." (Isla)

Teachers emphasized that incorporating smartphones as an educational tool in the classroom is effective when the activity aligns with the student's studies, presents a new and engaging experience not frequently encountered in their learning, and is relevant to the educational objectives. However, teachers expressed concerns regarding potential misuse, with some students being distracted by non-educational smartphone usage during the task. Striking a balance to harness the educational benefits of smartphones while mitigating distractions remains a key consideration for successful integration into the classroom.

### 3.1.5 Regulative use during the task

Teachers explained the importance of clear communication and guidelines when implementing smartphones in teaching. Successful integration is achievable if students are informed in advance about the specific purposes of using smartphones, the intended duration of the activity, and measures to prevent distraction. Additionally, setting clear expectations regarding the duration of the activity helps prevent distractions and ensures that students remain focused on the task at hand.

> "I would say, it is kind of structuring the tasks very clearly and having their tasks to be very transparent in terms of what they should be doing for how long with specific timetable for the task and what they are allowed to access during the exercise to prevent their distraction." (Leo)

Furthermore, Leo's proactive approach to managing potential distractions. was personally approaching if students continued to use smartphones for unrelated purposes during the task, redirecting their attention back to the assignment. This hands-on involvement ensures that students are engaged in the educational use of smartphones and maintain a productive learning environment.

> "I would say that the key thing is to keep the task brief enough so that they do not really have time to be distracted by other things. Keep sort of structured and organized. So, I will tell them you have five minutes or ten minutes to do this and use your phones. I will try to be as specific as possible

> with what app they should use or what website so that they have a clear game plan to what they should do in this time so that there is not a ton of extra time, also not the lack of clarity as to what they should be doing. That is probably the best way. If there is someone who just regardless does something else, I will just approach them. Personally, I have just asked them to continue with the task." (Leo)

Emil concurred with the need for clear instructions during tasks to mitigate distractions. He raised a pertinent concern regarding the inherent challenge of using smartphones in education—the lack of control over what students are exposed to on their devices. Given the vast and unregulated content available on the internet, teachers may find it difficult to ensure that students remain focused on the intended educational content while using smartphones. This highlights the necessity for careful planning, supervision, and guidance when incorporating smartphones into the learning environment.

> 'If we are doing an activity and they are all staring at the phone, I really have no way of knowing what exactly they are doing." (Emil)

Despite engaging in educational activities, students can easily become distracted by other content or notifications on their smartphones. The constant accessibility to a multitude of applications, notifications, and content can divert their attention away from the intended educational task.

> "So, it is kind of the biggest challenge, when we cannot as teachers lock out all that other content. So that is a detriment. If they get too used to the fact that they can just use phones all the time, then that can kind of lead to them getting side-tracked with other things." (Leo)

In summary, teachers recognize the potential of smartphones to enhance student engagement and facilitate learning in the classroom. However, they emphasize the critical importance of regulating students' smartphone usage during educational activities. Clear and precise instructions before tasks, coupled with keeping activities brief to minimize distractions, are highlighted as effective strategies. Additionally, teachers express concerns about the limited control they have over the content students access on smartphones, acknowledging the challenge of maintaining focus on educational tasks in a digital environment. Balancing the benefits of smartphone integration with the need for control and guidance remains a key consideration for successful implementation in the classroom.

## *3.2 Theme 2: Teachers' Concerns regarding students' learning effectiveness*

According to the teachers' collective experiences, the use of smartphones in the classroom raises concerns about the learning potential of the students. Teachers' primary concerns revolve around students' use of smartphones for non-educational purposes, which divert their attention away from learning and active participation in classroom activities. This theme encompasses five subthemes, as outlined in Table 3 below, highlighting teachers' primary concerns regarding students' learning effectiveness:

**TABLE 2.** Teachers' Concerns regarding students' learning effectiveness

| Subthemes | Sample Codes | Definition | Example Excerpt |
|---|---|---|---|
| Students' disengagement | Utilizing smartphones for non-educational purposes | Refers to students' use of smartphones for non-educational purposes without prioritizing teaching. | "Smartphones can decrease students' engagement absolutely. The biggest problem is the recreational use of smartphones during the class |
| Excessive use | Disrupting learning due to the excessive use of smartphones | Refers to students' excessive usage of smartphones, which hinders their learning. | "Students use smartphones every day, definitely, most of the students use them." |
| Shorter attention span | Causing briefer span of focus on learning | Refers to the students' attention is divided between the smartphones and learning. | "Especially those students who have less skills to concentrate on learning they tend to take their phones easily and focus on something they should not." |
| Students' cyberbullying | Employing smartphones to harass, embarrass, or target another student | Refers to the act of utilizing smartphones to target a student, resulting in harm to their well-being. | "Actually, cyberbullying is a big issue because it is something that teachers cannot monitor easily." |
| Missing | Prioritizing smartphones, | Refers to the students' lack of | "I am concerned that they're going to miss some vital |

| | | | |
|---|---|---|---|
| important instructions | over learning, missing out crucial information | attention during learning results in them missing essential information related to the task or topic. | information about the ongoing course or about the topic that we are discussing.” |

### 3.2.1 Students’ disengagement

Teachers have expressed various worries about how students' use of smartphones affects their learning efficiency. A significant concern expressed by teachers was the disengagement of students, as they struggle to maintain focus on the assigned task without being pulled in by other distractions posed by smartphones.

> “I do have concerns, specifically in the classroom which is the disengagement and not being able to focus on something that really needs focusing on without any distractions.” (Emil)

Particularly when students employ smartphones for non-educational activities, they become easily diverted from the core teaching and learning process, resulting in reduced engagement and an increased likelihood of missing essential information. Drawing from Jasmin's experience, students often engage in non-educational smartphone use, prompting concerns about their learning and emphasizing the importance of addressing this issue responsibly.

> “Smartphones can decrease students’ engagement absolutely. The biggest problem is the recreational use of smartphones during the class. Of course, I tell them to put them away, but the minute I turn my back, it is there again. So, it is a problem. Unfortunately, our students are old enough to understand that if they use the phone and skip the tasks or exercises, it is going to come back to them in the exam. It is up to them and their responsibility to pay attention to the class, not my responsibility to tell them to do that.” (Jasmin)

Isla further emphasized that the decision to use smartphones in the classroom ultimately lies with the students, highlighting their individual responsibility in managing their learning process.

> “We tell them that if they are using their phones for having some chat and it is not anything deal with their studies, they must have responsibilities about that. It is difficult for them to understand that if they are using smartphones, they cannot learn so much, but it is their choice.” (Isla)

On the other hand, smartphones not only diminish students' engagement but also hinder their ability to effectively learn in the classroom. Following that, smartphone usage can be a source of distraction for both the user and other students who are genuinely engaged and seeking to enhance their learning experiences, resulting in unnecessary time wastage for the entire class. Moreover, using smartphones in this manner is not only counterproductive but also disrespectful to the education provided to them at no cost.

> “So, I think that they do not learn if they use them. And I think that sometimes they are even disturbing each other students so that they said Hey, look what I have here. Can you see that? Can you blame with me this one? So of course, in this case, I think it is time-wasting for everyone for the students and the teachers. I think that because we give them the education they do not need to pay for and if they do not respect the education, I think it is very sad.” (Isla)

Smartphones are posing substantial distractions for students in the classroom, aligning with Emma's observation that students are using them during class for non-educational purposes, despite not requiring them for their learning.

> “The main problem is that usually we do not need smartphones for learning, but still, they have them in their hands.” (Emma)

When teachers incorporate smartphone-related activities into the lesson, students tend to use their smartphones before or after the activity for non-academic purposes.

> “For example, if there are some likes on Instagram or so, of course, that is what they check firstly and if they have to respond they will do that first.” (Jasmin)

> “Sometimes someone just continues using a smartphone after their activity.” (Tuuli)

A different perspective was brought up by Leo regarding students using devices for non-educational purposes. He believes that this issue extends beyond just smartphones and encompasses various devices used for learning.

> “Occasionally they will use it for other things that are not school related, but I have noticed that it is not tied specifically to smartphones increasingly. So now that we have started to use laptops more and more because of the digital books, I notice that they do the exact same things on their laptops, that they would be doing on the smartphone. Even though we kind of usually think that

> students use social media on their phones, they will use the browser version even just to make it seem like they are working occasionally." (Leo)

Moreover, Aada touched upon an important concept concerning student engagement in classrooms, while preoccupied with their phones, they no longer pay attention to lessons, also are oblivious when the teacher stops talking - a dramatic shift from the past when students were more concerned about the change. The educators experience extra difficulties and worries from this kind of student's behavior.

> "I just stopped talking and no one even noticed like for a really long time and I was talking with my colleague and she said that this is new like a few years ago when you were just silent and stopped talking and they noticed it right away like that's not talking anymore but nowadays they are just let's just keep doing what they are doing, and they do not even notice it which is really sad as an educator." (Aada)

### 3.2.2 Excessive use

Every teacher noted that students use their smartphones on a daily basis during every class, prompting the teachers to constantly remind them not to use the devices during their teaching.

> "Students use smartphones every day, every lesson, every day, and every lesson, definitely, most of the students use them." (Jasmin)

This added responsibility creates an extra burden for educators, as they worry about the high dependency of students on smartphones.

> "Students use them daily and when I am teaching well, for instance, yesterday, I had to tell them three times to put away their cell phones. So, it is an interesting but annoying phenomenon, to be honest." (Matias)

Despite students using their smartphones daily, they tend to adjust their behavior once they realize that the teacher has noticed their actions.

> "I would say probably it might be a side effect of it being upper secondary school that they are kind of, they are old enough to maybe feel a little bit ashamed about it. So, when they see me spotting them using for something else, they usually correct that behaviour quite quickly. So even if they are kind of like giving in to that desire to look at social media, they will notice me looking and then correct that." (Matias)

On the contrary, Leo also added that a certain group of students may persist in using smartphones even after the teacher has taken notice and explicitly requested them not to use the devices.

> “Rarely, but I would say that a couple of students, occasionally in a few groups might not take the hint, and then they just go back to the device. So maybe that is just a symptom of the lesson, just not being interesting to them in general, so they would be doing something else anyway. Maybe occasionally, a student despite me noticing them and telling them “hey, come on, let's do the task now” might still go back to that behavior, and that is the most disruptive for me.” (Leo)

Drawing from Aada's experience, a specific group of students she has been instructing presents unique challenges linked to their excessive smartphone usage. Despite being asked to correct their behavior, these students often do not make the necessary adjustments and continue using their smartphones.

> “Every day, many times they are using their smartphones. I am teaching three different groups at the moment and with second-year students which is a really difficult group. Even they are using the phones all the time and they do not even put them away when I ask them to, so it is really difficult.” (Aada)

The pervasive problem of addictive smartphone usage among students was emphasized, with Jasmin offering an example of her students displaying pronounced dependency on these devices. Additionally, she conveyed the sense of helplessness teachers experience in dealing with excessive smartphone usage, expressing that they lack the authority or ability to take action to mitigate the disruption caused by students.

> “It is very vital for them. It's like an organ for some of them, they get really anxious if they are not using the phone or if they cannot have it somewhere visible, it is not even that important that they can use it. They just need to have it visible. They need to know that it is close to them. For some students, I think it is also a device for reducing anxiety. So as long as they know that they kind of have an escape from the class, from me or from other students. It is a comforting device for some of them. Unfortunately, I get the feeling that in Finnish society and lawmaking, the smartphone is kind of a human right, so there is nothing much as a teacher I can do. I cannot take it away. It is forbidden. I cannot touch their device. I cannot tell them to place it on my table. For example, they are entitled to use it so technically, if they took me to court, I would lose the case.” (Jasmin)

The high frequency of smartphone usage emerged as a paramount concern for teachers, as students utilize them extensively and become easily distracted from the teaching. Teachers expressed deep concern about certain students'

addiction to smartphones, to the extent that these devices serve as an escape mechanism for them. However, they struggle with a sense of limited authority over these students, making it challenging to effectively manage the situation.

### 3.2.3 Shorter attention span

Nowadays teachers mentioned that students' span of attention and ability to focus on a particular task has decreased, one of the main causes of the issue was noted as smartphone usage. Since smartphones are fast clickers, it also affects students' attention durability, making them unable to concentrate. Teachers collaboratively noted that students' attention and focus decreased over the years, they get distracted easily from the task because of smartphone use.

> "They cannot listen to it until the end. They got get distracted easily, especially with smartphones, and even if they do not have smartphone. So, I think that they are not capable anymore. Of course, some of them are capable, but for many it is very hard to focus on the task or learn stuff for a longer time because this attachment distracts their attention and the capability to keep attention on the task." (Emma)

In addition, Tuuli mentioned during her teaching career how student's attention diverted and decreased.

> "I certainly think it affects their concentration and learning. I mean also in the bigger picture during my nine years of a teaching career, the concentration skills are decreased and there are fewer students who kind of completes the task without watching their smartphones." (Tuuli)

Students who are having difficulties with concentration, they prone to use smartphones frequently, and not doing activities, or listening to instructions.

> "Especially those students who have fewer skills to concentrate on learning they tend to take their phones easily and focus on something they should not focus on. They do not listen to the teaching, or they are not concentrating on activities, which they should be doing." (Emma)

A different reason for briefer attention was stated by Leo as an example of notifications on smartphones breaking their attention from the lesson or task, it is hard for them to focus back without checking them, he tends to use computers as a main device in this sense.

> “Notifications are something that would break their attention span on a particular task. That is why I would tend to favor the laptop for the main thing, and then maybe they can kind of look up information as they are working on the laptop. I would say that they should at least definitely keep them on silent, do not focus on texting. I do not want the dinging everywhere. We have time for that during the recess and so on. I will not probably be too tough on them if they just quickly respond to text, but if they are constantly just texting, that is when I step in.” (Leo)

From Matias's perspective, the use of smartphones leads to a diversion of attention, which can be draining for students. Despite the significant role smartphones play in their lives, students need to exercise control over their need for them and maintain their focus on the task at hand rather than constantly multitasking.

> “When you focus on your phone, you are not paying attention to the lessons. There are days when that is very annoying and on other days it is easier to cope with. I think it is kind of exhausting as well for them if they are doing something related to the lesson, then you pay attention to your phone and then come back to the task. I am kind of old school in the sense that I know it is their life is on that phone. Well, whose isn’t? It is a distraction, and I feel that it would be important for them to learn how to control their need to look at their phone because they do not notice that it is a distraction and kind of affects their focus.” (Matias)

Students’ attention span is getting smaller, and their focus diverts easily when they tend to use smartphones which makes it harder to focus on the activity over the years. Teachers want them to learn to control this urge and prevent their distraction to focus on the activities.

### 3.2.4 Students’ cyberbullying

The issue of cyberbullying was raised as a significant concern associated with students' smartphone use, affecting both students and teachers. Teachers acknowledged that it is their responsibility to educate students on how to use digital media in a respectful and safe manner. However, they expressed challenges in addressing cyberbullying prevention within the classroom due to the inability to monitor students' smartphones and the difficulty in proving incidents. Cyberbullying could manifest in various forms, and being excluded is just one example of such harmful behavior.

> “Actually, cyberbullying is a big issue because it is something that teachers cannot monitor. Their parents cannot forever either. It can be so subtle that is very difficult to prove even if the student is the victim, so to speak, even if they come forward with their smartphones and say, see this is what I found. It might be like excluding someone from a WhatsApp group or something like that, so it is not necessarily like evil words or evil comments.” (Jasmin)

In addition, Students frequently take photos during class and proceed to share them on social media platforms like Snapchat. This behavior raises concerns, as it may inadvertently capture other students in the background without their consent, potentially violating privacy laws and regulations.

> “One of the problems is that, for example, they take selfies quite often. I do not use Snapchat myself, but I assume that is what they are doing. So, if they take pictures, then of course, the people sitting behind them are also visible in the photo and technically you are not supposed to take photos of other people in the classroom like it is against the law.” (Jasmin)

A similar concern was raised in Isla's classroom, where she observed that students frequently take pictures during class. To address this issue, she found it necessary to remind students about privacy rules and the appropriate use of smartphones during the learning environment.

> “We must be very careful when we are taking photos, and we must tell them, please do not put them to their Facebook or TikTok accounts or other social media sites”. (Isla)

### 3.2.5 Missing important instructions

The issue of students becoming inattentive due to smartphone use was discussed by teachers which poses a risk of them missing important instructions about the task that may be evaluated in either exams or exercises. Furthermore, this situation places an additional burden on teachers, adding to their workload.

> “I am concerned that they're going to miss some vital information about the ongoing course or about the topic that we are on. Discussing or for example, if I give them exercises that I am going to review and grade, they might miss important information about that. Also, it is quite laborious for me that I must explain everything to each individual student separately, so that is quite a lot of work for a teacher as well. So yes, it is a concern. It is a big concern in every school. I think it is not only our school.” (Jasmin)

Aada stressed the requirement for repetitive instruction in her classroom, stating that she frequently finds it necessary to reiterate herself multiple times for

students who did not pay attention to the initial explanation or instructions, particularly concerning the completion of specific tasks.

> “When it is their turn, I have to explain it over and over again and then those students who are listening and who want to learn are frustrated because of the classmates who were not listening instead sending messages and all the attention goes to something else then teaching and then I have to tell the same things over and over again.” (Aaada)

Lastly, Matias also shared his perspective, noting that when students are engrossed in their phones, they tend to become passive and may miss important instructions. In his teaching experience, he frequently finds himself having to remind students about the proper use of smartphones or leaving it to their own responsibility. This situation can be frustrating for him, particularly when it results in having to repeat task instructions.

> “Lately, we have discussed cell phones a lot with my colleagues and one thing is that when they are on their phones, and not paying attention to the class. They are not doing anything. They are just being passive. There is this element that we usually have 30 kids in the class, and when you notice that they are on their cell phones and you think that I am going to finish teaching this thing, and then I am going to talk about cell phone use. Some other days I just think to myself that, they are old enough to know better, and responsible for their own education. So, if they are doing something else besides studying, then it will have certain effects, but it is annoying when you have just finished giving instructions and then you notice that the student who was on their cell phone and ask, what do I need to do about the task.” (Matias)

In summary, teachers have identified non-educational smartphone usage as a significant factor contributing to student disengagement. This problem has led teachers to believe that, due to the students' age and sense of self-responsibility regarding learning, addressing this issue is not within their purview, likely attributed to the students' personal choices. The excessive frequency of smartphone use has emerged as a primary concern, affecting not only teachers by adding an extra burden on top of their teaching responsibilities but also fellow students who are eager to engage and actively participate in the learning process. While some students amend their behavior after the teachers' warnings, there is a subset that remains unresponsive and continues using smartphones, causing worry among teachers who feel powerless over the students to properly address and handle the situation.

### *3.3 Theme 3: Teachers' primary challenges in embracing smartphones as educational tools*

Even though some teachers recognize smartphones as potential learning tools, they face difficulties stemming from students' attitudes toward their authority and teaching in the classroom. Finnish educators have expressed the emotional and physical consequences of current regulations, expressing a sense of powerlessness in effectively guiding learning. Teachers' restriction towards students' smartphone use has resulted in negative student attitudes and increased aggressiveness, ultimately affecting the teacher-student relationship. This theme encompasses six major challenges faced by teachers regarding the acceptance of smartphones, which are further detailed in the following sub-themes:

**TABLE 3.** Teachers' primary challenges in embracing smartphones as educational tools.

| Subthemes | Sample Codes | Definition | Example Excerpt |
|---|---|---|---|
| Teachers' autonomy | Asserting control and responsibility over teaching and classroom management | Refers to how smartphone usage regulations diminish the autonomy of teachers. | "If they use smartphones and see something interesting and they are like: "hey, look at this" then it kind of spreads where it could get out of control." |
| Teachers' focus and attention | Diverting teachers' attention and focus from teaching | Refers to how students' inappropriate smartphone use can disturb teachers' focus and attention. | "Let's say you are teaching but you realize that some of students in the background are playing with their smartphones and you need to kind of cut your attention." |
| Bringing frustration to teachers | Expressing disappointment due to a lack of respect shown towards teaching efforts | Refers to expressing disappointment when students engage in non-educational smartphone use. | "I do admit that if it is, if there's a lot of misuse of smartphones, then it definitely feels frustrating." |

| | | | |
|---|---|---|---|
| Cyberbullying of teachers | Employing smartphones to harass, frighten, embarrass, or target a teacher | Refers to the risk of utilizing smartphones to target a teacher, resulting in harm to their emotional and physical well-being. | “Not that we could prove it, I have had this feeling sometimes when they point, phone at me.” |
| Current Policies | Implementing current policies related to smartphone use | Referring to the role of teachers in implementing existing guidelines for smartphone use. | “We are pretty helpless with the smartphones. We are not allowed to force them to put them away.” |
| Weakening teacher-student relationships | Deteriorating mutually respectful relationship between students and teachers | Refers to addressing the need to avoid students’ negative attitudes towards teachers resulting from smartphone policies. | “I think the challenge is they are not willing to put them away. Then, there are some very angry faces I get, and it is annoying for teacher that you are like some police in the classroom. I hate that role”. |

### 3.3.1 Teachers’ autonomy

Teachers have voiced concerns about the disruptive impact of smartphones in classrooms, indicating that while technology is generally embraced by educational authorities, the use of smartphones hinders their teaching and diminishes their autonomy in making teaching-related decisions. They believe this usage is unfair to their teaching efforts and are advocating for changes in smartphone usage regulations by the local authorities. Students have the potential to disrupt their peers by sharing content with them and tend to become easily distracted from the learning process.

> “It has that effect if there are smartphones and they see something interesting and they are like: “hey, look at this” then it kind of spreads where it could get out of control and the class could turn restless.” (Matias)

Smartphones were referred to as a factor affecting students' critical thinking skills, thus impacting teachers' autonomy in the educational setting.

“Yes, it affects teachers’ autonomy. Students do not use their whole capacity of thinking.” (Emma)

Emil, on the contrary, believes that smartphones do not significantly impede his control over the classroom, despite the possibility of hidden student

communication, which he acknowledges should be addressed and prevented. He emphasized that addressing this issue is not solely the responsibility of teachers but also concerns the entire school community.

> “I do not think it affects the teachers’ autonomy, obviously, as I mentioned there can be this hidden communication going on but then again it is not a problem that is specifically in the classroom. That is a broader issue in the school community, and it is mainly still between them. Obviously, it is something that the teacher should be aware of because it can cause bullying and other issues that it is part of the teacher’s sort of job to prevent or at least deal with those when they arise. But as far as when talking about classroom environment, it does not.” (Emil)

Isla concurs that smartphones impact teacher autonomy by consuming valuable teaching time. Teachers find themselves constrained, having limited time to enhance students' learning due to the need to monitor and address smartphone usage.

> “It is true that if you have 60 minutes to listen, why do we need to all the time check where are the phones? I think it is boring and I think that quite many teachers are frustrated about this. Why do I need to come there and police and say please do not use them?” (Isla)

As can be seen above this situation leads to frustration as teachers continually remind students about the proper and appropriate use of smartphones in the classroom. Numerous factors might affect teachers' autonomy, which create challenges in classroom management.

### 3.3.2 Teachers’ focus and attention

A distinct argument against accepting smartphones as learning tools was that they can disrupt teachers' concentration and interrupt their thoughts. This interruption to the teachers' concentration can impede their capacity to efficiently supervise the classroom and convey their lessons. Teachers have expressed frustration when students use smartphones during lessons, as it not only distracts the students themselves but also disrupts the teaching process and can be distracting to other students in the class.

> “Let's say you are teaching and explaining something, but you realize that some of the students in the background are playing with their smartphones and you need to kind of cut your attention and just tell them not to use and it

> kind of affects your focus, teaching and other students. It is the most annoying thing." (Venla)

Teachers have described the distraction as a recurring situation where they are constantly required to remind students to concentrate on the lesson, which also imposes additional responsibilities on the teachers. Emil noted that the lack of concentration is immediately noticeable to him, causing interruptions in the smooth progression of his teaching. Addressing the distractions promptly becomes an urgent priority to reengage the students effectively. He added that distraction is analogous to the disruption caused when someone arrives late to the classroom.

> "When I see it, it distracts me obviously a lot. Especially, when you realize that they are not focusing, then you have to deal with it, and it always stops what you are doing. So, it is a distraction in the same way as someone coming in late to the classroom."

Venla highlighted while she initially reminds students not to use their phones for off-task activities, she eventually reaches a point where she consciously overlooks this behavior.

> "It is annoying and sometimes you are very tired to say that and sometimes I do not see that. I do not feel like saying that or sometimes I do not even focus on that, and it can be a whole lesson that is very busy. I do not have time to check if they have them or not." (Venla)

The repetitiveness of the warnings and the demanding nature of the lesson make it challenging for teachers to consistently monitor students' smartphone use. The primary duty of the teacher remains focused on delivering the lesson, even in the face of disruptive behavior exhibited by certain students.

### 3.3.3 Brings frustration to teachers

Teachers experience emotional disappointment when students use smartphones for non-educational activities, which creates the feeling of losing valuable teaching time in explaining the intended educational use of smartphones in the classroom. With a constrained time for each lesson to cover the planned topics, the disruption caused by smartphones frustrates teachers. This frustration is particularly heightened given that secondary students willingly choose to be a part of these educational studies.

> “I do admit that if there is a lot of misuse of smartphones, then it definitely does feel frustrating as a teacher when there is a limited time to go through certain number of topics that we need to go through. Especially in the upper secondary school, everyone is there because they want to be there. So, it kind of feels frustrating in that sense if that takes too much time out of the lesson in the negative sense.” (Leo)

The inappropriate use of smartphones in the classroom is not just a source of frustration for teachers. As stated by Isla, new teachers who are committed to their profession have expressed unwillingness to continue in this role due to the added responsibility of monitoring and addressing students' attitudes toward education. This dilemma highlights that smartphone misuse not only affects teachers emotionally but also prompts a reevaluation of their chosen profession.

> “I think it is very frustrating we must discuss all the time about the phones which is boring. It is difficult to have this balance and quite many young teachers, for example, they do not like to work in schools. They have been here, for example, two or three years, and then said, I do not like this work because I hate to discuss all the time that put your smartphones away or do something else, and very frustrating to speak about that. Quite many of my colleagues have the same opinion on that. That is not good”. (Isla)

Tuuli expressed disappointment in a situation where she meticulously planned a high-quality lesson, only to encounter students' dismissive attitude toward her teaching, despite knowing it would benefit their learning.

> “I think it is frustrating, and I am disappointed that I have done my best to prepare a good lesson. I think it is fair enough if they listened to what I have to say during the task which is good for the learning process, so if they do not do it and they are watching their phones instead, it is frustrating maybe it is best word I can find sometimes it makes me even sad”. (Tuuli)

The disparity between her proactive teaching approach and the passive, distracted behavior exhibited by students, ultimately resulted in emotional responses from Aada. The students' distraction, as evidenced by their lack of visual and auditory focus and their fixation with cellphones, indicated a gap between the educational material being provided and the student's interests or priorities. Teachers experience a sense of speaking into a void as if their efforts to convey knowledge and engage the students are going unheard or unnoticed.

> “I feel so frustrated, last Friday I was talking about how you open a champagne bottle in a bar class and none of them were listening or even looking at me, so they were sitting, and I was looking at their backs and they were all using the smartphones.” (Aada)

> “Let's say that I am trying to teach something, and I notice people on their phones. They are not paying attention. Then it is a bit distracting. It kind of makes you feel that I am talking to myself.” (Matias)

A unique perspective was noted by him, mentioning that while managing smartphone issues can be frustrating for teachers, it can also serve as an opportunity for self-reflection and improvement in teaching methods. Addressing smartphone-related challenges prompts him to consider how to enhance engagement and interactivity in his lessons, ultimately leading to a positive shift in his teaching approach.

> “When I wake up the next morning and I go to work, I feel that maybe this day will be better. It does have the effect that it makes me reflect on my teaching and my materials engaging. Am I giving a lecture, or do I ask the students to participate or are the tasks engaging? Is the subject matter too difficult for them to understand? So, what do I need to do? Maybe giving better examples for instance or be clear in the content.” (Matias)

Despite the best efforts to create an engaging classroom environment, smartphones can exert a powerful pull on students' attention. However, this challenge can also spur to reflect on teaching methods, seeking ways to adapt and improve to better capture and maintain students' attention.

> “It is disappointing. It is the main feeling because I think that I have not planned the lesson interesting enough because students take their phones. That is something I need to think about all the time. When I am doing lesson planning, I think that smartphones are getting high power. During the teaching, even if the class is so interesting, but they are still keeping their attention somehow on the smartphones or an app that you cannot control with your teaching or let's say activities you use.” (Emma)

Teachers expressed opinions on whether students' smartphone use impacts their commitment to the teaching profession. Two contrasting perspectives were revealed: most of the teachers believe that smartphone use does not affect their commitment and they remain equally dedicated to their profession, while two teachers shared their concern, stating that it does affect their profession which may potentially lead to some significant issues.

> “I have to say yes because every year, since I am older and I am not so flexible anymore, it is a bigger problem than it used to be and it's annoying me because sometimes I would like to have that attitude that I do not care, but I care about their attention and focus capability. I am very worried about our society and young people. I have to say yes, it is affecting my ability being nothing in a good way.” (Venla)

As smartphones gain increasing influence over students, teachers experience insecurity and a growing apprehension about competing with these devices for students' attention, concentration, and active engagement in the learning process. This situation raises genuine concerns for both teachers and students alike. Furthermore, teachers feel frustrated with some expressing less commitment to the teaching profession. This highlights a critical concern that has the potential to damage the quality of teaching and may lead instructors to consider changing careers.

### 3.3.4 Teachers' cyberbullying

Cyberbullying emerged as a concerning issue impacting teachers' well-being, creating worry about the potential of being targeted by students. Finnish teachers revealed that, although they have not personally encountered cyberbullying in their teaching careers, some expressed a sense of vulnerability to being bullied due to the prevalent use of smartphones by students in the classroom. Teachers highlighted students possess active imaginations, which could lead to inappropriate behavior, such as filming or taking pictures of them while teaching. Leo emphasized a thought-provoking point: "It kind of limits the autonomy of how we present ourselves online" which explains cyberbullying acts could potentially constrain teachers' online autonomy, affecting their representation on the internet in a lasting manner. Furthermore, he specifically mentioned concerns about students using smartphone cameras during class, potentially filming the teacher without their consent, adding to the apprehension of invasion of privacy.

> "Sometimes students do obviously take pictures of the slides, or what we have for homework, or just notes for themselves. Occasionally, I kind of wonder because some of them might be sort of checking their hair in the selfie camera or something and I am not one hundred percent sure if they might be filming me too. I tend to not think that they are, but there is also that risk that they could upload the teacher doing a silly thing or that kind of thing. I do think that that might be a risk as well." (Leo)

Drawing from her experience, Jasmin mentioned that although she lacks concrete evidence to confirm this, she occasionally senses that students may be taking her pictures, creating memes, and subsequently sharing them across their personal channels.

> “Not that we could prove it, but I have had this feeling sometimes when they point the camera at me, I feel like they are filming me. A couple of times I have asked: “Are you filming me? Are you taking photos and then they of course refused: “No, no, no, I am not doing that” but sometimes I have felt that maybe they were doing this. They might make some social media memes or posts about me. They have their own Discord channel, and I am pretty sure I am on that in some forms, which is quite awkward as well. So, that can be a little bit of a problem as a law of privacy.” (Jasmin)

Furthermore, Aada pointed out that she observed students taking her pictures during class.

> “I do not know about recording, but I have had this feeling, they took a picture and did something funny with it, it is really hard because I am not allowed to look anyone’s phone and pictures in there.” (Aada)

Given that teachers are not permitted to confiscate students' smartphones to verify their actions, they face challenges in monitoring and addressing these behaviors. The uncertainty raises concerns for the teachers about the potential ways in which they could be targeted for bullying.

### 3.3.5 Current policies

Teachers have raised the issue of smartphone use policies, expressing their worry regarding its impact on students' learning. They expressed a sense of powerlessness in enforcing these policies because they are not permitted to confiscate smartphones against the students' will. In such cases, their only option is to ask students to leave the classroom if they refuse to comply with the policy.

> “We are pretty helpless with the smartphones. We are not allowed to force them to put them away, only if they use the phone in a way that disturbs others. In that case, we can tell we can ask them to leave the classroom.” (Jasmin)

Students have the option to place their smartphones in their bags, pockets, or willingly hand them over to teachers. This would prevent distractions to both students and the teaching process. Jasmin suggested that having a policy or rule allowing teachers to confiscate smartphones if students persistently ignore initial warnings would be beneficial. In her view, involving parents by contacting them regarding this issue could further reinforce this stricter rule in the classroom environment, despite the current legal limitations.

> “It would be very helpful for the teacher if we had this policy, if you are distracting yourself by using the phone, then the teacher is allowed to ask you to hand over the phone or to put it in your pocket or bag. If you take it out again, then you will be removed from the class and your parents will be contacted. So, we as teachers, could really benefit from a sturdier backbone, so to speak, right now, the law does not really allow it. I know there are schools that have these kinds of rules, but if they were ever facing a criminal case or so they would lose the case definitely because according to the law, you cannot take away smartphones from students.” (Jasmin)

Emma shared her uncertainty regarding the implementation of stricter rules in Finland.

> “I think the policies and the laws should be stricter, but I do not think we will never get that kind of situation in Finland.” (Emma)

Aada expressed a preference for a rule that would allow her to confiscate smartphones during her teaching sessions. Her discussions with parents about this idea resulted in a majority of them supporting the idea, while a minority disagreed. The limitation is that teachers would have no authority to enforce this rule for students over the age of eighteen.

> “I said I would prefer that I could take them away and every parent I have been talking to they are telling me I can just take the phone away, but there is always someone who feels that it is not the right decision for their kid. Also, part of the class is with the students who are eighteen years old so I cannot take their phone away and it is not fair, so it is difficult.” (Aada)

Tuuli also shared a preference for a proactive approach, suggesting that smartphones should be collected at the beginning of the lesson and returned during breaks or after the class concludes. She further explained that students used to voluntarily hand over their phones in the past because they were unaware of their right to keep them, but now that they are informed about their rights, it has made the situation more challenging for teachers.

> “I think it would be best if they do not use them and if the phones were held in backpacks where they cannot see phones and it would be nice if I can collect the phones away, I think it would be better for the learning. We could take students’ smartphones before maybe it has not been allowed back those days, but students did not know if they refuse I cannot take it from them.” (Tuuli)

The rules regarding smartphone usage need to be collectively discussed and decided upon by teachers. One effective policy was suggested that students

should put away their smartphones unless they are required for a specific task or purpose directly related to the lesson. Isla regarded this approach as adequate for ensuring that devices are used appropriately and in accordance with instructional objectives.

> “The rules obviously have to be discussed among the teachers, so that everybody is happy with the rules they have, I think the main idea is not using it and actually putting it away unless it is being used for educational purposes. So, for example, it cannot be visible, so you have to have it either in your pockets or in your bag or something like that. And I think that is a really good rule for everyone.” (Isla)

Besides, drawing from her experience working in various schools, she highlighted the variability in rules regarding smartphone use in classrooms across different educational institutions, and the challenge of establishing a universal rule due to the diverse ways of utilizing smartphones and the differing approaches taken by teachers. Determining an effective policy should involve collaborative discussions among teachers and school principals and these discussions be a regular part of teacher meetings, allowing for a thorough exploration of what measures work best for enhancing student learning.

> “During my work history, I have been working in many schools and we had different policies. It is good that all the teachers have the same rules and same system, but I am not sure if it is possible because for example in many schools there are a hundred teachers. So, there are a hundred ways to use phones and do things. So, I think that it is good that we discussed what is useful for our students and what kind of methods help our students to learn better. I think that is useful to discuss in teachers’ meetings when we are together.” (Isla)

An important point was raised by her, while some teachers may desire for students' phones to be confiscated, she believes it can be more beneficial when students themselves choose to limit or put away their phones, rather than being forced to do so. This approach could possibly encourage personal responsibility and self-regulation among students when it comes to smartphone use.

> “I think that quite many teachers think that students should not be able to have the phones during the lesson, but I do not like that because I think that they should learn to put them in their backpacks. So, I think that would be very useful for our students”. (Isla)

In contrast to some of the previous perspectives, Leo suggested that smartphone use in the classroom should be permitted by school policies.

Students should be entrusted with certain responsibilities related to their smartphone usage, with the expectation that they will use them appropriately and responsibly in the educational context. Granting students this freedom can encourage them to be more responsible users of technology in the classroom.

> “Suggestions in terms of policy, I would say that smartphone use should be allowed, but also regulated, so there needs to be responsibility given to the students, but also expected from the taking responsibility. That is our freedom given to them, but also responsibility expected from them. So, I would be on board with using smartphones in the classroom”. (Leo)

### 3.3.6 Weakening teacher-student relationship

Building positive relationships with students was a significant priority for teachers. Striking a balance between allowing students to harness the educational benefits of smartphones while maintaining control over the classroom environment creates a challenge for them. Some students demonstrated confrontation or resistance if teachers restricted smartphone usage. Thus, this tension negatively affects the teacher-student relationship and hinders the teacher's ability to motivate and engage students in the learning process. Some teachers frequently face a dilemma, having to determine the appropriate timing and manner in which to enforce smartphone use policies. This raised questions about whether enforcing these policies fell within their job responsibilities. Jasmin, for instance, encountered worries about students' potential aggressive behavior if she opposes smartphone use. Concerning students' expected behavior toward her instructions, her objective was to avoid any hostile responses from them. Despite these challenges, she believed it is her responsibility to support students in their learning and ensure they can concentrate on her teaching, even if it means addressing smartphone-related distractions.

> “It is a constant battle. So of course, I do not want the students to feel anxious in the class. I do not want them to feel that I am not going to Jasmin's class because “Jasmin is such a b****and she does not allow me to use my phone and everybody else. She is always preaching about my phone or so.” I am a teacher, and it is my job to help them if they cannot do their exercises, for example, if they cannot write their essays. It is also their job to accept my help if they cannot concentrate.” (Jasmin)

Similarly, Venla highlighted the struggle where students may not willingly give their smartphones away but put them away only after being asked by the

teacher. This situation can make teachers feel as though their role has shifted from being educators to acting as enforcers or police officers tasked with monitoring smartphone usage. This shift can lead to tension and negative emotions, as some students respond with frustration or anger towards the teacher. She expressed a sense of disliking this aspect of her role and the challenges posed by smartphone policies.

> “I think the challenge is they are not willing to give smartphones but put them away. Then there are some very angry faces I get, and it is annoying for teacher that you are like some police in the classroom. I hate that role.” (Venla)

> “I like my job, but I do not like that part of that I need to be the policeman who says please put them away.” (Isla)

Emil conveyed the emotional impact of students using smartphones for non-educational purposes, expressing that it makes him feel disrespected and neglected due to their attitudes. The differing opinions and conflicts regarding smartphone policies further strain the teacher-student relationship, creating disagreements on whether smartphones should be used during class.

> “When dealing with younger students and when we have these policies of not allowing those at all, you could get into these conflicts over like whether they are able to keep it or not. I feel slightly annoyed because when students do not follow the smartphone policies in the classroom, and do not focus on teaching I feel it is like annoying and disrespectful.” (Emil)

> “Maybe they are listening, though they are responsible for their own studies but at the same time, then there are days when I feel like, hey, I am trying to do my job here and I feel that it is disrespectful in a way.” (Matias)

Jasmin recounted an experience at her school where a "week of mornings with no cellphones policy" was implemented, prohibiting students from using their phones during the first two classes. If they refused to comply, they were directed to the school principal's office. She observed that even well-behaved students exhibited aggression and used profanity in response to this policy, highlighting the strong attachment that students have to their devices. This incident demonstrated the significant influence smartphones have on students and how they can potentially damage the teacher-student relationship. During that week, although students could not use their phones, they still wanted them to be visible

or sought permission to physically touch or have their hands on their smartphones.

> “We have discussed this quite a lot and we actually had this one-week policy where we had mornings without smartphones. So, during that week, the students knew they had to put their smartphones away during the first two classes of the day. If they refuse, they would be sent to the principal's office. So even the nicest students, who were always really kind to me, they got really aggressive when I told them that they need to put smartphones away or I will have to take you to the principles’ office. They swore at me. They used profanity: “What the f***ing do you think you are asking me to do that you can't f**** tell me what to do? Even the nicest kid used these words. So that kind of tells me how deeply important it is for them to have this device at hand. So even if they did not use it, some of them said: “please, can I at least can I can I keep my hand over the smartphone at least please do not make me put it away”. Of course, I told them to put it away, but we did try.” (Jasmin)

In summary, Finnish teachers exhibited varying responses regarding students' smartphone usage, depending on its intensity and the resulting impacts on their autonomy, concentration, and emotional well-being. They have voiced concerns related to evolving policies and the shifting role of teachers in the classroom, which has transitioned from being educators to monitoring students' smartphone use. This shift has reached a point where teachers experience frustration and a sense of disrespect, consequently affecting the teacher-student relationships built on mutual respect. Interestingly, teachers find themselves in a dilemma debating between enforcing a prohibition on smartphones or educating students on how to effectively regulate their use during class.

# 4 DISCUSSION

This study explored the perspectives of Finnish upper secondary school teachers regarding allowing smartphone usage in the classroom, with a particular emphasis on identifying the opportunities and challenges associated with it. The study aimed to fill a research gap by providing insight into how teachers perceive students' (aged 16-19) smartphone use during lessons, considering the teachers' roles in curriculum delivery and behavior management. While some researchers contend that having smartphones accessible to students in class can lead to distractions that hinder learning (Flanigan & Babchuk, 2022; Furst et al., 2018), others argue that smartphones can enhance learning applied in the right context (Ahmad & Omaid, 2020; Clayton & Murphy, 2016; Hashim et al., 2018). The findings revealed that teachers acknowledge the potential of smartphones to boost student engagement and learning in the classroom, along with the critical importance of regulating students' smartphone usage during educational activities. Another finding highlighted that teachers' primary concerns revolve around students using smartphones for non-educational purposes, which leads to a diversion of their attention away from learning and active participation in classroom activities. Finnish educators have also expressed concerns regarding how current policies may impact their autonomy, concentration, and emotional well-being. The research results suggested that authorities should engage in discussions regarding smartphone use, considering the challenges faced by teachers and aligning with the goal of enhancing students' learning experience.

## *4.1 Educational benefits of smartphone use in the classroom*

The study results showed that teachers believe smartphones have the potential to facilitate learning and increase student engagement with the lesson. All participants mentioned smartphones as a secondary device to facilitate learning since computers are the primary devices utilized in classrooms. The findings from

this study align with the views of researchers who have advocated for smartphones as valuable tools when other devices lose power or are unavailable (Anshari et al., 2017; Sabron et al., 2020; Sa'di et al., 2021). Especially, if students forget their devices or require fast access to information while engaged in the primary task on a computer, smartphones could serve as a helpful alternative. An educator offered a unique perspective that considering the level of trust and responsibility exhibited by students and suggests that students have the option to listen to music during class if it helps their concentration on their tasks and prefers to work independently without causing disruptions to their peers. In the previous research, a significant research gap exists concerning the specific examination of students using smartphones to listen to music while performing tasks. While some studies indicated that students often demonstrate enhanced learning or improved task completion in the presence of background music (Kiss & Linnell, 2021; Schwartz et al., 2017), the literature also presents contrasting opinions regarding how background music might impair complex task performance. Future research can concentrate on exploring teachers' perspectives regarding the integration of smartphones as a means for students to listen to music during class, with a particular emphasis on understanding how this practice may influence student learning outcomes. A Finnish language and literature specialist, shared an insightful viewpoint on audiobooks, stating that smartphones can be an essential resource for students, allowing them to listen to audiobooks after completing their primary tasks.

Furthermore, Finnish teachers highlighted the benefits of integrating educational games into teaching through the use of smartphones, aligning with the findings of Laguna et al. (2016). Smartphones were identified as beneficial due to their ease of accessibility and user-friendly interface. Kahoot was found one of the most implemented game apps by the participants, because of having positive ratings and a motivational tool increasing students' engagement with the lesson (Ebadi et al., 2021; Hashim et al., 2018). However, participants mentioned this game was outdated, and students lost interest in playing this game. Particularly in specific subjects, educational applications on smartphones were also highlighted as valuable tools.

Camera-pen pedagogy was stated by one of the teachers to be effective when camera is used as a pen to enhance students' creativity and engagement

(Kiesiläinen, 2017; Jaakkola, 2017, p. 42). Teachers discovered that smartphones could indeed serve as a valuable tool for creating subject-related videos, presenting a great potential to enhance student motivation and effectively demonstrate their learning in an engaging manner. This observation aligns with prior literature, which also recognized smartphones as creative tools for filming and editing videos (Clayton & Murphy, 2016; Gordon et al., 2016; Gromik, 2015). In a literature class, for instance, students utilized their creativity to produce videos, including conducting interviews with authors from centuries ago. This approach was elevated to the point where students won a national competition, providing clear evidence of the convenience and effectiveness of utilizing smartphones to facilitate student learning and creative expression.

Teachers hold a significant role in shaping student engagement (Skinner and Pitzer, 2013) and recognizing the importance of integrating mobile technologies into modern learning activities within higher education settings. Smartphones can serve as highly effective tools when the designed activity is not only relevant to the student's studies but also unique, offering a new and engaging experience they have not encountered before. The concept of relevance emerged as a new emphasis, highlighting that the successful integration of smartphones as educational tools is contingent upon activities aligning with students' studies, presenting a new and engaging educational experience and directly contributing to educational objectives. Certainly, significant concerns were acknowledged, notably the potential that not every student may perceive the activity relevant or engaging and the risk of students getting diverted by non-educational smartphone activities during the task (Thomas et al., 2014).

While Finnish educators comprehend the potential benefits of smartphones for engaging students, the concerns over regulating these devices due to possible off-task behaviors pose a challenge to teachers' acceptance of using smartphones in the classroom. The constant availability of various applications and notifications content can easily divert students' attention away from educational tasks (McGloin et al., 2017), which can be particularly challenging for students who have attachment issues (Aaron & Lipton, 2018; Flanigan & Babchuk, 2022).

Teachers expressed the challenge of managing off-task behaviors among students, particularly the difficulty in restricting access to unrelated content and monitoring the appropriate use of smartphones in the classroom (Asplund et al., 2018). As a potential solution, establishing clear time limits for tasks and effectively communicating the purpose and guidelines for task completion was proposed to play a crucial role in reducing distractions and discouraging the inappropriate use of smartphones for off-task activities.

## *4.2 Teachers' concerns regarding students' learning effectiveness*

The findings uncovered the concerns of Finnish teachers regarding the impact of pervasive smartphone usage on students' learning effectiveness. Their primary worries revolve around issues related to student disengagement, as learners find it challenging to concentrate on their assigned tasks due to constant smartphone distractions. Previous studies highlighted that learning disengagement mainly occurs when students use smartphones for non-educational purposes (Al-Furaih & Al-Awidi, 2021; Langmia & Glass, 2014; Rozgonjuk et al., 2018; Vahedi et al., 2019; Flanigan & Kiewra, 2018). Thus, the frequent involvement of students in non-educational smartphone activities raises concerns about the quality of their learning experience and underscores the need for a responsible approach to tackle this issue.

According to the teachers, repeatedly reminding students about the inappropriate use of smartphones is not their primary responsibility. They believe that students themselves are accountable for managing their smartphone usage appropriately, aligning with their perception of personal responsibility in education (Lauermann and Karabenick, 2014). Research in this area is limited, but giving repetitive verbal warnings was found presumably ineffectual if they are neglected (Batch et al., 2021). Future research can explore the perceptions of both teachers and students regarding their roles and responsibilities concerning smartphone use in the classroom.

Interestingly, it is worth noting that one teacher emphasized the view about using smartphones for non-educational purposes is not only counterproductive but also disrespectful to the education that is generously provided to students at no cost. Education in Finland is free of charge for students from pre-primary to

higher education (Opetushallitus, 2022). This perspective underlines the importance of students recognizing the value of the educational environment, resources, and the efforts invested by educators in facilitating their learning experiences.

The students' smartphone usage was described as occurring on a daily basis and even during every lesson. The increased reliance on smartphones among students poses an additional challenge for educators, causing them to worry about this dependency. The excessive and frequent use of smartphones emerged as a major concern for the students, with teachers describing them as being so ingrained in some students' lives that they likened smartphones to being "like an organ" for them. These students experience significant anxiety when they are unable to access their smartphones and often feel the need to have them visible. This strong dependency on smartphones and the inability to control their usage can be indicative of smartphone addiction and nomophobia, which are associated with serious psychological issues (Sunday et al., 2021; Durak, 2019; Yildirim, 2014).

Teachers have noticed a concerning trend in recent times regarding students' attention spans and their ability to focus on specific tasks. One of the primary factors contributing to this issue is the extensive use of smartphones (Bradbury, 2016; Gutiérrez-Puertas et al., 2020; Wilmer et al., 2017). Teachers underlined that the constant flow of notifications on smartphones disrupts their ability to maintain focus during lessons or tasks. Once their attention is diverted by these notifications, it becomes challenging for them to refocus without checking their devices (Kushlev et al., 2016; Smith et al., 2014).

Students’ cyberbullying was found as a significant concern, which is often fueled by their easy access to smartphones and other digital devices (UNESCO, 2023). While teachers acknowledge their responsibility to educate students on the respectful and safe use of digital media, they face challenges in addressing cyberbullying prevention effectively within the classroom because of the inability to monitor them (Hamal et al., 2020; Yoon et al., 2011). Since students frequently take photos in class, educators have expressed concerns about potential issues, particularly regarding the possibility of capturing other students in the background without their consent, consequently breaking privacy laws and regulations.

The concern about students becoming inattentive due to smartphone use was a topic of discussion among teachers. This inattentiveness poses a risk of students missing crucial instructions related to tasks that may be evaluated in exams or exercises. Previous research supports this concern, indicating that students who use their mobile phones during lectures tend to take fewer notes, remember less information, and perform poorly on exams (Kuznekoff & Titsworth, 2013; Vahedi et al., 2019; Flanigan & Kiewra, 2018). As per the teachers' observations, when students are deeply engrossed in their smartphones, they often become passive and miss critical instructions. In some cases, they even failed to notice when the teacher has stopped speaking for a while. The teacher expressed this significant shift from the past when students were more attentive and responsive to changes in the classroom. This situation can be frustrating for teachers when they become oblivious to the teacher's instructions, which might lead to the necessity of repeating task instructions, which adds to their workload (Thomas et al., 2013).

## *4.3 Teachers' primary challenges in embracing smartphones as educational tools.*

The primary challenges encountered by educators in integrating smartphones into the classroom revolve around the disruptive impact that impedes teaching and diminishes teachers' autonomy in making teaching-related decisions. Previous research has emphasized that teachers struggle to maintain their autonomy when they need to strike a delicate balance between allowing appropriate usage and preventing misuse of smartphones (Dinsmore, 2019; Vandoninck et al., 2018; Vincent & Haddon, 2017). Finnish teachers, in particular, face challenges related to their autonomy, with smartphones diverting valuable teaching time, potentially disturbing classmates through content sharing, and causing students to lose focus on the learning process. As a result, teachers find themselves constrained, with limited time to enhance students' learning due to the need to monitor and manage smartphone usage.

An additional argument against accepting smartphones as learning tools was that they can disrupt teachers' concentration and interrupt their thoughts. While delivering a lecture, teachers may experience divided attention as they

strive to manage and minimize student cell phone usage while simultaneously monitoring the class's understanding of the material (Craik et al., 1996). Teachers often find themselves frustrated when students use smartphones during lessons, recognizing the double impact it has on both the teacher’s attention and the flow of the teaching process. This situation often forces teachers to momentarily interrupt their thoughts, issue verbal warnings to the students, and then resume their teaching. During the act of conveying information to students, teachers' mental effort is likely at its peak, and the presence of smartphones as a potential distraction can be associated with a perceived decrease in the overall quality of the lesson (Flanigan & Babchuk, 2022). At times, teachers may have to consciously overlook this behavior, as their main responsibility is centered on delivering the lesson, even though it poses a challenge to maintain a conducive learning environment.

The inappropriate use of smartphones in the classroom extends beyond being a source of frustration for teachers. Certain teachers have articulated a sense of reduced commitment to their profession, underscoring the significance of this issue. Such sentiments could have far-reaching effects, including a potential decline in the quality of teaching and the possibility of teachers contemplating career changes. A participant mentioned that new teachers who are dedicated to their profession have voiced their reluctance to continue in this role because of the additional burden of monitoring and addressing students' attitudes toward education. This example demonstrates that smartphone misuse not only has emotional consequences for teachers but can also lead to a reevaluation of their career choices. According to the National Education Association survey, recent statistics indicate a concerning trend of teacher burnout, particularly in high schools. K-12 teachers have been quitting their jobs, citing various reasons for changing their field. One notable reason is the increase in classroom disruptions caused by student misconduct and a rise in disrespectful behavior towards teachers in the United States (Jotkoff, 2022). There is a notable gap in the existing literature concerning the impact of smartphone use on teachers' career reevaluation. Future research should aim to bridge this gap by delving into the influence of smartphone usage in the classroom on teachers' job satisfaction, well-being, and overall career trajectory.

A distinct viewpoint was shared by a teacher, highlighting that although

dealing with smartphone challenges can indeed be frustrating for educators, it can also present an opportunity for self-reflection (Pedrosa-de-Jesus et al., 2017) and enhancement of teaching methods. However, despite teachers' diligent efforts to cultivate an engaging classroom atmosphere, smartphones possess a strong allure that captivates students' attention. Consequently, teachers often find themselves grappling with what seems like an uphill battle (Dinsmore, 2019).

Cyberbullying has emerged as a significant concern impacting the well-being of teachers, evoking worry about the potential of becoming targets themselves. A teacher made a profound observation, noting, "They might be sort of filming you and put you into the internet forever. That, of course, kind of limits the autonomy of how we present ourselves online," illustrating how cyberbullying acts could potentially restrict teachers' online autonomy (Kyriacou & Zuin, 2016; Kopecký & Szotkowski, 2017). The fact that teachers are not allowed to confiscate students' smartphones to verify their actions adds to the complexity of the situation. They occasionally have a sense that students may be taking their pictures and potentially using them to create memes or engage in other forms of cyberbullying. This uncertainty raises significant concerns for teachers about the potential ways in which they could be targeted for bullying (Singh et al., 2023).

Teachers have expressed a sense of powerlessness when it comes to enforcing smartphone policies, as they are not allowed to confiscate smartphones against students' will. Their only option is to ask students to leave the classroom if they refuse to comply with the policy, as outlined by Opetushallitus (2022). Teachers have recognized the challenge of establishing a universal rule for smartphone use (Korpershoek et al., 2016), given the diverse ways in which students utilize these devices. They believe that determining an effective policy should involve collaborative discussions among teachers and school principals (Morris & Sarapin, 2020). The solution does not lie in confiscating students' phones but rather in encouraging students to make their own choices to limit or put away their phones voluntarily.

Fostering strong connections between teachers and students is a top priority for educators, as studies have shown that students who enjoy positive relationships with their teachers tend to experience a heightened sense of inclusion and display increased enthusiasm for their academic pursuits (Rey et al., 2007). However, teachers find themselves in a challenging position when they

attempt to restrict smartphone usage, as students may respond confrontationally or resist these restrictions. This tension can have a detrimental effect on the teacher-student relationship and impede the teacher's capability to inspire and actively involve students in the learning process. A teacher raised apprehensions regarding the possibility of students displaying aggressive behavior when the teacher discouraged smartphone usage. In this teacher's experience, even typically well-behaved students became aggressive and used profanity towards the teacher when their smartphone use was challenged. This incident served as a clear illustration of how smartphones can wield significant influence over students and how their usage can potentially harm the teacher-student relationship. In existing literature, it was noted that students who experience weaker teacher-student relationships are more likely to exhibit increased smartphone addiction (Shi et al., 2022; Sun & Wu, 2016). Participants frequently face a dilemma in determining the appropriate timing and manner in which to enforce smartphone use policies, which raises questions about whether enforcing these policies falls within their job responsibilities (Sun & Wu, 2016).

## *4.4 Implications and Recommendations*

The findings of this study carry several implications and suggestions for future research. To begin with, the study has already highlighted teachers' willingness to incorporate music into classrooms utilizing smartphones while preserving a positive learning atmosphere. Future research could delve deeper into this aspect, examining how background music, facilitated through smartphones, influences students' learning effectiveness, and teachers’ willingness to allow students listen to music while completing the assignments.

The study's findings have brought attention to the emotional responses from teachers triggered by students' smartphone use, which can significantly impact their overall well-being. The existing research in this domain indicates an emerging direction for additional investigation, emphasizing the importance of researching the correlation between teacher well-being and smartphone usage. Further research could offer valuable insights to teachers grappling with smartphone use policies and experiencing burnout that may significantly impact their decisions regarding the integration of these devices into their teaching

practices.

Additionally, the study revealed a divergence in perspectives among teachers regarding their commitment to the profession in the context of smartphone use. While some teachers expressed feeling equally committed, others had contrasting views. Future research could delve deeper into these two perspectives to gain a more comprehensive understanding of how smartphone use influences teachers' commitment to their profession and their overall job satisfaction.

The study's findings enlighten a concerning aspect - students displaying aggressive behavior towards teachers during the enforcement of smartphone use policies, ultimately impacting the student-teacher relationship. The current body of literature has predominantly focused on students' viewpoints and how the teacher-student relationship affects smartphone addiction. However, there is a clear necessity for forthcoming research to shift its focus towards understanding teachers' experiences and endeavors in implementing these policies, and how it might potentially influence the overall teacher-student relationship.

Moreover, the study revealed a shift in responsibility regarding smartphone use policies, suggesting that students are considered accountable for their usage since they are old enough to make informed decisions and choose to participate in their education. Further research could explore this dynamic in detail, investigating how both students and teachers perceive and evaluate the responsibilities associated with smartphone use in the educational context. Understanding their perspectives can inform policy development and help in creating a more harmonious and productive learning environment.

The study has brought to the forefront a critical aspect concerning new teachers reevaluating their careers due to the prevalent smartphone use among students and the shift in teachers' roles toward enforcement of policies resembling that of “police” rather than an educator. Future research could investigate how students' smartphone use behaviors correlate with teachers' job satisfaction and, consequently, their long-term career paths. Understanding this link is essential to shape effective strategies for supporting teachers and retaining them in the education profession.

Moreover, based on the study's findings, there's a clear indication of the need to develop effective school-wide smartphone policies that align with

teachers' perspectives. Administrators can use these findings as a foundational framework to engage in meaningful discussions with teachers and collaboratively develop policies, considering the diversity of experiences and opinions among teachers. Recognizing the challenges of enforcing a universal policy for every school in Finland, tailoring policies at the group, department, or grade level could prove to be a more effective approach.

## *4.5 Limitations*

The study had several limitations. One significant limitation stems from the qualitative nature of the research, where the findings cannot be extended to the wider population because of the limited sample size (Morrow, 2005). The limited number of interviews conducted during the study impacted the breadth of perspectives captured. The study also faced challenges in attracting a larger number of participants, primarily due to a language barrier. The hesitancy of teachers to respond to questions in English limited the number of participants involved in this study. Another limitation was the online mode of conducting interviews for participants' convenience, leading to occasional interruptions and connectivity issues that disrupted the interview process. Moreover, ensuring a private space for interviews was a challenge, as some participants shared spaces at home or work, resulting in potential disturbances during the interviews. Furthermore, because the interviews were conducted in English, some native Finnish speakers encountered difficulties in articulating their answers. This necessitated the simplification of questions to facilitate their comprehension. For future research, a focus on conducting interviews in their native language could be beneficial in involving a more diverse pool of participants and mitigating language-related challenges. Lastly, it is important to note that some of the teachers' responses contained grammar mistakes, which required modification to ensure clarity for the reader without altering the main idea. In the process of revising certain teacher responses, I ensured that my edits accurately conveyed the intended message while preserving the core essence of the participants' input.

# 5 CONCLUSION

This qualitative research investigated how Finnish upper secondary school teachers perceive the benefits and obstacles of permitting students to use smartphones in the classroom. Utilizing thematic analysis, three prominent themes emerged from the gathered data, addressing the research problem. Educators acknowledge the educational potential of smartphones to improve the learning experience. Nevertheless, they express concerns regarding students' reduced learning efficacy resulting from the non-educational smartphone use. The study highlights a change in instructors' roles, from primarily being educators to taking on a policing role where they constantly remind students about responsible smartphone usage. Moreover, the study uncovered significant challenges of teachers regarding accepting smartphones as effective tools, impacting them both physically and psychologically. Teachers expressed a sense of insecurity in dealing with the overwhelming influence smartphones have on students' lives, perceiving it as a challenging battle they may never fully overcome. The results of this study align with prior research, emphasizing the potential of smartphones to positively impact learning (Ahmad & Omaid, 2020; Barchilon Ben-Av & Ben-Av, 2016; León Soriano et al., 2016), students' non-academic smartphone use hindering their learning objectives and overall well-being (Aaron & Lipton, 2018; Al-Furaih & Al-Awidi, 2021; Aljomaa et al., 2016), and primary objections of teachers (Vandoninck et al., 2018; Dinsmore, 2019; Kyriacou & Zuin, 2016) in embracing these devices in the classroom. Teachers aimed to promote student responsibility for their own learning, prioritizing the prevention of misuse rather than resorting to confiscation. Lastly, disruptive smartphone use, its impact on the teacher-student relationship, and the existing policies effect teachers’ commitment to their profession have prompted new teachers to reconsider their career choices. This highlights the pressing need for policy administrators to proactively address this issue before it leads to inevitable consequences.

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# APPENDICES

## *Appendix 1: Consent Form*

**CONSENT FORM**

**Opportunities and challenges of allowing smartphones in the classroom: A qualitative study on teachers' perspective.**

Tampere University.

You are invited to be in a research study of opportunities and challenges of allowing smartphones in the classroom. You were selected as a potential participant because you are currently a high school teacher working with students aged 16-19, and you either have experience incorporating smartphones into your teaching or have previous knowledge in this area. Please read this form and ask any questions you may have before agreeing to be in the study.

Yassi Ganjayeva, a master's degree student at Tampere University is conducting this study. **Background Information:** The purpose of this study is to determine high school teachers' perceptions of students' smartphone use in the classroom. **Procedures:** If you agree to be in this study, I will ask you to do the following thins:

1. Participate in an audio-recorded interview either via Zoom/Teams or by person. This should take approximately 30–45 minutes to complete.

**Risks:** The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

**Benefits:** Participants should not expect to receive a direct benefit from taking part in this study.

**Compensation:** Participants will not be compensated for participating in this study.

**Confidentiality:** The data collected in this study will be maintained with strict confidentiality. In any report that is published, no details will be included that could potentially identify any of the participants. Research records will be securely stored, and only the researcher will have access to these records. Participants will be given pseudonyms to further protect their identities.

Interviews will be conducted in a private location to ensure that others cannot easily overhear the conversations.

- Data will be stored on a password locked computer and all records will be deleted after finishing the research.
- Interviews will be recorded and transcribed. Recordings will be stored on a password locked computer after completing the research it will be erased. Only I will have access to these recordings.

**Voluntary Nature of the Study:** Participation in this study is voluntary. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

**How to Withdraw from the Study:** If you choose to withdraw from the study, please contact the researcher at the email address included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

**Contacts and Questions:** The researcher conducting this study is Yassi Ganjayeva. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at yassi.ganjayeva@tuni.fi ***Please notify the researcher if you would like a copy of this information for your records.*** **Statement of Consent:** I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

The researcher has my permission to audio record me as part of my participation in this study.

☐ The researcher has my permission to audio record me as part of my participation in this study.

_____
_____ Signature of Participant Date

_____
_____ Signature of Investigator Date

*Appendix 2: Interview questions*

1) What subject area do you teach?
2) How many years have you been teaching?

**Smartphone use into teaching/learning.**

3) Do you ask your students to use their smartphones for lesson activities in your teaching?
   - If yes, which kind of activities? Could you please elaborate?
   - How do you incorporate smartphones into your lessons? (Apps, websites, QR codes, etc.)
4) If no, are there specific reasons why you don't use smartphones for teaching? (Why not)
5) What are your students' thoughts and feelings about using smartphones for learning in the classroom?
6) Have you faced any challenges in students' use of smartphones for lesson activities in the classroom?
7) Are there some learning benefits for students to use smartphones in the classroom? Why/why not?
   - Do you think that smartphones can increase/decrease student's engagement with the lesson?
8) How often do you observe your students using their smartphones for non-educational purposes while you teach in the classroom?
9) Have you had any challenges or problems with students in your class due to their smartphone usage in the classroom?
10) How important do you think it is for students to have their mobile device during the class?

**Challenges of smartphone use**

1) Do you have any concerns regarding students' smart phones usage in the classroom?
2) Do you think there are negative effect(s) (disadvantages) in allowing students to use smartphones in the classroom?

   - Do you believe that allowing students to use smartphones in class carries a significant risk of teacher cyberbullying?

3) Do you consider smartphones as a threat during the class? Do you think that students' smartphone usage in the classroom affects teacher's autonomy (control over the class) during the lesson?
4) Does students' smartphones usage have any effect on classroom management? What are your and your colleagues' experiences on this?
5) What are your thoughts on maintaining a balance between letting students take advantage of smartphone opportunities while staying in control of the classroom?

Prompt: Teacher's autonomy

6) How does students' smartphone usage for non-educational activities impact your attention and focus during your teaching?
7) Have you ever witnessed students recording you without your permission during your lecture? Have any of your colleagues experienced this?
8) How do you feel as a teacher when you realize that your students are using their smartphones rather than following the lesson?
9) (How) do you (re)act when you realize that your students are using their smartphones rather than following the lesson?
10) Does students' smartphone use in the classroom affect your well-being and commitment to your profession?
11) What would be your suggestions about students' smartphones use in the classroom? Do you have any suggestions about the current policies on the issue?
12) Have you ever discussed with colleagues about how to organize the way students use their smartphones in the classroom? E.g., share ideas or feedback?