Inland Norway University

Faculty of Education and Natural Sciences

Tore Westre

Master's thesis

The modern classroom – how teachers use digital tools to promote reading and digital literacy in upper secondary school

Det moderne klasserom – hvordan lærere benytter digitale hjelpemidler til å utvikle lese og digitale ferdigheter i videregående skole

Lektorutdanning i engelsk

2021

Samtykker til tilgjengeliggjøring i digitalt arkiv Brage JA ☒ NEI ☐

Acknowledgements

Ernest Hemingway once wrote, there is nothing to writing, all you do is sit down at a typewriter and bleed. However, writing this master's was not that bad. And to thank for that, are a great deal of people:

I want to thank my co-students for five great years, full of engaging conversation and laughter.

I want to thank my supervisor, Rebecca Sioned Davies for invaluable comments, suggestions for literature, and reassuring e-mails. This thesis would not have been the same without you.

I want to thank my friends, especially, Magnus, Ole, Henrik & Jørgen. These five years, with its trips abroad, late nights, and drinks too many, will never be forgotten.

Finally, I want to thank my dog, Eskil, who after fifteen years of friendship, has passed away. He was a great source of comfort in my last months of writing.

Hamar, May 2021

Tore Westre

Table of contents

Table of figures

List of tables

List of abbreviations

L1: First language

L2: Second language

GDPR: General Data Protection Regulation

EDB: Elektronisk databehandling (Automatic processing)

ICT: Information– and communication-based teaching

TEL: Technology Enhanced Learning

TAM: Technology Acceptance Model

TRA: Theory of Reasoned Action

GBL: Game-based learning

VDT: Video Display Terminals

OECD: Organisation for Economic Co-Cooperation and Development

UNESCO: United Nations Educational, Scientific, and Cultural Organisation

PISA: Programme for International Student Assessment

VET: Vocational education and training

GS: General studies

FYR: Fellesfag (common core subjects), Yrkesretting (vocational orientation), og Relevans (relevance)

UDIR: Norwegian Directorate for Education and Training

Norsk sammendrag

Fremkomsten av digitale ressurser og den økende samlingen av digitale dokumenter i skolen, tyder på at det er nødvendig med forskning på hvordan lærere i den norske skolen benytter seg av digitale ressurser. Denne studien utforsker dermed hvordan lærere benytter seg av digitale hjelpemidler i engelskfaget, og hva de oppfatter som styrkene og svakhetene til disse hjelpemidlene for å bidra til lese– og digitale ferdigheter. Dette vil være et førende bidrag i forskning innenfor engelsk didaktikk.

For å innhente empirisk datamateriale har fire semi-strukturerte intervjuer – med lærere i videregående skole – blitt gjennomført. De empiriske funnene i oppgaven belyser at lærerne utrykker en positiv holdning til digitale hjelpemidler, men bruken av dem i undervisningssammenheng er varierende. Funnene indikerer at det ikke finnes en forent enighet i hva som utgjør et digitalt hjelpemiddel, og dette er det flere årsaker til. For det første, definerer ikke lærerplanen eksplisitt hva den mener med et «digitalt hjelpemiddel». For det andre, ifølge de empiriske funnene, befinner det seg en varierende grad av kunnskap om digitale hjelpemidler hos lærere. I tillegg, utrykte lærerne i studiet manglende veiledning i bruken av digitale hjelpemidler, til tross for at forskning belyser en sammenheng mellom kunnskap om et hjelpemiddel og effektiv bruk.

Lærerne utrykte, imidlertid, at digitale hjelpemidler ble brukt for å orientere undervisningen i yrkesfag til elevenes valgte yrke eller erfaring. Her eksemplifiserte lærerne bruken av spill, interaktive nettsider, og hyperlenket tekst som fungerte godt som alternativer til tradisjonell, papirbasert lesing. Lærerne påpekte at noen av de digitale ressursene var begrenset av eksterne restriksjoner, som GDPR.

Disse perspektivene – mangel på digitale retningslinjer, manglende eksplisitt veiledning i digitale hjelpemidler, spill i undervisning, og det kompliserte forholdet mellom digitalt hjelpemiddel og lærer – har bidratt til en større diskusjon, hvor tidligere forskning og studier settes opp mot de empiriske funnene.

Engelsk sammendrag (abstract)

With the arrival of digital media and the increasing collection of digital documents with ready availability in schools, there is a need to research how teachers in Norwegian schools utilize digital tools. This thesis investigates teachers' use of digital tools in the subject of English, and what they perceive as the strengths and weaknesses in these resources to promote reading– and digital literacy. To this end, the thesis aims to be a contribution to research in the field of English didactics.

Empirical data has been gathered through four semi-structured interviews with upper secondary school teachers. The empirical findings indicate that teachers have positive attitudes towards digital tools; however, the teachers utilize them to a varying degree. The findings indicate that there is no unified agreement on what constitutes a digital tool nor when to use it, and there are several reasons for this. First, the curriculum does not explicitly define "digital tools". Second, according to the empirical findings, the teachers reported varying levels of knowledge of the digital tools available. In addition, they reported a lack of explicit instruction in how to use digital tools in the classroom, which is problematic, as research reports a direct correlation between experience on how to use a tool or resource and the effective use of it.

The teachers in this study reported that they used digital tools to vocationally orient their lessons. They exemplified using games, interactive websites, hypertext, which worked well as a substitute for more traditional, printed reading. However, use of some of the digital resources was restricted by external restrictions, such as GDPR.

These perspectives – the lack of digital guidelines, the lack of explicit instruction from either state level or school, the nature of games in educational practice, and the complex relationship between digital tool and teacher – have contributed to the wider discussion, where previous research and studies are discussed in relation with the empirical findings.

1. Introduction

In the 21st century, the English classroom is still considered to be multimodal. Multimodality combines several modes of representation, such as, writing, image, speech, and gestures (Jewitt, 2011, p. 185). What is different in today' classroom, compared to a decade ago, "is that digital technology has made a whole range of analogue media superfluous", as written text used for teaching and learning purposes now appear together on digital platforms (Fenner & Skulstad, 2020, pp. 165-166). Furthermore, digital technology has "opened doors to innumerable categories of information, art, entertainment, and simultaneously, set up a variety of platforms for computer-mediated communication" (Fenner & Skulstad, 2020, p. 166). Through the internet, students have access to large quantities of materials that can shed light on a particular topic, which they can further discuss on forums, as well as collaborate on a text or project (Fenner & Skulstad, 2020, p. 166). In the context of this thesis, I analyse how teachers implement digital tools to promote reading and digital literacy in the subject of English in the vocational classroom. Furthermore, I explore how the teachers' digital skills translate into educational practices.

The findings in this project are derived from semi-structured interviews with teachers in Norwegian upper-secondary that teaches English. Central to the thesis is the concept of reading and digital tools. Reading is often something one takes for granted. Adults fluent in a language often read with what appears to be little effort or planning. It is, without a doubt, one of the major skills necessary for success in modern society. Currently, according to UNESCO statistics, the global adult literacy is 86% (UNESCO, 2017, p. 1). Reading is an essential component of academic learning, as well as a foundation for becoming an informed member of the broader society (Koda, 2007, p. 2). Failure to achieve adequate reading proficiency may deny a student access to the essential tools needed for further academic learning (Koda, 2007, p. 30). In a Norwegian context, most students have to learn to read in their first language (L1), and the second (L2); which is often English. According to Koda, the first language is a potential facilitator in literacy development in a second language, although much remains to be explored about the specific way literacy in one language affects another (2007, pp. 25-26). In recent years, however, there has been an increase in the use of digital tools in educational purposes. These include, but are not limited to, digital books, audiobooks, smartboards, educational games, interactive websites, hypertext and virtual reality. As these tools are recent

inventions, it is necessary to examine their effect, both positive and negative. This topic will be further investigated in chapters two and five.

1.1 Thesis aim and research questions

In recent years, there has been an influx of new digital tools and resources available for teachers. However, few research projects focus on the benefits and drawbacks of digital tools in the vocational classroom in upper secondary. The few studies conducted on this matter are linked to the VOGUE project: Vocational and General Students' Use of English in and out of school (Brevik, 2020), which will be further elaborated on in section 2.4. There are a few other studies linked to the broader subject of digital resources in educational settings, for example: (Mangen, Walgermo & Brønnick, 2013; Sundqvist, 2015; Erstad, 2015; Naomi, 2017). These studies mostly observe how digital resources directly affect L2 language comprehension. The lack of resources and studies on the subject of teachers' use of digital tools in promoting reading and digital literacy in the vocational classroom, indicate the need for further research, as effective use of digital tools is paramount for increasing one of the students' core basic skills in the curriculum, namely, digital skills.

This thesis will explore the possible challenges when employing digital tools in teaching, and how the teachers perceive the usefulness of the tools in terms of promoting reading and digital literacy. In order to define these challenges and perceptions of digital tools, I conducted semi-structured interviews with English teachers in upper-secondary. The points of departure for my investigation are three research questions: (1) what are the teachers' attitudes towards digital tools? (2) what sort of digital tools do they employ in their teaching and why? (3) how can digital tools help to promote reading and digital literacy?

1.2 Thesis structure

This thesis is divided into five chapters. First chapter encompasses an introduction to the thesis' research aims and questions, providing background and educational context for the study. In the second chapter, the theoretical framework will be outlined. The third chapter summarises methods used in this thesis, including discussions of reliability, strengths, limitations, and methodological phases. The findings of the study will be presented in chapter

four and developed in chapter five, drawing on the theories outlined in chapter two. The concluding remarks will be presented in chapter six, as well as limitations and future research.

1.3 English subject curriculum

The English subject curriculum is the document which all teaching practice in Norway is based on. As of 2021, the new curriculum ENG-04 for English has been implemented (Utdanningsdirektoratet, 2020). The curriculum emphasizes the importance of an exploratory way of learning about language, communication, ways of living, ways of thinking and social conditions (Utdanningsdirektoratet, 2020). Furthermore, the curriculum defines four basic skills: oral, writing, reading and digital skills. I will further elaborate on the basic skill of reading in section 1.4, and digital skills in 1.5.

Both general studies (GS) and vocational studies (VET) in first year of upper secondary (VG1) have a total of 140 hours in the subject of English (Utdanningsdirektoratet, 2020). GS and VET's curriculums are mostly the same, although VET's curriculum emphasizes the importance of learning English in accordance with their chosen profession. E.g., "create texts that are related to your profession with structure and context that describe, and document own work adjusted to purpose, recipient and situation" (Utdanningsdirektoratet, 2020).

1.3.1 Core curriculum reform in 2020

In order to discuss the subject of reading in the vocational classroom, it is necessary to present the newly implemented curriculum, as it forms the standards by which the teachers follow and assess by. In the latter part of 2020, the knowledge-promotion reform changed many of the core curricula, as it signalled a shift from learning topics at a surface level, towards an in-depth understanding complemented by digital tools (Utdanningsdirektoratet, 2020). By shifting the focus from learning several topics at a surface level to in-depth learning, it allows a greater degree of autonomy for the teachers, as they can determine which content to focus on to a greater extent, due to the shift in focus. The reformed curriculum has fewer competence aims, with the intention to facilitate possibilities to learn at a deeper level, as well as including an aim closely connected to digital skills and tools: "use suitable digital resources

and other tools in the learning of language, creation of texts and communication (Utdanningsdirektoratet, 2020).

1.3.2 English as a subject in the vocational classroom

"In a globalised world with increasing focus on international trade and cultural exchange, trades and profession depend more and more on staff who can communicate in English" (Fenner & Skulstad, 2020, p. 311). In Norway, the school system is divided into the years 1-13. Elementary– and middle school are mandatory by law (Opplæringsloven, n.d. §2-1). However, the choice of attending upper-secondary is voluntary. In upper-secondary, the student may choose between the General Studies program or the Vocational Education program. See figure 1.

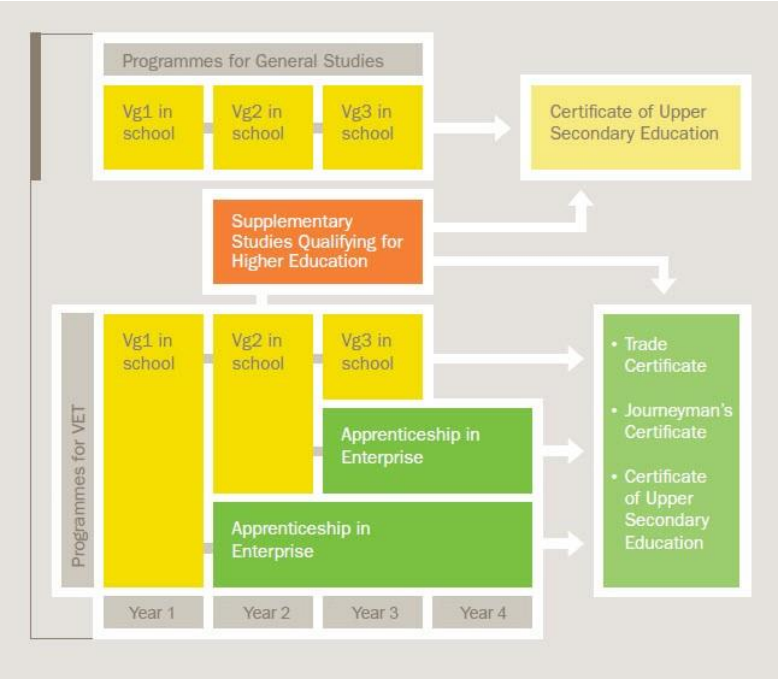

Figure 1: Illustration of the Vocational education and training (VET) structure (UDIR, 2016a)

English is taught in year 1 in the vocational education and training (VET) programme. In the English curriculum for the VET programme, it emphasises the importance of four basic skills: oral, written, reading, and digital skills (Utdanningsdirektoratet, 2020). Furthermore, the curriculum's core elements are communication, language learning and encountering English texts. Although both the general studies and VET's curriculum are mostly the same, the slight difference regards relevance, as the subject of English in the VET programme caters more to the relevance of their apprenticeship as seen in figure 1. This focus to promote vocational

relevance, resulted in a national project called FYR, which is an abbreviation for *Fellesfag* (common core subjects), *Yrkesretting* (vocational orientation), and *Relevans* (relevance) (Udir, 2016b, p. 5). The main goal of FYR was to strengthen the VET programme and reduce the overall drop-out rate (UDIR, 2016b, p. 3). To do this, they further tried to link the common core subjects to the vocational orientation the students had chosen.

With an emphasis on strengthening the VET programme, and reducing the drop-out rate, it is important to examine the relevance of digital tools in educational practices. While FYR primarily focuses on linking vocational orientation to the core subjects, it also nurtures the use of digital tools in vocational practices and core subjects. These tools range from interactive websites, vocationally oriented games, hyperlinked text, digital textbooks, etc. The question that arises is whether digital tools can be used as a tool to promote reading and digital literacy in vocational students, as well as catering to their vocational orientation. These questions will be further examined in the discussion chapter.

1.4 Reading as a basic skill

In the core curriculum there are four basic skills that are considered to be important for school, work and social life. These are oral skills, reading, writing, and digital skills, which create the base for learning in all subjects. This thesis is primarily focused on the skills of reading (section 1.4) and digital skills (section 1.5). Reading is an imperative part of the English subject. The student has to reflect and decode texts, and with teacher instruction, be involved in both intensive and extensive reading (Harmer, 2015, p. 314). Intensive reading is often, but not exclusively, teacher-chosen and directed. It is designed to enable students to develop their ability to read for a number of different purposes, such as comprehending the general meaning of a text, or finding specific details between the lines (Harmer, 2015, p. 314). Extensive reading, on the other hand, has a different purpose, since the intention is to get the students to read as much as possible, usually outside the classroom, and with enjoyment (Harmer, 2015, p. 314).

Reading material in many textbooks are often accompanied by exercises such as: true/false, multiple choice, or what, how, how often, when etc. questions. Faced with said questions, Harmer argues “that students may well feel as if the object of the exercise is to test their ability to read, rather than helping them to understand better” (2015, p. 314). Comprehension

questions also contradict the curriculum's aim of students being able to reflect and discuss texts (Utdanningsdirektoratet, 2020).

The Norwegian Directorate for Education and Training describes reading as the following:

> To read in English is to understand and reflect over content in different types of texts on paper and digital, and to contribute to enjoyment of reading and acquisition of language. It involves reading and finding information in texts and use reading strategies to understand explicit and implicit information. The development of reading skills in English goes from experimenting with sound, spelling patterns and syllables to read varied and complex texts with flow and understand, and to a higher degree to be able to reflect and evaluate texts critically (Utdanningsdirektoratet, 2020).

In other words, reading is a way for students to encounter the English language and become familiar with its many aspects and nuances. Students read to gain knowledge, and textbooks often provide a combination of factual texts and literary texts to achieve this. Reading, however, is not only an instrument for language learning, but closely connected to the term bildung[1], evident in the core curriculum (Fenner & Skulstad, 2020, p. 142). Through reading texts, students have the opportunity to identify with people leading completely different lives (Fenner & Skulstad, 2020, p. 142).

1.5 Digital technology in the English classroom

"As far back as the 1980s, Norwegian school authorities turned their attention to the role of digital technology in education, although at that time the use of EDB[2] in schools was very limited and specialized" (Fenner & Skulstad, 2020, p. 167). In the 1990s, however, digital resources gained momentum and was implemented in Norwegian schools in three main phases (Fenner & Skulstad, 2020, p. 167). The first phase started in 1990, where the focus was to get the technological infrastructure in place. During the second phase, starting around the year 2000, teachers were offered in-service training in pedagogical use of computers, and learning environments were reorganized to accommodate for the use of digital technology (Fenner & Skulstad, 2020, p. 167). The third phase started in the year 2004, when the national Programme for Digital Competence was launched (Fenner & Skulstad, 2020, p. 167). This

[1] Bildung is a dynamic concept: a socialization process which leads to an understanding and a mastery of the common, valued cultural forms, as well as the ability to participate in these. This includes ways of thinking, the potential to act and knowledge within a varied field (Fenner & Skulstad, 2020, p. 18).
[2] EDB is a term used in the 1980's. It is an abbreviation for *Elektronisk databehandling*, translated to "electronic data processing".

phase emphasized an increased focus on digital literacy, and ways in "which digital technology could be harnessed in students' processes of learning and knowledge" development (Fenner & Skulstad, 2020, p. 167).

The history of information– and communication-based teaching (ICT) is reflected in the subject curriculum reforms (Fenner & Skulstad, 2020, p. 168). In the reform of 94, the use of digital media was not incorporated into the learning targets (Fenner & Skulstad, 2020, p. 168). In the 2006 reform, introduced as the *Knowledge Promotion* curriculum, "Norwegian education authorities responded to the rapid and pervasive digitisation of society by formalising digital competence across individual subjects" (Fenner & Skulstad, 2020, p. 168). In light of this, it is important to examine the fundamental differences between text on video display terminals (VDT) and traditional textbook material. This mainly concerns the difference in form and communication of the texts. Research from Ørevik reveal that texts connected by hyperlinks to web resources differ considerably from texts associated with traditional textbooks (2015, p. 108). For instance, internet texts with a hyperlinked structure contain a "strong element of interactivity, where the reader chooses which links to follow and decides which reading path to take" (Fenner & Skulstad, 2020, p. 170). The differences between printed and digital text is further presented in section 2.2.3.

Digitisation has contributed to changing the implicit roles of participants in texts used for educational practices (Fenner & Skulstad, 2020, p. 172). While a traditional factual text, for example in a textbook, is written by an author/authority expert in the topic transmitting information to a learner, digital media dissolves the polarisation between author and reader (Lankshear & Knobel, 2007, p. 14) In this way, the reader is no longer the passive recipient, but an individual in a mass collaboration of information (Lankshear & Knobel, 2007, p. 14). As such, the students are explorers, taking part in a larger collaboration and have to make active choices and draw on their experiences and interests in a more direct way compared to typical textbook material. This may be beneficial, as students are not, according to Davies & Brevik, "passive receivers of information, they actively engage with the activities, making personal connections between the tasks and other topics within and beyond the classroom while using digital tools in this engagement" (2016, p. 104).

2. Theoretical framework

In this chapter, I will present the literature review, where the theoretical framing will be explained and discussed, as well as empirical literature related to teachers' use of digital tools. The aim of this thesis is to answer how digital tools can be used to promote reading and digital literacy, as well as the relationship between digital tool and teacher. As the findings illustrate in chapter 3, successfully implementing digital tools in an educational setting has proven to be a challenge, as it requires digital skills from the teacher and student alike.

This chapter is divided into four parts. First, I present the role of reading in the subject of English, by drawing upon a heuristic thinking model to understand the reader's comprehension and context (section 2.1). Second, I address the relationship between L1 and L2 reading, as well as the difference in printed and digital text, to further examine how teachers in upper secondary describe their reading comprehension strategies instruction (section 2.2). Third, I examine the modern classroom, exploring the position of interactive websites, games, and other digital tools in the classroom (section 2.3). Furthermore, I elaborate on teachers' information– and communication-based teaching (ICT) development and use of game-based learning (GBL). Lastly, I review previous research (section 2.5).

2.1 RAND Reading Study Group

To understand what constitutes a developed reader, one has to look at several components. The Norwegian Directorate for Education and Training's (Utdanningsdirektoratet) definition of reading is:

> students can understand and reflect over content in different types of text on paper and digitally and contribute to the joy of reading and acquisition of language. It involves reading and finding information in texts and using reading strategies to understand explicit and implicit information. (Utdanningsdirektoratet, 2020)

This is a functional definition and is mainly about what we can *do* when we read (Munden & Sandhaug, 2017, p. 287). However, "in an educational context, it is becoming more common to view reading and writing as two sides of the same coin, applying the term literacy to cover both" (Munden & Sandhaug, 2017, p. 287). Moreover, the curriculum may imply that paper

and digital reading having similar boundaries, as it does not explicitly acknowledge the differences in skills and approaches required to read digital text. This will be further discussed in section 5.3.

Literacy is closely connected to reading comprehension. RAND outlines three elements of reading comprehension:

- The *reader* who is doing the comprehending
- The *text* which is to be comprehended
- The *activity* in which comprehension is a part
  (RAND, 2002, p. 11).

The reader includes all the capacities, abilities, knowledge, and experiences that a person brings to the act of reading (RAND, 2002, p. 11). The text, in this sense, is constructed to include printed text or electronic text. The activity is "the purposes, processes, and the consequences associated with the act of reading" (RAND, 2002, p. 11). Thus, reading comprehension does not only consist of the text to be read, or the reader, but a combination of text, reader, activity, and the sociocultural context. This is illustrated in figure 2.

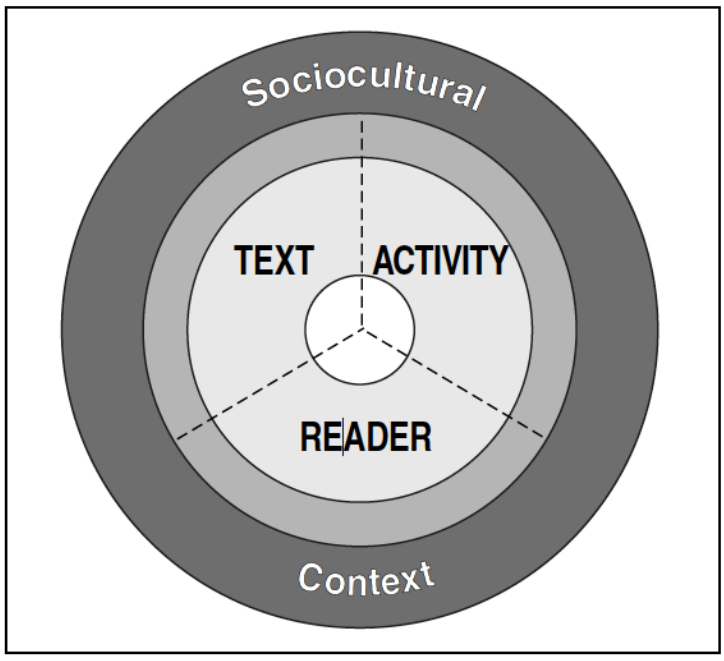

Figure 2: RAND Reading Study Group (2002, p.12). Model of reading comprehension

Reading comprehension is not a static skill, and has a macro development aspect (RAND, 2002, p. 13). Thus, the reader changes over time – as they mature and develop, and gain

experience with more challenging texts – and benefits from instructions, particularly classroom instruction (RAND, 2002, p. 13). Drawing on this model of comprehension, I will demonstrate the ways in which vocational students and teachers approach the development of reading comprehension in the following sections.

2.1.1 The reader

To be able to comprehend a given text, the reader has to have a wide set of capacities and abilities. According to RAND, these abilities include: "cognitive capacities (e.g., attention, memory, critical analytic ability, inferencing, visualisation ability), motivation (a purpose for reading, an interest in the content being read, self-efficacy as a reader), and various types of knowledge (vocabulary, domain and topic knowledge, linguistic and discourse knowledge, knowledge of specific comprehension strategies)" (RAND, 2002, p. 13). These capacities are not static and can be improved upon with time and training.

By reading extensively, motivational factors, such as self-conception or interest in the topic, can change in either a positive or negative direction during a successful or an unsuccessful reading experience (RAND, 2002, p. 13). Moreover, through a reading process, the reader can increase their knowledge of a certain subject, while similarly increase vocabulary. In spite of these internal developments, it is also important that the reader receive external instruction, as it can further foster reading comprehension (RAND, 2002, p. 13). In doing so, the teachers not only instruct students to help them understand the material but also help them become more self-regulated, active readers who have a variety of strategies to help them comprehend what they have read better (RAND, 2002, p. 14). The teacher becomes the facilitator, embedding reading strategies in their educational practices. A reading strategy is an intentional plan that readers use to help themselves make sense of their reading (Munden & Sandhaug, 2017, p. 290). Reading strategies will be further presented in section 2.2.2.

2.1.2 The text

The text is what the reader both extracts and constructs comprehension from (RAND, 2002, p. 14). According to RAND, the features of text have a large effect on comprehension (2002, p. 14). Furthermore, with the implementation of digital resources, one has to include electronic

text and multimedia documents in addition to conventional printed text. With that in mind, RAND explains that “electronic texts can present particular challenges for comprehension, such as dealing with the non-linear nature of hypertext”, and the lack of an authoritative single author, but on the other hand, electronic texts can offer support through hyperlinks to definitions or translations of difficult words or complex sentences (2002, p. 14). As meaning cannot exist solely in the text itself, the reader becomes the site where meaning is created (RAND, 2002, p. 14). The reader will have to monitor their comprehension whilst reading the text, with the following representations embedded: “the surface code (the exact wording of the text), the base text (idea units representing the meaning), and a representation of the mental models” (RAND, 2002, p. 14).

Texts vary in difficulty and are dependent on factors both inherent in the text itself, and the reader’s own knowledge and abilities (RAND, 2002, p. 14). In an example presented by RAND, they explain that when the content presented in the text has a critical relevance on reading comprehension, “the reader’s domain knowledge interacts with the content of the text” (2002, p. 14). “In addition to content, the vocabulary load of the text and its linguistic structure, discourse style and genre also interact with the reader’s knowledge” (RAND, 2002, p. 14). If there is a surplus of factors that are not correctly matched with the reader’s knowledge and experience, the text may prove to be too difficult for comprehension to occur (RAND, 2002, p. 14). Furthermore, which texts suit which activity is something that the instructor has to take into account. For example, electronic texts from internet searches usually need to be scanned for relevance and for reliability (RAND, 2002, p. 14). This is an issue, as it potentially problematises the level of knowledge and experience required for understanding digital text. This issue will be further elaborated on in 2.2.4.

2.1.3 The activity

Reading is often conducted for a purpose, to achieve some end, and RAND explains that *activity* refers to this dimension of reading (2002, p. 15). A reading activity often entail several different purposes. Thus, prior to reading, “a reader has to have a purpose, which either can be externally imposed (e.g., completing an assignment) or internally generated (wanting to program an application)” (RAND, 2002, p. 15). This purpose is often influenced by a myriad of motivational variables, including interest and prior knowledge (RAND, 2002, p. 15). The internal purpose can change as the reader progresses through the text. That is, a

reader may encounter new information that can raise new questions whilst reading, and further alter the original purpose either incomplete or irrelevant (RAND, 2002, p. 15).

If the purpose is externally imposed, as in an instruction, the reader may accept the purpose and then complete the activity, such as, read two pages and write a summary. However, if the reader does not accept the purpose, internally generated purposes may conflict with the external purposes (RAND, 2002, p. 15). In that case, it may lead to incomplete comprehension. For example, students that fail to see the relevance in an assignment, and will not read purposively, will compromise their comprehension of the text (RAND, 2002, p. 15). As a result, activities must make the purpose explicit and engage students in their own learning processes.

"Knowledge, application, and engagement can be viewed as direct consequences of the reading activity" (RAND, 2002, p. 16). RAND explains that these activities also have other, long term consequences (2002, p. 16). For example, during reading for enjoyment, one acquires both new knowledge and vocabulary that can be brought into the next reading activity, which can further increase comprehension (RAND, 2002, p. 16). This is relevant for this thesis, as students in the vocational program have stated that video games and other digital tools have helped them read and improve in English in their free time (Brevik & Garvoll, 2019, pp. 67-68).

2.1.4 The sociocultural context

The process of a reading activity occurs in a sociocultural environment (RAND, 2002, p. 16). When we think about the context of learning to read, we mostly think about classrooms (RAND, 2002, p. 16). The reader is influenced by both the culture surrounding them and the social interaction within the sociocultural environment (RAND, 2002, p. 16). Thus, learning and reading comprehension are closely connected to historical and cultural activities. In modern classrooms we find students that are vastly different in terms of capacities. These capacities are influenced by their homes, neighbourhoods, and economic disparities (RAND, 2002, p. 16). Consequently, teachers have to consider both the external factors of a student, as much as their internal ones, as it often can influence their motivation and behaviour towards learning (RAND, 2002, p. 16).

RAND explores the acquisition of knowledge and literacy through social interactions (2002, p. 16). Furthermore, "students' acquisition of knowledge and literacy is influenced by five characteristics of the sociocultural context; the identity of the participants, how the activity is defined or executed, the timing of the activity, where it occurs, and why they should participate in the activity, or the motivation for the activity" (RAND, 2002, p. 17).

With sociocultural contexts in mind, one must also examine how virtual cultural contexts are changing, and how students learn to read and write in both physical and virtual environments. According to a study by Brevik and Garvoll, a high percentage of students in upper secondary use most of their free time either on video games, surfing the web or social media (2019, p. 68). These platforms are often in English, and the students that frequently use them show a different language-profile compared to the other students. For instance, students that play games in their free time, showed a higher reading literacy in their L2 (English), compared to their L1 (Norwegian) (Brevik & Garvoll, 2019, p. 67). In addition, students are influenced by "the wider social and cultural expectations of political, religious, ethnic, economic and social institutions" that may have an effect on their language profile (Grabe, 2009, p. 152). This leads us to ask whether digital media that unconsciously foster students' L2 proficiency, may also be used to improve L1 proficiency.

2.2 L1 and L2 reading

Reading can be defined as: "the process of receiving and interpreting information encoded in language form via the medium of print" (Urquhart & Weir, 1998, p. 22). When teaching reading in an L2, teachers face two major challenges compared to in L1. Firstly, most students do not know as many words and ways of expressing ideas in their L2 as they do in their L1 (Munden & Sandhaug, 2017, p. 287). Secondly, students have less time each week to work with reading in their L2, whereas reading in their L1 is supposed to be taught in all subjects (Munden & Sandhaug, 2017, p. 287). Furthermore, Koda (2007, p. 19), argues that unlike in L1, L2 reading involves two languages, thus is cross-linguistic.

Cross-linguistic theory is further explained by Bernhardt (2011), who suggests, based on analysis and studies, that 20% of how we read in L1 (vocabulary, text structures, sentence structure) relates to how we read in L2 (2011, p. 35). Furthermore, 30% of L2 reading comprehension is explained by the reader's knowledge about grammar and vocabulary in L2

(Bernhardt, 2011, p. 35). The remaining 50% is considered to be "unexpected variances, such as the use of reading strategies, the reader's content knowledge, as well as interest in and motivation for reading" (Bernhardt, 2011, p. 35). In light of these findings, deficiencies in L2 reading comprehension can possibly be compensated with the use of the reader's skill in their L1. However, struggling readers in L1 may also struggle in L2 as they have no prior knowledge to draw upon. Understanding a text when reading in an L2 or foreign language naturally requires knowledge of grammatical functions and vocabulary occurring in the text (Fenner & Skulstad, 2020, p. 147). Even so, fluency in L2 reading is often impeded by the lack of sight vocabulary, i.e., words that the reader recognises immediately (Fenner & Skulstad, 2020, p. 147). L2 reading could also potentially be impeded by the lack of subject knowledge.

To further develop an understanding of L2 reading comprehension, it is important to review the national changes in the curriculum. "Going back in history, working with texts in foreign languages was primarily connected to students' *Bildung*, in the sense that it intended to develop discipline, critical thinking and logic" (Fenner & Skulstad, 2020, p. 143). In the 20th century, however, the spoken language had acquired a higher status compared to written (Fenner & Skulstad, 2020, p. 143). As a consequence of the change of status between spoken language and written, pragmatic teaching methodologies followed (Fenner & Skulstad, 2020, p. 143). The introduction of the L97 curriculum in the late 90's strengthened the aspect of literature and culture in the subject of English, which implied more frequent use of authentic texts (Fenner & Skulstad, 2020, p. 143). In many ways, the history of reading in school can be connected to the changes of the concept of literacy, as it originally was understood as the ability to decode and encode script, but later as a means to comprehension (Fenner & Skulstad, 2020, p. 143). Gradually, literacy came to be associated with further dimensions of agency, communication and learning, as evident in UNESCO's definition:

Literacy is the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, to develop their knowledge and potential and to participate fully in their community and wider society […] (UNESCO, n.d.).

"In our digitised society, the concept of literacy is often extended further to comprise multiple skills […]" (Maagerø & Tønnessen, 2006, cited in Fenner & Skulstad, 2020, p. 144). This

leads to the term multiliteracies, which in recent years, has been used in discussions concerning digital media and literacy (Fenner & Skulstad, 2020, p. 145). Multiliteracies as a term attempts to address the emerging change in "social and technological contexts of communication and learning" (Cope & Kalantzis, 2009, p. 164). With that in mind, it is important to assess whether there is a need to extend the concept of literacy to include forms of expression other than script-based texts. This will be further elaborated on in section 2.2.3.

2.2.1 Curricular issues

After an unsatisfactory PISA results in 2001, the Norwegian educational system attempted to find areas of potential improvement in general approaches to reading (Brevik, 2014, p. 1). Research indicates that schools and teachers placed insufficient emphasis on understanding their reading pedagogy, as well as insufficient effort from schools and teachers to develop students' competence in reading and literacy once students had acquired basic skills of reading (Rasmussen, 2003, p. 433). As the Norwegian Directorate for Education and Training were preparing the Knowledge Promotion curriculum in 2006, they "directed explicit attention to reading and its role in students' knowledge development" (Fenner & Skulstad, 2020, p. 149). By contrast, the preceding curriculum regarded reading as a receptive skill, while the reformed curriculum viewed reading and writing as interdependent. In order to understand state-led changes in the curriculum, it is important to review data gathered from, for example, the OECD.

Viewing reading and writing as interdependent aligns with newer perspectives on reading, for instance the most recent PISA definition of reading literacy. It states:

> PISA defines reading literacy as the ease and efficiency with which one can read and understand a piece of text. More specifically, it includes the ability to read words and text accurately and automatically, and then to parse, phrase and process them to comprehend the overall meaning of the text (OECD, 2018, p. 35).

While the 2009 PISA study was conducted on paper, the 2018 was conducted on a computer (OECD, 2018, p. 33). The OECD explain that this is a result of a rapid digitisation in which there has been an exponential growth in the quality of internet services over the past decade

(OECD, 2018, p. 32). It is, as well, attributed to the increase in students' digital use. See figure 3.

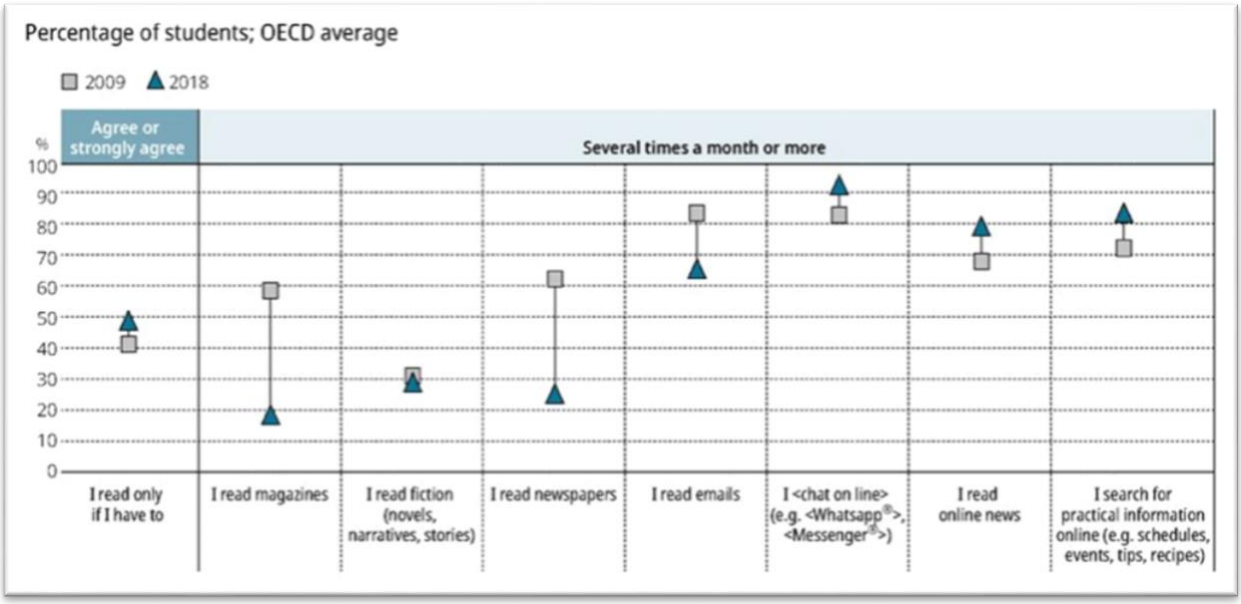

Figure 3: Change between 2008 and 2018 in what and why students read (OECD, 2018, p. 32)

2.2.2 Reading strategies

During the last 10 years, instruction in reading comprehension has been given significant attention from educators, researchers and policymakers, in an attempt to solidify how teachers are to use effective methods and materials (Afflerbach, Pearson & Paris, 2008, p. 364). In addition, schools are transitioning from print to screen, and the book is challenged by a wide range of digital devices (Mangen, Walgermo & Brønnick, 2013, p. 62). Consequently, there is a need to understand and outline the reading strategies present in digital media, as printed and digital text can be widely different in form and function. Munden and Sandhaug define a reading strategy as "a deliberate way of making sense of a text" (2017, p. 289). Reading involves the use of skills and strategies that can either be embedded in the reader or learned (OECD, 2010). Without the right tools, the reader – according to Tovani – will struggle to understand the text, as they would read without a purpose or thinking (2000, p. 15). However, using reading strategies is not a simple fix for those that struggle with reading comprehension (Tovani, 2000, p. 16). Reading strategies are rather a set of tools on *how* to read (Munden & Sandhaug, 2017, p. 290).

"Reading is not a single activity", Liu states, as it involves different purposes and different skillsets when approaching different texts (2005, p. 702). Students read texts that can require different reading strategies. A poem tends to require different strategies compared to an article online. Thus, differentiating what kind of strategy you use can be a key aspect towards comprehension. Furthermore, in the English curriculum, it is stated that the student "should be able to utilize suitable strategies in language learning, text creation and communication" (Utdanningsdirektoratet, 2020). The curriculum does not, however, give any guidelines to which reading strategies the students should be taught (Bråten & Anmarksrud, 2013, p. 45). Moreover, according to Tovani, few teachers feel they have the time nor the expertise to teach students *how* to read (2000, p. 13). Tovani further adds "as teachers in upper secondary school are most likely trained in their content area, they may feel uncomfortable stepping into the role of a reading specialist" (Tovani, 2000, p. 13). Furthermore, teachers often have such a full semester plan that, even if they knew how to teach reading, they would have a hard time finding room for it (Tovani, 2000, p. 13).

With less emphasis on teaching reading strategies, one would think students utilize them to a lesser extent. However, Brevik explains, and argues against, the common misconceptions that are found in vocational classes, one of them being that vocational students are weak readers compared to students in general studies (2016b, p. 85). This misconception is disproved through her classroom observation and interviews with students. Brevik found that vocational students had no problem reading all sorts of texts, and they said that they used reading strategies to understand the text they read, compared to general studies students who often said they did it because the teacher told them to (2016b, p. 85). This illustrates that both vocational and general students are capable of identifying and adapting the correct strategy for a text. Moreover, as many vocational students use visualization and graphical diagrams, it may signal that a digitally based reading approach would be beneficial for such students, as it nurtures illustrative and graphical strategies. This is further addressed in section 5.1.1.

To remedy challenges in instruction of reading, digital media has offered potential advantages that are not apparent in printed text. Liu argues that the digital environment has contributed to a transformative shift in reading and introduced powerful advantages that are traditionally absent in printed text (2005, p. 701). Advantages such as, "interactivity, non-linearity, immediacy of accessing information, and the convergence of text and images, audio and video" (Liu, 2005, p. 701). In that sense, students develop a separate screen-based reading

behaviour, which increasingly make use of a variety of strategies, such as “scanning, keyword spotting, one-time reading, non-linear reading”, but the reading is often more selective, resulting in less time on in-depth reading and thus, a possible decrease in sustained attention (Liu, 2005, p. 705). This is further addressed in section 4.3.

2.2.3 Printed and digital text

The arrival of digital media and the increasing collection of digital documents with ready availability, have had a profound impact on reading (Liu, 2005, p. 700). Digital literacy, Liu says, “could potentially enhance our ability to make information more suitable to a targeted recipient” (2005, p. 701), e.g., people with disabilities. Printed media and digital media display different advantages and limitations, and thus, the challenge becomes to determine the applicability of the media to the given context. Liu argues that digital media tend to be more useful for searching for information, while paper-based media are preferred for consumption of information (2005, p. 701). In a study conducted at the National University of Mexico, nearly 80% of the students preferred to read printed text in order to understand the text in clarity (Liu, 2005, p. 702). It should be stated that the study was conducted in 2003, and at the current digital time, screens had lower pixel density compared to today’s screens. More recent studies (Dyson & Haselgrove, 2000; Ackerman & Goldsmith, 2011; Baron, 2017) indicate that reading, digitally or printed, differ in purpose, in the sense that when reading digital text, study participants scored better when answering concrete questions, while study participants reading printed text, answered abstract questions better (Baron, 2017, p. 16).

To further elaborate on the issue of reading habits in digital text versus printed text, Baron reports, in her research study, that students were more likely to multitask when reading digitally compared to printed text (2017, p. 18). Furthermore, the same study reported that 92% of students said it was easiest to concentrate when reading print (Baron, 2017, p. 18). Ackerman & Goldsmith argue similarly, stating that there is still a strong preference to read print compared to digital (2011, p. 18). In a study by Noyes & Garland, they compared reading from video display terminals (VDT) and printed text, in which their findings suggest a difference in “cognitive processing associated with memory assimilation” (2003, p. 411). Their findings indicated a slightly higher reading speed in the group reading from VDT, while the paper group scored slightly better in comprehension questions (Noyes & Garland, 2003, p. 417). These findings were not significant enough to signal one media more suited than the

other (Noyes & Garland, 2003, pp. 417-418). Comparatively, in another study by Kerr & Symons, they examined whether students' "reading rate, comprehension, and recall are affected by computer presentation of text" (2006, p. 1). Their findings indicate that the students used more time to read texts but recalled more from a computer monitor than when reading from paper (Kerr & Symons, 2006, p. 1). However, when taking efficiency variables to account (time allocated), the benefits of computer screen disappeared (Kerr & Symons, 2006, p. 1). These findings indicate that there are subjective factors that affect reading comprehension when reading from paper and VDT, and that one medium is not significantly better than the other.

2.2.4 Motivation for reading

As this thesis explores teachers' use of digital tools for improving reading and digital literacy in vocational students, we have to examine the role of motivation, as it can be an aspect in understanding students' and teachers' motivation in the use of digital tools. Grabe explains motivation as "dealing with […] the choices individuals make about which activity to do or not to do, their degree of persistence at the chosen activities, and the amount of effort they put forth to do the activity (2009, p. 175). To further explore the concept of motivation, I will present the different theories of motivation by drawing upon Grabe (2009).

One of the first theories mentioned by Grabe (2009), is the achievement theory. "It is a long-standing theory that depicts motivation as the desire to display competence and demonstrate success" (Grabe, 2009, p. 177). Furthermore, it includes the internal conflict between a desire for successful outcomes and the avoidance of failure. On the other hand, attribution theory "characterizes motivation as cause-related, namely, that the amount of effort put into a task is directly influenced by their ability, effort, and luck" (Grabe, 2009, p. 177). The students that are highly influenced by attributional motivation may attribute their failure to low ability rather than low effort or high difficulty, and in consequence, lose motivation (Grave, 2009, p. 177). In relation to this belief, social-cognitive theory portrays motivation as a combination of cognitive abilities, environmental factors, and behaviours in a given situation (Grabe, 2009, p. 178). On the same note, teachers who display a desire for success and an avoidance of failure in their classroom teaching, may neglect the use of digital technology if they lack the amount of knowledge to use them successfully. This is further addressed in sections 2.3.3 and 2.3.4.

In addition to the major impact motivation has internally for the students, it is equally important to look at the external factors of motivation. According to an article by Skarpaas and Brevik, research indicate that students' engagement increases when the activities and themes exercised in the classroom can explicitly be connected to their vocational world (2018, p. 75). To do so, the lesson should have positive consequences for the student's current and future lifeworld. In other words, using classroom activities that has immediate topic and utility value, as well as catering to the student's individual and social relevance (Skarpaas & Brevik, 2018, p. 75).

2.3 The modern classroom

Teachers, as well as students, are embracing a shift in educational activities. Factual articles are a click away online, and can be shared instantly throughout the world, online videos can explain mathematical problems in detail, and complex literary terms. As a result, schools have to match the current digital climate if they do not want to be deemed irrelevant or out of touch for the students (Munden & Sandhaug, 2017, p. 307). The term "digital literacy" has, over the years, become more relevant for schools and students, as it is emphasised as a basic skill in the core curriculum (Utdanningsdirektoratet, 2020). However, even with the importance of digital literacy stated in the curriculum, Munden and Sandhaug argue that "there is insufficient research on exactly how young people acquire or fail to acquire digital literacy" (2017, p. 307). In the same sense, students are often generalized to be seen as digital superusers, although that often is not the case (Erstad, 2015, p. 85). Students engage in digital environments, and consequently, much of their free time is spent in digital medias. In the context of this thesis, it is important to examine if there is a correlation between students' digital engagement and school engagement.

2.3.1 Digitisation

Digital skills in the English curriculum focus on two main areas. First, it concerns using digital sources and channels of communication constructively in the learning of English, while the other area states the importance of critical awareness and reflection in the retrieval and use of digital text sources, as well as in digitally mediated communication and text creation (Utdanningsdirektoratet, 2020). In other words, digital technology has opened up

new ways of exploring aspects of the subject of English. With that in mind, it is important to examine whether both students and teachers need to develop multiliteracies.

Digital media represent the world, rather than reflecting it (Buckingham, 2007, p. 48). It offers a particular interpretation of reality, which may "inevitably embody implicit values and ideologies" (Buckingham, 2007, p. 48). Students that are informed users of digital media should be able to evaluate the material they encounter to assess the purpose, function and intention of the text by comparing it with other sources, and their own direct experiences (Fenner & Skulstad, 2020, pp. 173). Furthermore, when approaching digital text, teachers should "act as a mediator between the texts and students, discussing criteria by which they can evaluate it" (Fenner & Skulstad, 2020, pp. 173-174). Digital media, however, has brought distinct challenges in the classroom.

The use of digital technology in schools has opened up new spaces for learning but has as well brought new challenges. Students use laptops and tablets in class, frequently with internet access, which many teachers have voiced their frustration over (Fenner & Skulstad, 2020, p. 177). Video games, social media, and the internet are often found to divert the student's attention (Fenner & Skulstad, 2020, p. 177). In a 2013 study on digital media by Hatlevik, Egeberg, Guðmundsdóttir, Loftsgarden & Loi, 47,3% of year 2 GS students reported that they found computers and tablets as having a disturbing impact on their learning (2013, p. 79). However, eight out of ten of the same students reported that they found computers/tablets as a useful resource to learn subjects (Hatlevik et al., 2013, p. 76). In the corresponding study from 2019, the findings indicate that only 12,1% of year 2 GS students reported that they found computers as having a disturbing impact (Fjørtoft, Thun & Buvik, 2019, p. 41). This may signal, above all else, that teachers have gotten better to frame and help each student to use digital tools in ways that promote learning. To further solidify the use of digitals tools in the classroom, the aforementioned research implies that teachers need explicit teaching in digital skills and tools.

Although digitisation – in the form of new digital technology in educational practices – has brought a stronger degree of multimodality to the subject of English, reading and writing in the traditional sense remain an essential part of learning a language (Fenner & Skulstad, 2020, p. 178). When comparing reading on a digital platform compared to paper, research indicates that the digital option is cognitively more demanding as it requires decision making and

processing through hyperlinks (DeStefano & LeFevre, 2007, p. 1619). Even if the digital text is not hyperlinked, the medium influences how the text is processed (Fenner & Skulstad, 2020, p. 179). In a study by Wästlund, Reinikka, Norlander & Archer, they measured Norwegian year 10 students and the difference in reading comprehension from VDT and paper (2005, p. 377). Their findings indicate that reading from VDT was inferior compared to paper in terms of reading comprehension (Wästlund et al., 2005 p. 377). Additionally, the subjects in the study that read digitally reported slightly higher levels of experienced stress and tiredness than those reading from paper (Wästlund et al., 2005, p. 1). As a result, the research concluded that reading and working with a computer resulted in higher cognitive workload compared to printed text (Wästlund et al., 2005, p. 1).

With the growing number of changes in media consumption patterns, the new generation of students have grown up with hypertexts, social networking programs and video games (Bourgonjon, Valcke, Soetaert & Schellens, 2010, p. 1145). This may contribute to these students having different learning preferences, which require new educational approaches (Bourgonjon et al., 2010, p. 1145). Video games are often considered to be an example of this new educational approach, as they "situate learning in meaningful context, empower students to become self-regulated, present them with ill-structured problems, integrate several knowledge domains, promote inquiry-based and discovery learning" (Bourgonjon et al., 2010, p. 1145). Furthermore, video games may be able to promote positive attitudes toward learning and school (Bourgonjon et al., 2010, p. 1145). These assumptions are, however, contested by a number of researchers, who argue that not all students are immersed in new technologies and that there is no need for dramatic change in the educational system (Bourgonjon et al., 2010, p. 1145). According to the critics, "the usage of digital media rather reflects the students' desire to communicate with friends, search for meaning, create their place in society, and relax and have fun" (Bourgonjon et al., 2010, p. 1145).
According to Brevik, who references a Norwegian study from 2015, a positive link was found between online gaming and English grades (2016a, pp. 41-42). However, the same students had lower grades in Norwegian and Mathematics compared to non-gamers. (Brevik, 2016a, p. 42) As a result, researchers are attempting to find a way to integrate digital tools to assist students' improvement in other subjects, e.g., interactive games as a way to read. This term is also referenced to as game-based learning, hereafter, GBL.

2.3.2 Game-based learning

Using games for educational purposes has proven to be an effective way to enhance learning motivation and academic performance (Kingsley & Grabner-Hagen, 2015, p. 51). Brevik & Garvoll explains how games can resemble a modernised form of a novel; as they often take place in a fictional universe where their characters solve problems, and involves players talking to other players, and solving puzzles, often in an English driven narrative (2019, p. 69). As previously mentioned, a high percentage of vocational students play games in their free time (see section 2.3). Additionally, the same students also report that they read novels, however, usually only those close to their interests (Brevik & Garvoll, 2019, p. 69). In the context of this thesis, it is important to explore how teachers and students should approach GBL, as it may become an essential learning tool in the modern classroom.

In Kingsley and Grabner-Hagen's research, they studied a classroom which used GBL, to establish whether GBL had a positive impact on learning (2015, p. 58). The sample size of students (n = 47) used iPads with the program 3D GameLab. The students responded positively to the program (see figure 4, x-axis: % of students).

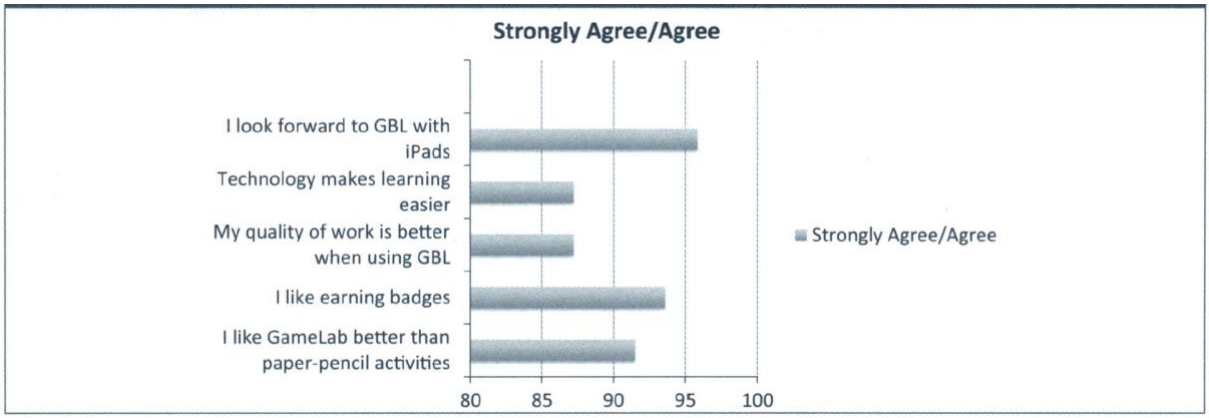

Figure 4: Student survey general responses about gamification and iPad use (Kingsley & Grabner-Hagen, 2015, p. 59)

Despite the benefits of games in educational settings, there are limitations. Nebel, Schneider & Rey point out that although the games can be considered simple, implementing them in a lesson still requires digital skill, which is often not addressed in teacher's qualifications (2016, p. 357). Consequently, the teacher's engagement and skill have vastly different

impacts on learning with the game (Nebel et al., 2016, p. 360). In addition to teacher engagement, the students themselves have to learn the game mechanics.

Even though students' competence in games and digital media can be seen as a relevant tool for learning, research shows that their competence is not necessarily great enough to cultivate an understanding of academic matter (Brevik, 2016a, p. 42). As such, if a teacher were to use a game as an educational tool, they had to strategically scaffold the game, and make the content relevant for the topic under consideration (Brevik, 2016a, p. 42). Furthermore, with the ongoing interest in using games in educational settings, game developers such as Valve, EA and Mojang have implemented and modified their games to fit the educational field (Nebel, Schneider & Rey, 2016, p. 357). Mojang, developer of Minecraft, have created Minecraft Education, which offers easier creation tools for teachers, such as simple server management, and tools to administer playing students (muting, teleporting or disabling inputs) (Nebel et al., 2016, p. 357). In the game, the students are placed in a virtual biome, equipped with a vast number of opportunities where they can interact with objects, solve interactive puzzles, or read and experience a tale or a story.

To further elaborate on the topic of GBL in the classroom, a study conducted by the U.S Department of Education in 2008, reported that test scores were not significantly higher in classrooms that used reading and mathematics software products (Bernard, 2008, p. 220). However, as Bernard notes in his article, numerous educators, researchers, and technology advocates, disagreed with the findings, as the report did not account for the numerous key pieces needed to encourage the correct use of technology (2008, p. 221). To this end, the article argues that integrating technology in the classroom is much more than placing a piece of software in the classroom without much else. Bernard cites the neuroscientist Michael Merzenich, which state that "simply adding computers to conventional teaching strategies is an unsophisticated approach that adds very little to the students' experiences in the classroom" (2008, p. 221). This leads us to ask how teachers are to integrate and use new tools in the modern classroom.

2.3.3 The teacher and the digital tool

In recent years, the pressure on teachers to engage with technology enhanced learning (TEL) – whether to extend reach and quality, or in response to students' expectations – has led to an

increase in initiatives to promote TEL (Masterman & Manton, 2011, p. 227). Recent studies show that in contrast to traditional pedagogical technologies, digital tools are multifaceted, as they can be used in many different ways (Amhag, Hellström & Stigmar, 2019, p. 203). However, digital tools are also unstable, in the sense of rapidly changing, and being opaque, as the inner workings may be hidden for its user (Koehler, Mishra & Cain, 2013, p. 13). Consequently, the teacher has to relate to, and understand, these components when dealing with digital tools in their instruction.

In order to facilitate the use of digital tools, it is important to examine theory that conceptualise individuals' technology behaviour. To predict and empirically validate digital tools in educational settings, Davis adapted the behaviour theory TRA (theory of reasoned action) into TAM (technology acceptance model), to identify two user beliefs: perceived usefulness and perceived ease of use (Davis, 1985, p. 13). TAM assumes a direct relation between ease of use and usefulness (Davis, 1985, p. 15). As such, people will perceive a technological tool more useful if it is easy to operate. In recent years, TAM has become one of the most commonly used models within information systems research (Bourgonjon et al., 2010, p. 1146). In the context of this thesis, it is necessary to examine how TAM hypothesizes the individuals' use of technology, as it may correlate with teachers' information– and communication-based teaching (ICT) development.

Davis explains that a person's choice of technology is heavily dependent on their evaluations of its usefulness and its ease of use (Davis, 1989, p. 320). Davis defines usefulness as: "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). Bourgonjon et al. further explains that experience with the digital tool or system is also considered a key role in the users' acceptance of it (2010, p. 1147). Thus, a higher degree of experience in using a digital tool positively affects ease of use and learning opportunities (Bourgonjon et al., 2010, p. 1147).

On a related note, Compeau and Higgins (1995) attempted to understand what influenced the individuals' use of technology. They applied Bandura's (1986) Social Cognitive Theory to provide insight into the training method effectiveness and learning processes and discovered that there were two specific dimensions that stood out (Compeau & Higgins, 1995, p. 119). Those dimensions related to "the conceptualization of the cognitive determinants of individual behaviour" (Compeau & Higgins, 1995, p. 119). The initial dimension relates to

outcomes, “as individuals are more likely to undertake a behaviour they believe will result in valued outcomes, than those which they do not see as having favourable consequences” (Compeau & Higgins, 1995, p. 119). The second dimension relates to the term “self-efficacy”, which is the belief about one’s ability to perform a particular behaviour, and furthermore, the mastery of the behaviour (Compeau & Higgins, 1995, p. 119). In turn, according to Amhag et al. (2019, p. 205), and Compeau & Higgins (1995, p. 120), training has the strongest influence on technology use.

Although research suggest that training has a strong influence on technology use, research referenced in Amhag et al., indicates “that digital competence for pedagogical purposes is still poorly integrated into teacher education programs” (2019, p. 204). Furthermore, “innovative solutions are needed as they play an important part in teachers’ professional development in using information– and communication-based teaching (ICT)” (Amhag et al., 2019, p. 204). Technology use in educational practices needs to be developed professionally through tutoring and underlying educational pedagogy (Amhag et al., 2019, p. 204). In doing so, teachers develop a better understanding of the “skills, dispositions, and knowledge for teaching-learning contexts where information and communication technologies are increasingly pivotal” (Amhag et al., 2019, p. 204). Teachers’ ICT development is further elaborated on in section 2.3.4.

2.3.4 Teachers’ ICT development

Despite the availability of digital tools and resources, they are – according to an article based on questionnaire answers from 190,000 students, teachers and headteachers from Europe – still seldom employed in teaching practice (Wastiau, Blamire, Kearney, Quittre, Van de Gaer & Monseur, 2013, p. 16). Wastiau et al. further argue that the scepticism towards digital tools is attributed to several factors, and often a multi-layered problem (2013, pp. 16-17). They did, however, discover that the teachers’ use of ICT (see section 2.3.3) increased in schools that emphasised ICT integration (financial incentives, ICT development, additional ICT equipment) (Wastiau et al., 2013, p. 18). Both Norway and Denmark scored relatively high in the survey of Wastiau et al. (2013, p. 22), which ranked countries based on the percentage of digitally supportive teachers and schools (see figure 5).

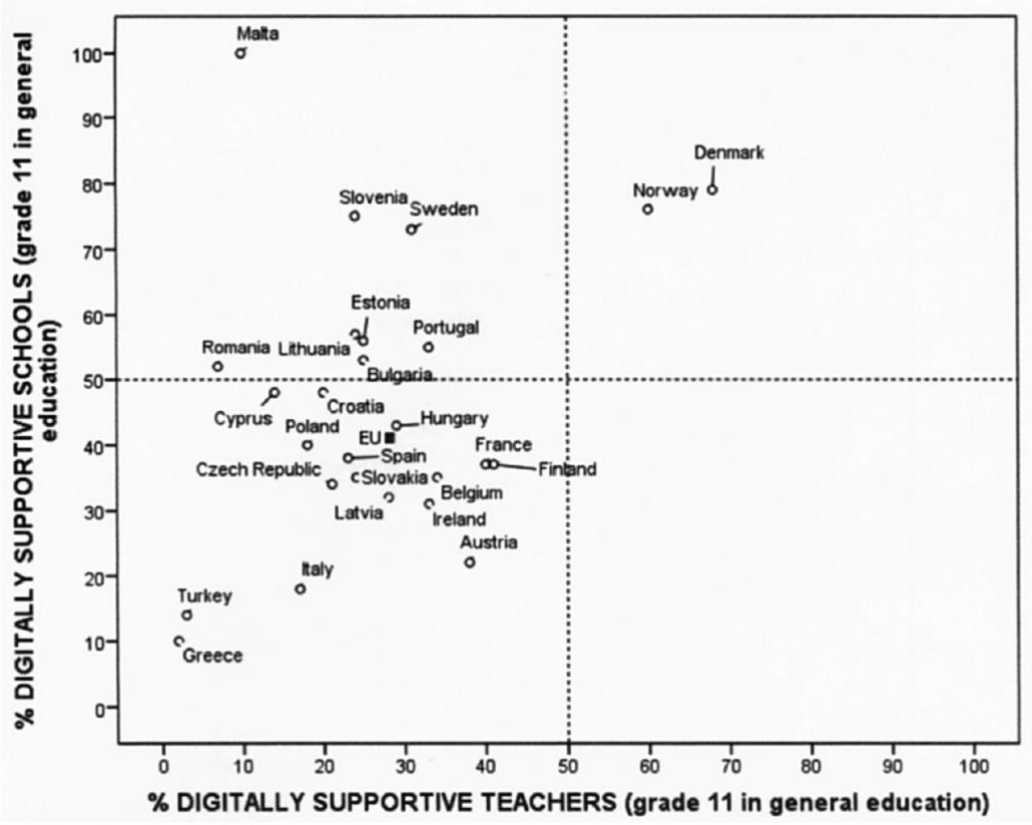

Figure 5: Digitally supportive schools and digitally confident and supportive teachers (Wastiau et al., 2013, p. 22)

According to the mapping of percentages in the figure, a highly digitally supportive school does not directly correlate with digitally supportive teachers, e.g., Malta (figure 5). Wastiau et al. argue that obstacles to the use of ICT relate to the lack of competence and pedagogical models, unclear goals for using ICT or a lack of consensus about it (Wastiau et al., 2013, p. 23). As mentioned in section 2.3.2, the use of a resource or tool may be affected by the subjective evaluation of its perceived usefulness. Additional variables include gender, age and experience (Petko, 2012, p. 1352). Petko further argues that teachers' use of new technology goes through six stages of adaption. "Stage 1 (awareness. e.g., "I am aware of the technology, but have not used it). Stage 2 (learning the process). Stage 3 (understanding and application of the process). Stage 4 (familiarity and confidence). Stage 5 (adaption to other contexts). Stage 6 (creative application to new contexts)" (Petko, 2012, p. 1352). However, this linear stage process is contested, as teachers' values and beliefs are a highly debated scientific field, see for example (Kagan, 1992; Pajares, 1992). Kagan argues that teachers' beliefs appear to be relatively stable and resistant to change (1992, p. 66). Pajares argues that as a construct, "belief does not lend itself easily to empirical investigation" (1992, p. 308). The confusion in

terms of the concept of "belief", Pajares states, generally centres on the distinction between beliefs and knowledge (1992, p. 309). In contrast to knowledge, which can be demonstrated to be objectively true, beliefs are bound up with a person's past, personal values, and emotions (Petko, 2012, p. 1353). In the context of ICT development and this thesis, it is necessary to explore the common ICT-beliefs found amongst teachers in previous studies.

Common positive ICT beliefs in educational contexts relate to "improved learning processes and better learning success, the promotion of independence and collaboration, improved work efficiency and effectiveness, improved student motivation, the importance of computer skills in society, and diverse benefits of particular ICT functions" (Petko, 2012, p. 1353). Common negative beliefs about ICT relate to "the importance of hands-on experience, the risk of isolation in a virtual world and digital over-stimulation, questions about the quality of online media, media-associated disciplinary problems, lack of practicability or simply lack of priority for using ICT in the classroom" (Petko, 2012, p. 1353). These beliefs will be further discussed in chapter 5 with the empirical findings from chapter 4.

2.4 Previous research

While research on teachers' use of digital tools is widely available, see for example: (Masterman & Manton, 2011; Lee & Lee, 2014; Amhag et al., 2019), relevant research which investigates the use of new, modern digital tools to promote reading and digital literacy in Norwegian classrooms with empirical findings of teachers, is still insufficient. This may be attributed to the nature of digital tools, which, by their nature, keep being replaced with newer, modern versions. This subchapter will provide an insight in previous research conducted on the relationship between student and digital tool, as well as teachers' use of digital tools.

A collaborative project conducted at the University of Oslo, named The VOGUE project, led by primary investigator Lisbeth Brevik, explores vocational and general students' use of English in and out of school, primarily with games and social media. Brevik's article, based on research conducted in 2016, "The Gaming Outliers: Does out-of-school gaming improve boys' reading skills in English as a second Language", examines the correlation between students' use of English outside of school and their reading results. The examined group were students that were poor readers in their L1, but proficient in their L2. The research argued

that, since students do not seem to transfer their English reading skills from one context to another, teachers need to make this connection for them (Brevik, 2016a, p. 42). The results indicated that the students could profit from instruction that draws upon their interests and engagement.

In the 2016 study, Brevik further investigated the students that were proficient L2 readers, but poor L1 readers. They were asked to fill out a questionnaire, and later interviewed. The questionnaire and interview indicate that the students were more interested in English than Norwegian as school subjects (Brevik 2016a, p. pp. 46-53). Furthermore, the questionnaire shows that these students read, listen to, and use English more than Norwegian in out-of-school situations (Figure 6).

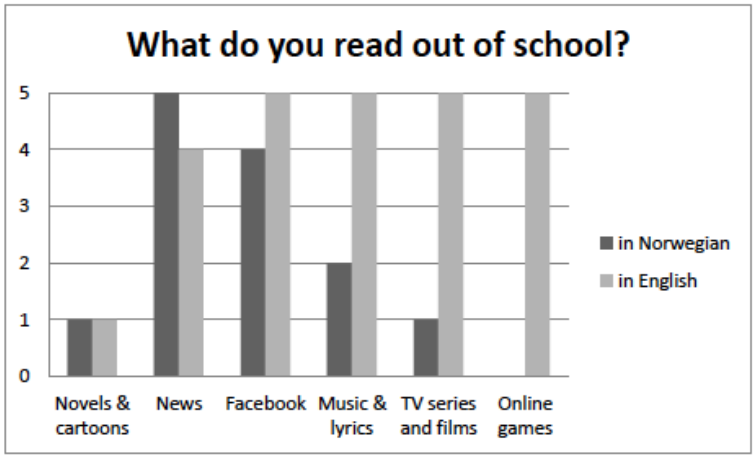

Figure 6: What do you read out of school? (Brevik, 2016a, p. 50)

The five students in the study, displayed an interest in video games, particularly those in English (Brevik, 2016a, p. 46). They also reported that they often played for hours, if they had the time. They stated that most of the news and media they consumed were in English as well, but this was mostly attributed to the fact that the news they happened to come across was in English (Brevik, 2016a, p. 50). Similarly, Sundqvist conducted a study that posed the question of whether there was a positive relation between digital gameplay and the acquisition of English vocabulary (Sundqvist, 2015, p. 68). To do so, he collected and analysed empirical data such as questionnaires, students' language diaries, vocabulary tests, assessed essays and final grades. The students were categorized into three groups: non-gamers, moderate gamers and frequent gamers. The study showed that most of the participants performed well, although the frequent gamers displayed a higher degree of advanced vocabulary, which further

suggests that games had a positive impact on the scores of the frequent gamers (Sundqvist, 2015, p. 74).

The VOGUE project is currently still ongoing, and master students at the University of Oslo are investigating vocational students' use of English, especially for online gaming, surfing the web and social media use (Brevik, 2020). Previous MA theses on the matter have been linked to vocational students' use of digital resources, vocational orientation, as well as how students' use of English out of school affects L2 learning processes, see for example: (Garvoll, 2017; Sagli, 2017; Holm, 2020).

In Garvoll's (2017) thesis, she investigated five vocational students that are outliers (scoring below 20% in Norwegian, and above 60% in English) (p. v). Her findings – based on test results, student logs, interviews and focus groups – suggest that the outliers use English for social media, music, watching tv-series and movies, news, and gaming, and thus, are more exposed to English compared to Norwegian. Based on her findings, she categorised the outliers into three profiles: the gamer, the surfer, and the social media consumer (Garvoll, 2017, p. v). These findings indicate that there are certain profiles present in vocational classes, which may predict certain language proficiencies.

In Sagli's (2017, p. v) thesis, he investigated how teachers and students perceive vocational orientation in the subject of English. His findings are based on qualitative data from interviews. The study illustrates that both students and teachers are positive towards vocational orientation, but that there are problems with implementation (Sagli, 2020, p. v). The primary problem, according to Sagli's findings, is that vocational students do not perceive the vocational orientation in English as authentic, as it often did not match the expectations they had for their future jobs (Sagli, 2020, p. v). On the other hand, the teachers in his study felt they had insufficient competence in students' vocational specialisation to make teaching authentic (Sagli, 2020, p. v). In addition, the informants' school had not made any attempts to improve vocational competence for teachers through courses (Sagli, 2020, p. v).

In Holm's (2020) thesis, she investigated "teachers' beliefs and students' perspectives on English learning in and out of school" (p. v). Her findings are based on semi-structured interview with a teacher and four students, video recording of English lessons in vocational

classes, and analysis of student surveys and logs (Holm, 2020, p. v). The findings indicate that the English teacher interviewed in the study wanted to actively engage in the students' interests, and strategically connect it to the English learning (Holm, 2020, p. v). Furthermore, the students in the findings, were "shown to have affiliations towards gaming, social media and entertainment out of school" (Holm, 2020, p. v). This provided an evidence, according to Holm, that there is a "strong connection in English learning in and out of school" (Holm, 2020, p. v).

2.5 Summary of chapter

This chapter laid out the theoretical framework for the discussion of the empirical research findings. I have addressed reading, and the reader's context, by examining RAND's heuristic thinking model, to further understand the characteristic of a developed reader. I further examined how L1 and L2 reading are intertwined, and how deficiencies in L2 reading comprehension can be compensated with the reader's skill in their L1. Furthermore, I address the modern varieties of reading in the sense of games, digital narratives, net-resources, defining and delineating the terms digital literacy and multiliteracies, and highlighting the need for explicit instruction in digital tools for teachers. This will be further discussed in section 5.3 The implications of games and digital reading have as well been examined, through summarising previous research on students' acquisition of language through digital media and printed media. Based on the research findings in the existing studies, there is no unified understanding, nor belief, regarding employment of digital tools in educational settings. There are, however, stated benefits and drawbacks in using digital tools. These will be further discussed in section 5 with the empirical findings of this study.

3. Method and materials

With the implementation of technological tools and resources in the classroom, there is a need for research on *how* they benefit the student's performance in the subject of English. I have chosen to analyse how teachers perceive digital tools as a method of promoting reading and digital literacy and how they utilize said tools, through qualitative interviews. The informants in this study are four teachers from an upper secondary school in the county of Innlandet. They range from the ages of 25 to 52, and all have a mixture of higher education qualification –Bachelor and Masters – in English. These informants were chosen as a means to examine the extent to which continued education is required to keep abreast of digital developments, as well as how they utilize digital tools in the subject of English.

The research design in this study is a semi-structured interview. The qualitative research interview attempts to "represent the world from the subjects' points of view, to unfold the meaning of their experiences, to uncover their lived world prior to scientific explanation" (Brinkmann & Kvale, 2015, p. 3). In that way, the knowledge is constructed by the interviewer and the interviewee together, with the aim of "obtaining descriptions of the interviewees' lived world with respect to interpretation of the described phenomena" (Brinkmann & Kvale, 2015, p. 3). A semi-structured interview is conducted in accordance with an interview guide, which in this study, was questions about teachers' use of digital tools in the subject of English. The interview was transcribed, and together with the sound recording, they constitute the materials for analysis (Brinkmann & Kvale, 2015, p. 3).

3.1 The phases of the research process

In this research study, I have chosen to collect and analyse data qualitatively. This chapter will explain the different phases of the research process. In the initial planning process, I contemplated using both quantitative and qualitative data in the form of questionnaire and interviews as research instruments. The reason for this was that I felt using only one method could lead to a narrow and unsatisfactory result. However, when immersing myself in the theory of data collection, I quickly realized that utilising both would not benefit my study, as the research questions mostly delve into *how* and *why* the teachers use digital tools in the classroom for reading in the subject of English, and their perceptions of the actual effects. To

further elaborate, Cohen, Manion & Morrison say that the interview, as a method of data collection, “is a flexible tool to enable multi-sensory channels to be used; verbal, non-verbal, spoken and heard” (2011, p. 409). As such, I decided interview would be the most suitable tool to understand the beliefs and views of the teachers.

3.1.1 Preliminary stage

In the preliminary stage of planning an interview, the purpose of the research must be decided. In the case of this thesis, it is to explore how teachers utilize digital tools in the subject of English and their perceived effects. In the following stages of the planning, one has to translate the research objectives into the questions that will make up the main body of the interview (Cohen et al., 2011, p. 415). These questions have to adequately reflect what the researcher is trying to find out. Moreover, the researcher needs to choose whether to use open and/or closed questions, direct and/or indirect questions, specific and/or non-specific questions (Cohen et al., 2011, p. 415).

A significant part of the interview project is thematizing, which refers to the formulation of research questions and theoretical clarification of the theme investigated (Brinkmann & Kvale, 2015, p. 131). The key questions refer to, and concern, the why, what and how of the interview (Brinkmann & Kvale, 2015, p. 131):

why: clarifying the purpose of the study
what: obtaining pre-knowledge of the subject matter to be investigated
how: becoming familiar with different theories and techniques of interviewing and analysing, and deciding which to apply in order to obtain the intended knowledge

After finalizing the interview guide, I conducted two pilot interviews, to test whether the questions had the possibility to yield relevant responses for the thesis. The interviews were conducted in a semi-structured manner. This creates an environment of understanding through open-ended questions, but also a way for the researcher to probe further for information if needed (Brinkmann & Kvale, 2015, p. 31). Although the pilot interviews were conducted through the communication-program Zoom with co-students, the process provided feedback on phrasing the questions and helped me revise the interview guide to better suit and answer my thesis question.

3.1.2 Interview guide as a research instrument

The interview guide was constructed with an emphasis on obtaining the teacher's former experiences and perceptions with digital tools. The guide was written in English. The initial questions were primarily related to the participants' background: age, education, and experience as a teacher. In addition to being relevant for the thesis, as it can help differentiate and understand the beliefs of the teachers, questions that are relatively easy to answer can make the interview situation more comfortable for both interviewer and interviewee (Cohen et al., 2011, p. 422).

Brinkmann & Kvale argues that when designing an interview guide, one should be sure to have the *what*-questions answered before the *how*-questions (2015, p. 131). In this thesis, the *what*-questions relate to their use of digital resources, while the following *how*-questions relate to how they use it. All four teachers in the study were asked if they frequently use digital tools, and what tools they primarily use. As a follow-up question, they were to reflect on whether they saw any apparent positive or negative effects when using digital tools (computer, iPad, virtual reality, games etc.) compared to more traditional tools (books, blackboard etc.). This question opens the possibility for probing for further information. As this was a semi-structured interview, both the interviewer and interviewee create meaning together. The interviews were conducted in Norwegian, by the participants request (see section 3.2), and later transcribed in Norwegian. The excerpts used in the thesis have been translated by the researcher in a sense that would not affect any of the original meaning. Fillers that have been used by the participants are included in the transcript, as removing them may have obscured some of the intended meaning. Before conducting the interview, and after, I reassured the participants that their anonymity would be secure, as the transcription would use pseudonyms. Cohen et al. argues that anonymity is vital in sensitive research, as the participants can be secure about answers not being linked back to them, which may further encourage honest responses (2011, p. 170). Here is an excerpt from one of the interviews:

a) **Interviewer**: Do you frequently use digital tools in your teaching, if yes, what and how?

   Frida: Well, yes. I would say, I mean, I use different form of media, in relation to … If you think about it … it's films, short films, documentaries. I use screen-cast-o-matic, virtual reality.

- **Interviewer**: Do you feel that there are any apparent positive effects in using those tools over for example, paper books?
- **Frida**: Well, I don't know if it's more positive, but it's an alternative … alternate than me standing in front of the class. And uhm, that gives them … another way to express themselves. We had a creative project this year where they had to find a social issue in the US and they had to explain about it, and some students made songs, there were students who made documentaries. They were really enthusiastic about it.

When developing an interview guide, Cohen et al. suggests that it is important to devise questions that have "simple vocabulary, avoid prejudicial language, ambiguity and imprecision, leading questions, double-barrelled questions, questions that make assumptions, hypothetical or speculative questions, sensitive or personal questions" (2011, p. 416). It is also important to note the different type of questions that can be asked. For example, to ask a person about what political party they support would be a factual question, while asking them what they think about the current government's policies would be an opinion question (Cohen et al., 2011, p. 417). Where one type of question might create one response, the other might give a completely different one. This is related to response modes (Cohen et al., 2011, p. 419). Asking: "Why did you not like the subject?" gives an unstructured response, while asking "Can you give me two reasons for not liking the subject", gives a structured answer. In an interview, unstructured questions might yield data that is hard to code and quantify compared to structured ones (Cohen et al., 2011, p. 419).

3.1.3 Participants

After finalizing the interview guide, I had to recruit participants for the study. The approval from NSD (see appendix 1) came early, and the information letters were already written and ready to be sent out. I chose to focus on one upper secondary school, as they previously have been involved with the FYR-program for vocational students, which had a positive impact on completion rates. In light of that, choosing this school would yield an interesting viewpoint on how they achieved a high completion rate. Moreover, with the FYR-program, the school displayed an interest in using technology and digital tools in the vocational classroom.

In the preliminary stage of planning, I was uncertain about the number of interviews necessary in order to gain meaningful data. According to Cohen et al. "one conducts

interviews with as many people as is necessary to gain the information sought" (2011, p. 421). As my thesis aims to explore how teachers utilize digital resources in the vocational classroom, I concluded that I would narrow my research to one school and review their success and failures using digital resources. This was done to gain information about how the teachers utilized digital tools to promote reading and digital literacy. A sample size of four participants was selected as it would yield deeper level of understanding into the teachers' beliefs and practice at the chosen school. In other words, an insight into their "everyday world" (Kvale & Flick, 2007, p. 87). It is, however, important to note that the interview is exploratory, and the meanings and attributes the participants bring are subjective opinions relating to respective social phenomena (Kvale & Flick, 2007, p. 86),

Table 1: Participants

Teachers (pseudonyms)	Gender	Study program	Academic background	Tenure
Frida	Female	GE + VET	Master's (Lektor)	15 years
Nina	Female	VET	Master's (Pedagogy) + 90sp in English	19 years
Trine	Female	VET	Master's (Lektor)	1 year
Kristen	Male	GE + VET	Master's (Literature) + PPU	14 years

3.2 The interview

By conducting an interview, the aim is to make the teacher the focus of the research and try to understand their beliefs, as that is a pivotal concern of the study. Four teachers were interviewed, all of whom revealed different opinions on digital resources. Before conducting the interviews, I sent out an e-mail informing the participants of the proceedings, the structure of the interview, the organization, and how the responses would be recorded and later saved on a protected cloud-server. No recording would be saved locally on the interviewer's computer, and their names would be encrypted in the transcription. During the interview, it is important to keep in mind that the biases and values of the interviewer should not be revealed, and the interviews should avoid being judgemental (Cohen et al., 2011, p. 421). The interview should be, according to Cohen et al., "a social, interpersonal encounter, not merely a data

collection exercise" (2011, p. 421). This was ensured in my conducted interviews by starting with a brief chat beforehand to put the subjects at ease.

The interviews were conducted at the location that were considered most convenient, which in the case of all four, was the school they worked at. They were given the choice of whether to conduct the interview in English or Norwegian. They all chose Norwegian. After initial pleasantries, I again informed them of the research's purpose, and its approval from NSD. I scheduled the interviews with a time frame of 30 minutes, although they varied in length. By conducting a qualitative method of research, such as an interview, it is possible to analyse to what extent the teachers utilize digital tools and resources, but also, why they use said tools and to what perceived effect.

3.3 Framework for data analysis

After completing the interviews, the data had to be analysed. The data in this study consists of answers from a qualitative interview, which were recorded, transcribed and encrypted. This was done to secure validity. Ascertaining the validity of the interview transcripts is, according to Kvale & Flick, more complex than assuring their reliability (2007, p. 98). Transcribing involves translating from an oral language to a written language (Kvale & Flick, 2007, p. 98). There is no true, objective transformation from oral to written mode, however, "there are verbatim descriptions that are necessary for linguistic analyses: the inclusion of pauses, repetitions and tone of voice" (Kvale & Flick, 2007, p. 98).

The final audio from the interviews was transcribed four days after completing all individual interviews. If a certain question or topic evoked emotion in the participants, I took notes of it, to further add to the data. The final transcript totalled 28 pages. I chose to include verbatim descriptions and transcribed word for word. Nevertheless, transcriptions inevitably lose data from the original encounter, as visual and non-visual aspects are usually forgotten post-interview (Cohen et al., 2011, p. 426). Once data from the interview was collected, the next stage was to analyse them. In qualitative data, analysis is most often interpretive, "hence the data analysis is less a completely accurate representation compared to numerical data, but more of a reflexive, reactive interaction between the researcher and the decontextualized data that are already interpretations of a social encounter" (Cohen et al., 2011, p. 427).

After transcribing, the data had to be interpreted and analysed. Cohen et al. (2011, p. 428) cite Miles and Huberman's (1994) 12 stages for generating meaning from transcribed interview data (See figure 7). This progression is a useful way of moving from the specific to the general in data analysis (Cohen et al., 2011, p. 428). To further code and group the data, I used Braun and Clarke's (2006) thematic analysis, which identifies, analyses and reports patterns. When the data has been coded-transcribed, it is important, according to Cohen et al., to listen to the recordings several times, as well as reading the transcription numerous times, in order to understand what the interviewee is actually saying rather than what the researcher expects them to say (2011, p. 429).

Figure 7: Miles and Huberman's 12 tactics for generating meaning from transcribed data (Cohen et al., 2011, p. 427)

3.3.1 Coding of data

I chose to approach the data with an inductive thematic analysis, which is a type of analysis that identifies, analyses and reports patterns (themes) within data (Braun & Clarke, 2006, p.

79). Inductive thematic analysis is not grounded in any pre-existing theoretical framework and can be seen as a "realist or essentialist method that reports experiences, meanings and reality of the participants" (Braun & Clarke, 2006, p. 81). A theme, in this category, "captures something important about the data concerning the research questions and represents some level of patterned response or meaning within the data set" (Braun & Clarke, 2006, p. 82). In light of that, the researcher has to address, in terms of coding the data, what counts as a pattern/theme and what size a theme needs to be (Braun & Clarke, 2006, p. 82). Braun & Clarke further explain that "the "keyness" of a theme is not necessarily dependent on quantifiable measures, but rather on whether or not it captures something important for the research study" (Clarke & Braun, 2006, p. 82).

The research questions in this thesis concern upper-secondary teachers' use of digital tools to improve reading and digital literacy in the vocational classroom. This would lead me to look for patterns in the interviewees' answers and place them in categories. I employed thematic analysis, following Braun and Clarke's six-step guide (2006, p. 87).

Table 2: Phases of thematic analysis (Braun & Clarke, 2006, p. 87)

Phase	**Description of the process**
1. Familiarizing yourself with your data:	Transcribing data, reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

In the first phase, I familiarized myself with the data material, looking for patterns, keywords, and initial ideas. Based on patterns and keywords, I searched the transcripts for re-occurring

elements in each dataset. The re-occurring elements were further grouped into codes, which could contribute to the phenomena that the study is researching. After coding the data, I reviewed if the codes could be collated into potential themes (See figure 8).

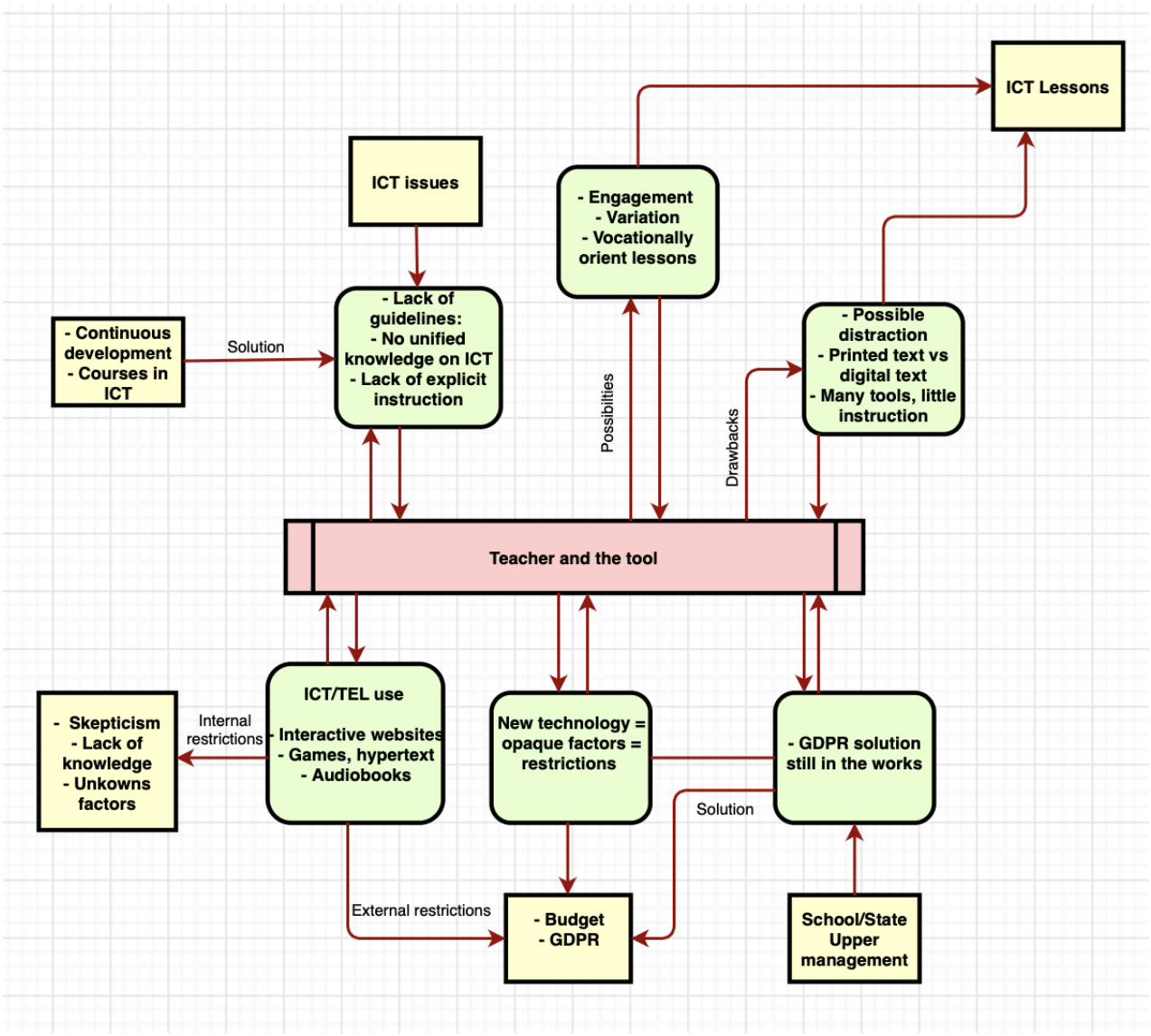

Figure 8: Coded category

3.4 Validity

Validity is one of the key aspects of effective research (Cohen et al., 2011, p. 179). There are several interpretations and forms of what validity is. Earlier versions of validity were based on the view that it was a "demonstration that a particular instrument measures what it purports to measure" (Cohen et al., 2011, p. 179). More recently, in qualitative data, validity may be addressed through "the honesty, depth, richness and scope of the data achieved, the

participants approached, the extent of triangulation and the disinterestedness or objectivity of the researcher" (Cohen et al., 2011, p. 179). To improve upon said form of validity, the researcher has to use careful sampling, appropriate instrumentation and appropriate statistic treatments of the data (Cohen et al., 2011, p. 179). Although validity can be improved, research cannot be 100% valid, as qualitative research possesses a measure of standard error, in which subjectivity of respondents, their opinions, attitudes, and perspectives together contribute to a degree of bias (Cohen et al., 2011, p. 179). In other words, validity should be seen as a matter of degree rather than as an absolute state (Cohen et al., 2011, p. 179). Cohen et al. further argues that "understanding" is a more suitable term than validity in qualitative research (2011, p. 181). We, as researchers, are part of the world that we are researching, thus, we cannot be completely objective.

3.4.1 Internal validity

"Internal validity seeks to demonstrate that the explanation of a particular event, issue or set of data which a piece of research provides can be sustained by the data" (Cohen et al., 2011, p. 183). To some degree, this type of validity concerns accuracy, as the findings must describe accurately the phenomena being researched. In the case of this research project, it is how teachers utilize digital tools to promote reading literacy in the vocational classroom, and to what apparent effect. Hence, the teachers become the investigated population, and digital tools in the vocational classroom the phenomena. Internal validity can be addressed in several ways: "using low-inference descriptors, multiple researchers, participant researchers, peer examination of data, and mechanical means to record, store and retrieve data" (Cohen et al., 2011, p. 184). To exemplify, including verbatim accounts of what people say, rather than the researchers' reconstructing of what they said – which would allow the researchers' personal perspective to influence the reporting – is a low-inference descriptor (see appendix 5 for sample transcripts)

There are, however, threats to internal validity that has to be taken into account. Cohen et al. cites Onwuegbuzie and Leech's (2006) twelve kinds of threats to internal validity (2011, p. 185). In the context of this qualitative study, 4 threats stand out; *descriptive validity* (the accuracy of the account given by the researcher), *researcher bias*, *reactivity* (how far the research alters the situation being researched or the participants in the research), *illusory*

confirmation (the tendency to find relationships between people, behaviours or events, when, in fact, they do not exist) (Cohen et al., 2011, p. 185).

3.4.2 External validity

"External validity refers to the degree to which the results can be generalized to the wider population, cases, settings, times or situations" (Cohen et al., 2011, p. 186). Generalizability in naturalistic research is interpreted as comparability and transferability (Cohen et al., 2011, p. 186). Hence, in this interpretation of external validity, it may be suggested that it is possible to assess the "typicality of a situation, the participants and settings, to identify possible comparison groups, and to indicate how data might translate into different settings and culture" (Cohen et al., 2011, p. 186). Other writers, Cohen et al. explains, argue that in qualitative research, "we are most interested not with the issue of whether the findings are generalizable in the widest sense but with the question of the settings, people and situations to which they might be generalizable" (Cohen et al., 2011, p. 187). In terms of external validity, there are potential research threats to be aware of; "s*election effects* (where constructs selected in fact are only relevant to a certain group), *setting effects* (where the results are largely a function of their context), *history effects* (where the situations have been arrived at by unique circumstances and, therefore, are not comparable), *construct effects* (where the constructs being used are peculiar to a certain group)" (Cohen et al., 2011, p. 187).

3.5 Strengths and limitations

As I have touched upon in section 3.1.3, one of the main issues in research projects with a limited time frame, as well as scope, is whether or not the collected data is representative. Gathering respondents for a research project can be a time-consuming and difficult task. Teachers usually have a full schedule, and the idea of adding yet another task can be off-putting. In light of that, it has to be accepted that the results from the research are a product of the kind of highly motivated individual who might volunteer.

I chose to carry out my study in one particular upper secondary school. Initially, I thought to include two or three schools, to assess institute-led approaches to using digital tools, but only one school responded with interest. This meant a change in approach. I decided to focus

solely on the one particular school, increasing interview subjects to explore the teachers' own perceived opinion on digital tools, as well as its use to promote reading and digital literacy. Furthermore, this allowed me to compare and contrast what digital tools are used, and how the teachers use them, in vocational English specifically. I did not seek out specific teachers. Instead, I contacted the head of the English department, who further requested the participation of interested teachers. As a result, the teachers that responded showed a genuine interest in the project and the integrity of the project, as outline above, was maintained.

It must be emphasised that this study is based on the oral responses of four teachers, and thus does not seek to prove an objective truth, nor present a result that can be generalized to a wider population of teachers. The teachers represented are voicing their beliefs, although similarities may be found in other teachers, because these teachers are educated within, and guided by, the Norwegian education system. In following the curriculum, they are operating within a specific cultural matrix that you can reasonably expect will affect other teachers in Norway in a similar way.

3.6 Ethical considerations

This study, and its methods, have been approved by the Norwegian Centre for Research Data (NSD), (see appendix 1). The teachers were first sent an e-mail, which explained the research and its purpose (see appendix 2). Those that wished to participate, were then sent an information letter (see appendix 3), which further explained the process of the research and answered other miscellaneous questions that they might have. These letters were signed and sent back to me. The teachers were reminded that the participation was voluntary and that they could revoke their consent at any time. The interviews were conducted in, and transcribed in Norwegian, and the sections of interview that have been quoted in the findings chapter have been translated by the researcher. The translation is not word for word, as this could obscure meaning. In light of this, there is some paraphrasing present, but not to the extent that it would change the original meaning. Conclusively, it has to be acknowledged that my preconceptions of the topic may have affected my interpretations of the findings.

As a final note, I have to mention the global pandemic, COVID-19, which in the proceedings of this study, is still ongoing. This lies outside the scope of the current project but is a topic that preoccupied the participants in this study and, with the passage of time, is likely to prove

a fruitful area of retrospective research in consideration of teachers' digital literacy and the potential of digital tools in an education setting. This will be further elaborated on in section 6.1

4. Findings

This chapter represents the empirical findings of this study. To this end, it explores and identifies how the participating teachers in this study utilize digital tools and their perceived effects on students' literacy in the vocational classroom. The chapter is structured in accordance with the interview guide. It aims to answer the following research questions: (1) what is the teachers' attitudes towards digital tools? (2) what sort of digital tools do they employ in their teaching and why? (3) how can digital tools help to promote reading and digital literacy?

The interview guide and sample transcripts are found in appendices 4 and 5. For anonymity purposes, the full-text transcripts are not included, as they may identify the informants.

4.1 Teachers' attitudes towards the use of digital tools

In the interview, I encouraged the teachers to speak openly and elaborate on their views about digital tools. The four teachers varied slightly regarding their attitude towards digital tools. At one extreme, Frida saw it as paramount to vary her classroom teaching, and an opportunity for students to be creative. She gave the following statement:

> I always – because I believe in variation in my teaching – so I always try to include some form of digital tools in every topic we go through. […] Uhm, and it gives them … another way to express themselves. We had a creative project this year where they had to find a social issue in the US and they had to explain about it, and some students made songs, there were students who made documentaries. They were really enthusiastic about it.

Another teacher, Kristen, expressed doubt about digital tools' effectiveness if not incorporated correctly. She said it could be a distracting factor in the classroom, but it depended on how it was incorporated into the actual teaching plan. She reported that:

> Sometimes it works well, but uhm … it is very tempting for the students to open something else on the computer. I often have to plan ahead if I am to use any kind of digital tool. I don't always feel comfortable using digital resources. Ehh … I wish we could have gotten more training in the use of digital tools, so that I could make my lessons more relevant. We have had some courses in the use

> of Creaza, and other things, but it is very important that one gets comfortable with the tools if you are going to use it in teaching.

Trine presents the most positive view on digital tools, and emphasises that it is the future of teaching, whether one likes it or not. She reported that in vocational classrooms, digital tools were met with great enthusiasm, as it was a way of learning without actually thinking about learning. She explained further that textbooks have a very specific connotation for students, associated with sitting silently and reading and doing boring exercises that were not cultivating their exploratory or creative side. She said:

> I mean, there is such a wide range of tools available for a teacher, and to only use one tool, for example, … a textbook, is such a missed opportunity to spark the student's interest. But I don't always use it, it depends on the class. This year it has been a very different school year … but we have used a lot of Quizlet, Creaza, and … we have used VR once, and Minecraft Education.

A reoccurring sentiment found across all teachers is the evident benefit of digital tools. Not only for its vast potential but as a way for teachers to make their lessons relevant in terms of vocational practice. One teacher, Trine, mentioned a game called Car Mechanic Simulator, in which the vocational students act as a mechanic in the game, and have to learn about different parts of the car and tools in English by reading manuals and descriptions, and listening to audio. She said:

> […] in TIP we use something called Car Mechanic Simulator, where they act as a mechanic, and they can record their voice, and say, now I'm doing this and now I'm doing that, and then we asses that, and include it in the overall assessment, the oral one.

Nina expressed similar thoughts:

> I see it as mostly positive […] It has an important place in the subject. And it's a part of the curriculum, so it's just something that has come to stay.

These findings suggest that while the teachers' attitudes towards digital tools are mostly positive, as it offers a vast number of potential approaches to teaching, there were doubts expressed whether the digital tools might work as a distraction if not incorporated correctly. But, if incorporated successfully, it was, according to the teachers, a way for students to

express themselves creatively, and work with the learning material differently. It was also a way for teachers to create variation in their lessons.

4.2 The choice of medium

With several possible digital tools and mediums to choose between, the teachers have to determine which is the most appropriate for the lesson. When asked, all four answered it depended on the class, as well as the topic. Frida explained it as such:

> Uhm, obviously it depends what we are going through, uh, like what the topic is, but I always, because I believe in variation in my teaching, so I always try to include some form of digital tools in every topic we go through, because I want to keep them, I want to keep their attention, you know …

While Frida tried to use some form of digital tool in every topic, Trine, on the other hand, determined whether digital tools were applicable when observing the class, and which tools would work best in the given topic. She also expressed her struggles with GDPR (EU commission's protection of personal data act). She explained:

> I observe and watch, and then, uhm, I determine whether it will work, and if it works, which will work. [...] But many digital tools are restricted by GDPR. For example, Quizlet, we are not allowed to use it as of now. It doesn't follow the GDPR guidelines, as the students have to register an account. And we can't order students to make accounts.

This issue is also addressed by Frida:

> […] but a lot of textbooks, like a digital novel, uh, most of the students don't have access to that, so we don't have that either. Then we have to deal with that students are not to pay for anything, and the GDPR, so, we really have a limitation when it comes to that.

Nina responded that she also assesses the class and tries to figure out which medium works for the specific class. She said:

> I very much view the gang that sits in front of me, and have them on my team, trying to figure out what they find interesting. And if they are interested in digital tools, and they believe it is a good way to learn English, then I use it more.

When asked about the choice of medium, Kristen answered that it not only is dependent on the class, but the topic. She gave the example of when going through American politics, which students tend to find difficult, she uses a game called iCivics, which is a net-based game that allows the students to act as a politician in the American political system, and the goal is to win the election. She said:

> I think they enjoy it, but it is complicated, so it takes time. The game, I mean, so it is necessary to allocate some time for it, and maybe choose the easiest difficulty. And I feel the students like it, that it's positive, that it's something else than just reading a factual text. But it's not like they can learn everything from the game, we have to talk about it as well, to get another viewpoint.

All four teachers mentioned games as a medium they have used in their lessons. Although they all addressed certain issues with whether they felt fully comfortable with them. This issue was related to their own knowledge of the game, and their lack of experience in it. Games like Minecraft Education had been frequently used, and from their personal experience, been a success in the vocational classroom. Trine explained one of Minecraft's uses as a way for students to explore different topics inside the game world:

> There are already many educational topics and games created, but you can also create ones yourself. So, for example, you can click on sustainability, and then, in the game-world, the students can see how different things are created, and then they can analyse whether it is sustainable or not.

As Trine explained the use of Minecraft, she also addressed that she does not use it with all the groups. She said that she surveys her students, and if she sees it as advantageous, then she proceeds.

> I don't use it in all groups. For the most part only when I see it as advantageous, TIP, construction, and maybe service classes. Because they usually play games in their free time.

These findings suggest that determining medium is both related to the given class and its students, and the lesson's topic and aim. The findings do not indicate a shared, unified understanding, as the teachers view some tools as more efficient than others. The four

teachers expressed a similar view regarding teachers' need for training in the use of digital tools, and that it should be emphasized in teacher education. This will be further elaborated in section 4.6.

4.3 Possibilities and drawbacks

All four teachers expressed an interest in the possibilities that digital tools have. They reported that, over the years, they have seen digital resources come and go. And the tools that remained have become a classroom-hit, with the likes of Kahoot, Quizlet, Creaza and Minecraft Education. When asked about the possibilities of these tools, Frida said:

> […] I think it gives them little bit of renewed energy and … uhm, I think possibilities for learning. Everybody has different learning preferences.

Kristen voiced a concern that when students get used to tools that constantly try to hold their attention, their attention-span might suffer from it.

> In terms of Kahoot and Quizlet, I think it is more engaging for the students, and they often ask for competitions, and they find it fun. With Creaza and Quizlet … the students are allowed to actively participate, and it is a variation from the traditional. But that can also be one of the drawbacks, that it can easily get boring for students to sit and listen to a presentation, only working with tasks, that they, like, always want something to happen fast and change constantly, and young adults are used to it, and that may lead to shorter attention span.

Only Frida had commonly used virtual reality in her classroom. She explained that the IT-department has a full set of VR-glasses, which require no installation or computer. You simply have to put them on. She explained that they have used it to travel to different locations with the help of Google Maps inside the VR-glasses. The students prepared to "travel" to either a workplace, a university or a known building, and later, they had to make a presentation to talk about their place of travel.

> So, it was very descriptive, and they were able to use a lot of descriptive language, and then, uhm, explain what they did. And they liked it a lot! They liked the opportunity to travel someplace completely different.

The most prominent setback of using digital tools, according to the teachers, was the GDPR guidelines. All four teachers expressed both uncertainty and difficulties dealing with GDPR. Although there were solutions in sight, at the moment of interviews, they could not use, for example, Quizlet.

> We have started working on a solution. There have been created school accounts and we can share links, so the students can use it without registering.

Another drawback presented was the issue of constantly dealing with new digital tools. While they all tried to employ games or digital resources in their teachings, two of the teachers voiced the concern of feeling inadequate, as they had little to no experience with games before, and to employ it in their teaching was difficult, at least without proper instruction. This drawback was not only limited to older teachers, they said, as it also boiled down to experience. Trine explained:

> You use what you are most comfortable with. Especially when you are going to teach. And those that are young, they are like … "okay, I don't know this game, so I try to play it a little and see how it works, and then I can teach it". I think that is the main difference. But sure, if they got the opportunity to learn it, on a planning day, they would probably find it fun, and then, maybe understood that; yes, I could use that in my teaching.

These findings suggest that the evident possibilities with digital tools are versatility and possibility for creativity and exploration. The teachers expressed that it gave them a much-needed variation in their lessons, and from their point of view, a way of keeping the students both creatively and actively engaged in the learning material. They did, however, express difficulties with the GDPR guidelines. But that is something mostly out of their control, and they have to wait for a solution.

4.4. Reading & digital reading

When asked about reading in the subject of English, all teachers expressed that it is an important part of learning a language. While two of the teachers said that it did not matter what they read, as long as they read, the remaining two said that literature was paramount for their teachings. Nina said:

> Reading is important. I think all reading is good reading. It isn't that important whether they read Ibsen, or Shakespeare, but that they read something they find interesting. All reading is good. How, or what … I mean, there have to be a certain variation, but I think that it's … it's more important that they read than what they read.

Comparatively, Kristen, with an educational background in literature, said that she thought fiction was very important, both for vocational and general studies. She said:

> I believe fiction is important, whether it's in vocational or general studies, and for example, the analysis of poems, is somewhat scolded, but I feel it is important to know how language is used in a conscious way. That it is about communication and social communication. […] I view reading as very positive, because you experience a story and a society that is factual through a personal eye, and there are emotions present, and it is about how we are here today, and which lines that affect us.

Frida expressed similar views on reading as Kristen, although she felt it was important to create a connection to the real world for the students and choose meaningful books. She gave the following example:

> […] you know, all the research shows that if you want students to read, it has to touch them, and they have to feel some kind of connection. If you are going to look at Animal Farm, and the connection, you have to make that connection before they start reading, so, when we talk about Napoleon in the book, then you have to talk about Donald Trump. So then, you kind of have to, turn it, and get their curiosity.

Trine answered that she thought reading was an important skill in English, but that she sometimes struggled to get students to read, and especially in the vocational classroom. To remedy this, she used alternative ways of reading in the classroom.

> In vocational studies, it is a bit harder to make them read, so we chose easier and shorter books. We use easy reader, audiobooks, films and Minecraft. In Minecraft, they get quests that they have to read and understand to complete, so it works their understanding and vocabulary.

While Trine uses games as a tactic to get students to read, Nina said that she was open to using games for reading, and that she had seen examples of it being used, and successfully, albeit she needed thorough instruction to do so. In terms of reading in the vocational

classroom, Nina sees no difference in motivation compared to in a general studies class but said that she has to be aware of which books she chooses. She further explained that she often allocates time for reading in the classroom, so that the students can ease their way into the book. However, as Nina put it, there is a steady increase in the use of digital resources as an alternative to traditional reading.

> Our textbook has a net resource. So, there is a whole lot of texts and tasks available there. There is, for example, a 360 film of a mechanical garage that the students can move around in. Then they can go in there and click on the different tools and parts, and it is explained in English what they do. They read a lot of manuals and mechanical information in English.

Frida reported that she utilized digital tools after the students had read, to check their comprehension, as well as a way for them to visualize, for example, themes and symbols. That way the students are allowed more creative freedom, and as Frida put it: “engaging them in the content in a completely different way.”

These findings suggest that reading holds an important place in the subject of English, and while there are opportunities for using digital tools as a way to encourage reading, few utilize them. Only one of the four teachers utilized digital tools regularly as a way to read in the vocational classroom. This does not indicate that it is an ineffective way of encouraging students to read, rather, it emphasises that the teachers saw it as a supplement to reading instead of the main tool.

4.5 Relationship between games and acquisition of language in the vocational classroom

When asked the question of whether they used games in their lessons, the teachers all said yes, but they varied widely in terms of how frequently they used it. While Frida rarely used games in her teaching, other than a couple of times with the VR-glasses, Trine had seen great success with Minecraft in vocational studies. She felt that the students were very motivated to read in-game, and figure out how to solve quests, and tasks that were given. She gave the following example:

> You can read the signs and talk to people in the game. Before Christmas, we did the Christmas Carol in the game, so, they walked and flew around, talking with the different characters in the story, and in the end, experienced the classic tale in a completely different way.

Trine said that although she saw great success with Minecraft, she did not use it in every class. It mostly was dependent on the topic and the students. Kristen, on the other hand, had never used Minecraft, but was open to it. She did, however, use other games, in the likes of ICivics and Spent, which are interactive net-based games that let the students play the role of either someone in the course of a political campaign (iCivics), or someone on minimum wage (Spent). She explained that it was a great way to introduce a topic, and let the students themselves experience something first-hand, compared to reading about it in a factual textbook. Although it was an alternative way of teaching, she could not only rely on the game alone to teach, as it does not take into account the varying levels of understanding in the students.

Another game used in the vocational classroom was Car Mechanic Simulator, in which the students are placed in a garage, and can freely move around and pick up tools and parts inside the garage and try to fix a car. Trine expressed that it was a great tool to employ, especially in the vocational classroom, as they got work-related experience as well as exposure to their L2. These students, she said, had no problem learning the game quickly, as many of them played games in their free time. However, as with Quizlet, there is a registration needed for Car Mechanic Simulator, so it does not abide by GDPR-guidelines.

> We can’t make them register an account. But if they want to make an account, they are allowed. So, we aren’t allowed to instruct them doing it, which makes it difficult.

Frida reported that she seldom used games, but on the rare occasion that she did, she found it very engaging. She had mostly used virtual reality, where the students were allowed to travel to famous land sites, museums, universities. She often felt that the students engaged with the learning material in a completely different light.

> You could go to a museum. People have gone in there with 360 cameras, so you can travel into Notre Dame and turn left and see this painting or that painting, or whatever. But they also travelled to universities, colleges, and workplaces. And then they used infographics to explain where they went.

In effect, Frida said, the games worked great as a supplement to her regular teaching. With time, she could see herself utilizing games more, as she progressively became more comfortable with them. However, she did stress the importance of variation, as one had to be careful not to rely on one single tool, rather utilizing them all to their best purpose.

These findings suggest that games can be an effective tool to learn a language, to promote reading, or introduce the learning material. However, the findings indicate that although an effective tool, games should be used in variation with other learning methods. The teachers had no unified understanding of whether games improved or encouraged language learning, rather, they saw it as a way to explore the students' creativity and spark their curiosity for learning. Furthermore, the findings suggest that using games that intertwine work-related experiences with language learning in the vocational classroom, can be effective to promote motivation and learning.

4.6 The way forward

The four teachers gave different accounts of how schools and educational institutions are to prepare current and future teachers for the new digital, educational climate. What they all agreed on, however, is that there is a need for planning days, orchestrated by the school, that focuses on educating teachers about the possibilities of digital tools and resources. One teacher, Trine, reflected on whether she felt the teacher education focuses too much on traditional teaching methods compared to newer, more digitally focused ones. She stated:

> It should be present in teacher education to inspire them. Because there are so many great tools available. I also think courses about digital tools, for teachers, would be great, even for those teachers that are competent in the tools, to get new viewpoints.

Kristen addressed this issue similarly to Trine. She felt that teachers should get courses in the digital tools they are to use or days where they can interact and use them. Only then, she said, will teachers feel comfortable and, in the future, utilize these tools in their lessons. Nina addressed this further, by saying that with the new curriculums that came in 2020, teachers are not only recommended to utilize digital tools, but obligated since the students should be able to use suitable digital resources in language learning, text creation and interaction.

> […] It is here to stay. And it is part of the curriculum, so we have to adjust accordingly.

These findings suggest that there is an explicit need for educating teachers in new digital tools, as the teachers expressed difficulties in using something in their teaching, with which they themselves do not feel comfortable. Furthermore, the findings suggest that by implementing more digital tools in teacher education, one can inspire them and futureproof them for the new wave of tools to come.

4.7 Summary of empirical research findings

To summarize, the findings presented in this chapter are a response to the research questions (section 1.1), as well as the interview guide (appendix 4). The first section (4.1) of findings concerns how the interviewed teachers view digital tools and their attitudes towards them. These findings represent the first research question. The gathered data indicate that while most of the teachers had positive attitudes towards digital tools, there was a degree of uncertainty about whether it could be a distracting factor in the classroom, as well as a way to limit the student's attention span. The data also indicates that they employ digital tools differently, and to a different degree.

The second section (4.2) of the chapter concerns the second research question (section 1.1). The findings indicate that the teachers employ digital tools in accordance with the aim, topic and class. There was no unified understanding of which medium to employ for which aim and topic, but the findings suggest that there were more digital tools employed in vocational studies compared to general studies. Moreover, there seemed to be more focus on aligning the digital tools with the vocational student's work-related experiences, as exemplified in section 4.5. These findings align with Skarpaas and Brevik's theory of how students' engagement increases when the activities and themes exercised in the classroom can explicitly be connected to their vocational world (2018, p. 75). The teachers also expressed how the choice of tools and medium was related to their own knowledge, as they did not feel comfortable using a digital tool that they were unfamiliar with. These findings align with the theory (Davis, 1989; Bourgonjon et al., 2010; Fenner & Skulstad, 2020) which states that the perceived usefulness of a tool lies in the teachers experience of it and its ease of use.

The final parts of the chapter are a response to the third research question, which asks how digital tools can be used to promote reading and digital literacy. The findings indicate that teachers use a wide variety of digital tools to promote reading and digital literacy, and they expressed no clear unified preference for either tool or medium. One teacher mostly used novels to read in her vocational classroom, while another used digital storytelling, with for example, Minecraft. The findings suggest that teachers are open to using games and digital resources for reading, but that they need explicit learning to do so. The implications of the findings presented will be further discussed in the following chapter.

5. Discussion

This thesis explores the possible challenges when employing digital tools in the subject of English in Norwegian education, and how teachers perceive the efficacy of digital tools in terms of promoting reading and digital literacy. To shed light on this topic, four semi-structured interviews have been conducted to gather data. Each teacher was asked about their attitudes towards digital tools, their perceived strengths and weaknesses in using them, and how they can be utilized to promote reading and digital literacy, primarily in the vocational classroom. As previously noted, insufficient research has been conducted on the complex nature of digital tools, and their possible benefits on reading literacy and acquisition of language in the Norwegian vocational classroom. To this end, this thesis aims to provide empirical findings on this subject, to further contribute to the field of research in English didactics.

In this chapter, I discuss the implications of the empirical findings. The chapter will be divided into three main sections: (1) The position of digital tools in the subject of English (2) The choice of medium. (3) Digital tools to promote reading and digital literacy. The empirical findings are dissected and discussed in correlation with theoretical documents and previous research, and further discussed in a larger context, addressing issues connected to the findings that merit discussion. The issues, according to the empirical findings, concern the lack of digital guidelines, the lack of explicit instruction in using digital resources, the nature of games in educational practice, and the complex relationship between digital tool and teacher.

5.1 The position of digital tools in the subject of English

In this study, the teachers' attitudes towards digital tools were closely connected to their familiarity of them. The teachers that reported positive viewpoints on digital tools also reported a high degree of comfort in using them, as well as perceived success in the classroom. This corresponds with previous research (Compeau & Higgins, 1995; Bourgonjon et al., 2010; Petko, 2013). Another finding that emerged from the data, was that teachers expressed only using tools that could be correctly framed for the aim and theme of the lesson. This aligns with Brevik's findings, which report that students might not embrace digital resources for learning if an unskilled teacher does not manage to frame the activity in a

productive way (2016a, p. 43). In that sense, a teacher unskilled in the use of digital tools would yield less from a digital activity compared to a skilled one. This seemed to also be a reoccurring sentiment amongst the teacher in this study, as they noted they only utilize digital tools that they are knowledgeable in. They also reported a degree of scepticism towards digital tools, as they often could be found to divert student's attention. This may diverge with findings from Fjørtoft et al. (2019), which reported that in 2019, 12,9% of VG2 students found digital tools as a distraction in their learning, compared to 47,3% in the corresponding survey from 2013 (Hatlevik et al., 2013). This may signal that teachers have gotten better to successfully implement and frame digital tools in learning situations.

A notable finding in this study was that although digitisation has brought a stronger degree of multimodality to the subject of English, the teachers acknowledged that reading and writing in a traditional sense was still very much imprinted in their teaching. Two of the informants said that even with a plethora of digital tools available, they often chose the traditional reading format as they felt students read better and were more focused. This corresponds with data from a study by Kerr & Symons, where their findings indicate that students used more time to read texts but recalled more from a computer monitor than when reading from paper (Kerr & Symons, 2006, p. 1). However, when taking efficiency variables to account (time allocated), the benefits of computer screen disappeared (Kerr & Symons, 2006, p. 1). These findings may diverge with a number of studies (Davis, 1989; Compeau & Higgins, 1995; Bourgonjon et al., 2010), which explain that there is a direct connection between experience with a digital tool, as well as its ease of use, with the user's willingness and effectiveness in using it. This does not imply that the teachers in this study chose one tool over another on the basis of success, but rather their choice became a product of their own experiences. In turn, the teachers in the findings reported few instances where digital tools were actively used as a way to read, but rather reported that it was a supplement instead of the primary tool.

Interestingly, the findings suggest that the teachers have a different understanding of what they consider to be a digital tool. This may be correlated to the fact that the curriculum does not explicitly define the term "digital tool". Referencing the English subject curriculum, "the student should be able to use suitable digital tools and other resources in language learning, text creation and interaction" (Utdanningsdirektoratet, 2020). To further elaborate on this, when asked to define digital tools, the teachers in this study presented a wide range of tools they used, and there was no strong, unified understanding of exactly what constituted a digital

tool, nor when to use them or to what purpose. These empirical findings align with Petko's research, which state that teachers' beliefs are very heterogeneous, in the sense that beliefs do not only vary in cultures and disciplines, but even among faculty members in the same discipline (2013, p. 1353). However, this may also indicate that the choice of medium is teacher-led.

Wastiau et al. argue that obstacles in the use of ICT relate to the lack of competence and pedagogical models, unclear goals for using ICT or a lack of consensus about it (2013, p. 23). These obstacles were mentioned by the teachers in this study; however, they were unsure whether it could be solved through continual TEL and ICT development orchestrated by the school or clearer definitions in the curriculum. According to the survey of Wastiau et al. (section 2.4.2), Norwegian schools are ranked relatively high in digitally supportive teachers and schools (2013). Taking the findings in the present study into account, it may signal that there is a discrepancy in the digital knowledge and skill of upper secondary teachers. At the very least, it points to the complex nature of defining and utilizing new tools in an educational setting.

5.1.1 Digital tools in the vocational classroom

The teachers reported some differences in the use of digital tools between vocational and general studies classes. A reoccurring theme was that digital tools were implemented in vocational classes as a way to intertwine vocational experience with language learning. To achieve this aim, the findings indicate that the teachers utilized either games or interactive websites. This aligns with Skarpaas and Brevik's (2018) findings which suggest that vocationally-oriented lessons in English can contribute to engagement. However, the lesson cannot be based on vocational orientation alone, as social relevance, youth relevance and individual relevance are equally important.

The increasing use of digital tools in vocational classes was reported by the teachers to be a result of the new curriculum emphasising digital tools and vocational orientation in the subject of English, as well as the students' general preference of learning through variation and engaging methods. However, there was not a unified agreement present in the findings of whether digital tools were more suited to the vocational classroom when compared to traditional pedagogical methods. The strongest arguments in favour of digital tools were for

their versatility, and their vast possibilities to orient lessons vocationally, while the arguments against were mainly focused on the distracting factor and the lack of confidence or skill in using digital tools.

Another notable finding from the interviews was the experience of reading in the vocational classroom. While two teachers reported having no preference in reading material, the two others favoured traditional paperbacks, and saw no different reading skill level between vocational and general studies students. This sentiment was countered by one teacher, who reported she struggled to get vocational students to read novels, and thus, used other reading material, either an easy reader or games with text-based quests. Brevik (2016b) argues that the belief that vocational students are weaker readers compared to students in general studies, is a misconception. Furthermore, Brevik (2016b) explains that vocational students often use reading strategies to understand the text (section 2.2.3), as well as utilizing visualization and graphical diagrams. Both visualization and graphical instruments are apparent in digital approaches, such as games, hyperlinked text or interactive websites, and may indicate that a digital approach to reading in vocational classes, may be beneficial. However, to successfully implement digital tools in academic situations, research from Brevik (2016b), reports that the teacher must actively tell the students the purpose of the tool, as it may help solidify what they should learn.

The teachers in this study stated that in vocational studies, digital tools could be tailored to the students' vocational world, to further link the subject of English to their chosen profession. To achieve this, the findings suggest it requires digital skills, by both student and teacher, as it entails that the teacher is correctly utilizing the tool, and that the student understands its purpose. While these digital skills may partly be developed through individual experiences, it seems evident, from the findings, that a continuous development of ICT would ensure consistency in terms of quality of learning. With an expanded understanding of the tools available, the teachers can further develop and scaffold both digital and traditional tools to cater to the aim and subject of the lesson. It is, however, important to note that the findings indicated a partly divided opinion on whether digital tools could potentially foster higher reading competences in the students.

5.2 The choice of medium

The teachers in this study reported that the choice of medium depended on topic, class and aim. There were many contextual factors which they had to consider before choosing the appropriate tool. In a vocational class, the teachers in this study reported a higher degree of multimodality compared to in a general studies class. This was a result of both catering the lesson to their vocational world, but also as a way to alternate teaching, hoping to improve motivation. This closely correlates with Skarpaas and Brevik's research which reports that students' engagement increases when the activities and themes exercised in the classroom can be explicitly connected to their vocational world (2018, p. 75). Interestingly, this relates to the *why*, and not to the *how*, as the teachers in this study were aware of the potential benefits of digital tools in vocational classrooms but were not completely sure *how* to implement them.

To further elaborate on the matter of *why* digital tools should be implemented and *how* it should be achieved; there was a consensus amongst the teachers in this study, as they individually expressed similarly that there were insufficient courses in digital tools, orchestrated or financed by the school, to further improve their understanding of the tools they can use. Ideally, the explicit training in digital tools should start in teacher education, one of the teachers said. This correlates with the research of Brevik (2016a) and Amhag et al. (2019), which signal that teachers need explicit instruction in digital tools to be able to use them efficiently in a learning situation. With explicit teaching in digital tools, teachers can scaffold their lessons to foster both conscious and active learning and connect the material to the students' lives to promote encouragement. This aligns with RAND's theory of learning in a sociocultural context, which explain five characteristics of acquisition of knowledge and literacy; "the identity of participants, how the activity is defined or executed, the timing of the activity, where it occurs, and why they should participate in the activity" (2002, p. 16). In light of RAND's (2002) learning theory, it points to the importance of teachers understanding the resources available in educational settings, and how engagement is closely related to the students' own experiences. These factors are closely connected to TEL.

In recent years, due to an increase in technological tools for learning, initiatives to promote or extend knowledge of TEL has been addressed (Masterman & Manton, 2011). This contradicts with the findings in this study, as the teachers reported a lack of initiatives to promote TEL. This is problematic, as it may lead to poorly integrated use of TEL (see section 2.2.3).

Research (Davis, 1989; Masterman & Manton, 2011; Amhag et al., 2019), explains that a high degree of experience in digital tools and their ease of use, are important factors in the relationship between teacher and digital tool. To simply add a digital tool to conventional teaching strategies is – according to Merzenich (Bernard, 2008, p. 221, see section 2.3.1) – "an unsophisticated approach that adds very little to the students' experiences in the classroom". Without explicit instruction in using digital tools effectively, it may lead to unfruitful lessons, as implementing digital tools successfully in educational settings require digital literacy from the teacher and student alike (Nebel et al., 2016).

Even with an increase in initiatives to promote or extend knowledge of TEL, the teachers in the findings reported no agreed understanding of exactly how to promote TEL. There are a few possible reasons for this. As previously mentioned in section 2.3.3, digital tools are considered opaque, and rapidly changing mediums (Amhag et al., 2013, p. 203). As a result, institution-led initiatives to promote TEL have to consider what happens when the digital tools they are instructing them in, will become outmoded. Moreover, they also have to consider whether teachers should have continuous professional ICT/TEL development or taught how to understand and find options for digital tools themselves. These are multi-layered questions, and hard to conceptualize into clear answers, as teachers work in a specific cultural matrix, and potentially in different ways.

In a research study conducted by Amhag et al., they asked teacher educators in higher education "what type of training do you think would enhance your competence regarding digitalization of teaching?" (2013, p. 213). "The result display that more than one-quarter responded they need continuing didactic training with an emphasis on their use of subject content knowledge with digital tools" (Amhag et al., 2013, p. 213). In relation to this study, two teachers expressed the need for a continuous professional development in the use of digital tools. In light of these findings, it may indicate that teachers are communicating a need for stronger guided instruction in the use of digital tools, to fully understand the ideas, purposes and concepts behind the digital tools.

5.2.1 GBL in educational settings

Using games for educational purposes has proven to be an effective way to enhance learning motivation and academic performance (Kingsley & Grabner-Hagen, 2015, p. 51). The

informants of this study reported primarily positive views on games in educational settings, albeit not all of them were completely convinced. Interestingly, reading and writing, in the traditional sense, was still the main focus of their lessons. One possible reason for this is the lack of development in teachers' digital skills, as mentioned in section 5.2. The teachers' scepticism towards games in L2 development, may also be attributed to the fact that there is no direct mention of games in the English curriculum. Instead, the curriculum states the use of digital tools, without the specification of what the tool should be (Utdanningsdirektoratet, 2020). As such, it is up to each individual teacher to specify what they consider a digital tool, and which is the most efficient for its purpose.

A notable finding that should be further elaborated on, is the perceived success of games in vocational classrooms. One teacher reported games as a salient component in the subject of English, especially to cater to the students exploratory and creative side. It was further stated by the teacher that the game created an atmosphere of learning that was hard to replicate in a traditional pedagogical manner. Games like Minecraft Education and Car Mechanic Simulator opened up a wide range of possibilities to learn English, as well as catering to creativity and the vocational students' experiences. This aligns with the theory of Bourgonjon et al. (2010, p. 1145) (see section 2.3.2), which explains "that video games are an embodiment of a new educational approach, situating learning in meaningful contexts, empowering students to become self-regulated, presenting them with ill-structured problems, integrating several knowledge domains, and promoting inquiry-based and discovery learning".

The aforementioned assumptions, however, are contested, both by informants in this study, and researchers referenced in the research of Bourgonjon et al. (2010). The research suggests that "students are not always immersed in new technology, and that their usage and interest is rather a reflection of their desire to communicate with friends, search for meaning, create their place in society and relax and have fun" (Bourgonjon et al., 2010). One of the teachers in this study reported a similar view, stating that the need for a technological shift in the educational practice was overemphasised, as traditional methods were still very good. This may correlate with Davis' research of TAM (see section 2.3.2), which identifies the direct relation between ease of use and usefulness, and that an individual's use of a technology is heavily dependent on their evaluation of its usefulness (Davis, 1989). To this end, it can be argued that if teachers are given more instruction in digital tools, their evaluation of its usefulness might increase.

Bourgonjon et al. (2010) state that with the growing number of changes in media consumption patterns, the new generation of students has grown up with hypertexts, social networking programs, and video games. This statement was backed by the informants in this study, who reported that students had few problems navigating new digital tools. In line with research of Brevik (2016a), Brevik (2019) and Brevik & Garvoll (2019), as well as informants of this study, there was found a direct correlation between games and vocational students, in the sense that most of them played in their free time and often in English. Consequently, these students, according to prior research, have a tendency to score higher in their L2 compared to L1 (Brevik, 2016a, p. 39). To this end, it can be argued that games may nurture their L2 acquisition, and that there is a possibility for teachers to further utilize that in other subjects. To achieve this, it is evident that teachers need explicit teaching, as mentioned in section 5.2.

5.2.2 Internal and external restrictions

At the time of the interviews, the teachers in this study reported that GDPR blocked the use of some digital tools. Especially the ones that required the students to register an account. This led them to choose one medium over another, based on restrictions. Additionally, the teachers were offered no alternative to the programs they lost access to. This is problematic, as many of the digital tools they previously used, had been successfully integrated into their teaching, and steadily become a core part of their lessons. Amhag et al. (2019) addresses this issue, stating that digital tools are unstable, rapidly changing, and often opaque, in the sense that the inner workings are hidden from its user. The restrictions are a response to the opacity of digital tools. GDPR, for example, are present to safeguard the student's personal data.

Another restriction reported by the teachers was budgetary, for example, audiobooks – which one of the teachers wanted to utilize more frequently – were hard to come by, and apparently very expensive. Ideally, she wanted the students to have the opportunity to listen to a book, while they read it. However, the school had few audiobooks available. This was a problem, she stated, as many of the students gained new-found motivation for reading if they managed to complete a book with the help of an audiobook. This correlates with the motivation theory of Grabe (2009), which portrays motivation as a combination of cognitive abilities, environmental factors, and behaviours in the given situation. With that in mind, facilitating for success through incorporating the correct tools, may improve motivation for learning.

5.3 Digital tools to promote reading and digital literacy

According to RAND's (2002) model, there are three elements that constitute reading comprehension. First, the reader who is doing the comprehending. Second, the text which is to be comprehended, and third, the activity in which comprehension is a part (RAND, 2002, p. 14). Printed text and digital reading are often implied to be coterminous, as there are few differences in skills and approaches required to read digital text compared to printed text (See section 2.1). This idea is contested (RAND, 2002; Liu, 2005; DeStefano & Lefevre, 2007; Baron, 2017), which state that a digital text is cognitively more demanding compared to printed text, as digital text requires decision making and processing through hyperlinks. Comparative levels of difficulty between printed and digital text were not addressed by the informants of this study, rather, they stated that printed and digital text was used for different purposes. This aligns with Liu's theory, as they state that digital media tend to be more useful for searching for information, while paper-based media are preferred for consumption of information (2005, p. 701)

Reading, both digital and printed text, is a process of receiving and interpreting information encoded in language (Fenner & Skulstad, 2020, p. 145). Much of L2 reading is based on our reading in L1 (Bernhardt, 2011). However, Fenner & Skulstad (2020), suggests that fluency in L2 reading is often impeded by the lack of lack of vocabulary, e.g., words that the reader does not recognize immediately. To remedy this, the findings in this study suggest that hyperlinked structured text or interactive websites cater to the possibility for implementing explanations of certain difficult words or topics. This corresponds with the aim of the English curriculum, which states that the student should be able to "use suitable digital resources and other tools in the learning of language, creation of texts and communication" (Utdanningsdirektoratet, 2020). To this end, it can be argued that the English classroom should utilize both printed and digital text, as they have their unique strengths and weaknesses. However, as discussed in section 5.2.2, external restrictions have blocked many of the resources, and many of the software previously used, were currently unavailable.

Interestingly, the findings suggest that out of the four teachers, only one utilized digital tools strategically to increase reading literacy in the vocational classroom. The remaining three did use digital tools, but rather as a supplement to the more traditional pedagogical tools, such as novels and textbooks. However, the three teachers also reported that they wanted to utilize

digital tools more strategically, only they needed to understand how. To exemplify, they viewed games as an interesting and engaging way for students to learn, but there were still too many unknown factors for them to fully implement games in their instruction. Another possible reason for this hesitancy, may be attributed to the vague definition of "digital tools" in the curriculum. As such, the teacher is placed in a difficult autonomous position, having to choose one digital tool over another on the basis of experience and their perceived usefulness. This illustrates the need for stronger guidelines in using digital tools in educational practices, as well as the importance of having knowledge of the digital tools available.

Aforementioned in section 4.4, the empirical findings suggest that the teachers in this study mostly utilized novels and printed text for students' reading. If they used a digital tool for reading, it was with the specific purpose of variation, or to vocationally orient their lesson. These findings align with the research of Compeau & Higgins (1995), who apply Bandura's (1986) *social cognitive theory* to conceptualize the cognitive determinants of individual behaviour (see section 2.3.3). The research states "that individuals are more likely to undertake behaviours they believe will result in valued outcomes" (Compeau & Higgins, 1995, p. 119). Moreover, their action and choice are also closely correlated with their belief about their ability to undertake a particular behaviour. Hence, teachers may choose the tool they believe will result in the best outcome. It can then be argued that with increased experience and instruction in digital tools, teachers may be able to utilize them to a higher degree, and further engage students in both digital and printed text. This further illustrates the importance of explicit instruction in the use of digital tools in educational settings.

As this discussion has indicated, employing digital tools in the subject of English is complex. It entails having detailed knowledge of the digital tool, how it can be used effectively, to what purpose, and how it may align with the curriculum. The findings indicate that the teachers are given no direct guidelines, neither by the Norwegian Directorate for Education and Training (UDIR), or the school. As such, they are placed in an autonomous position where they have to learn and gain knowledge about the digital tools and resources, and then decide which of the tools that fits the aim and purpose of a given lesson. This is a strenuous task for teachers, and without proper explicit instruction, often time-consuming. New digital tools are constantly being added as an educational resource, yet there is no way of knowing how well they will be received by the students. Theory on games in L2 learning, for example, is still in its infancy. However, if the digital tools are incorporated successfully, the findings suggest that it is a way

to engage students in the learning material, by orienting the lesson to the students' vocational world. The sum of these findings indicate that digital tools have an important place in the subject of English, and that they can be used to engage vocational students in reading and subject material. It does, however, require experience and knowledge from teacher and student, through explicit instruction.

6. Concluding remarks

This thesis has examined and discussed how teachers use digital tools to promote reading– and digital literacy in upper secondary in Norway. It encompasses the complex nature of implementing new tools in an educational setting. To approach and answer the thesis' research questions, upper-secondary teachers' comments were gathered through semi-structured interviews. The first research question concerned the teachers' attitudes and understanding of digital tools. The empirical research findings indicate that the teachers had mostly positive attitudes towards digital tools and reported few instances of negativity concerning the use of them. Despite this, digital tools were not utilized as primary tools, rather, they were used as a supplement. This raised the question of why they were not utilized more. Which in light of the findings, boiled down to the lack of direct guidelines and explicit instruction in the use of digital tools.

The second research question concerned the teachers' choice of tool and reasons for that choice. According to the findings, there was no unified belief, nor understanding, of which tool to employ for which topic. This was attributed to several factors. First, there were an abundance of tools available, and some teachers saw benefits in tools where another did not. In the context of previous research, it is suggested that experience and ease of use of a digital tool directly correlate with the teacher's choice of medium. There were, however, some similarities in their choice of digital tools. But this this may signal that the teachers in this study operate within a specific cultural matrix. This study was limited to interviewing from one school, and a more substantial study, with more time and funding, could produce more diverse experiences.

The third research question concerned the use of digital tools to promote reading– and digital literacy. According to the findings, the teachers did utilize digital tools in an attempt to promote reading– and digital literacy, but to a varying degree. One teacher had used games in the vocational classroom, and saw that students engaged with the learning material in a positive way. The remaining teachers had mostly used interactive websites, or hyperlinked text, and regarded it as a positive tool to cater to vocationally-oriented lessons, as well as a way to create variation. They stated, however, that they wanted to use more games and other digital tools, but only if they got explicit instruction in how to use them. This indicates the

need for schools to orchestrate days for teachers to experiment and learn about the tools of the modern classroom.

All of the research questions contributed to the wider discussion, where the complex nature of digital tools has been the issue. While not providing a definitive answer, the discussion has, at the very least, addressed certain problems that appear when implementing digital tools in the classroom. The primary problems concern the lack of guidelines for teachers to follow when implementing digital tools, the external restrictions of GDPR, and insufficient explicit ICT/TEL development. These problems may point out the necessity for a clearer definition of digital tools in the curriculum, and more allocated time to learn about the digital resources, as that may be a precondition to successfully implementing digital tools in upper secondary.

6.1 Limitations and ideas for future research

Aforementioned in section 3.6, the global pandemic COVID-19, is still ongoing. This has presented the thesis both with a limitation, and provided potential topics for further research: what implications has COVID-19 caused in the usage of digital tools in upper secondary? This lies outside the scope of the current project, but is a topic that preoccupied the participants in this study and, with the passage of time, is likely to prove a fruitful area of retrospective research in consideration of teachers' digital literacy and the potential of digital tools in an educational setting.

Another possible area for future research is addressing how instruction in digital tools are presented in teacher education in Norway. Based on the findings, it may be suggested that it is a neglected area in English didactics. The issue, in terms of training in digital tools for teachers, is that digital tools, by their nature, keep being replaced. This begs the question of whether teachers should be continuously trained in IT skills as part of English teaching skills, so they feel comfortable discovering, and experimenting with digital tools, or, if they should learn hypertext theory in postmodern semiotics, so they can implement this in the way they understand how students read. Based on the findings, it could be interpreted that the teachers want to receive continuous ICT/TEL training throughout their careers. I would argue that continuous training is the best approach, as digital tools are rapidly changing, and instruction in one tool may be obsolete knowledge in the next decade.

It should be stated that there are steps being taken on a national level to increase digital skills in teacher education and current employed teachers. The project is led by the College of Volda and aims to develop digital skills through explicit instruction (Høgskolen i Volda, 2020).

Reference list

Ackerman, R., & Goldsmith, M., (2011). Metacognitive Regulation of Text Learning. *Journal of Experimental Psychology. Applied, 17*(1), 18-32. https://doi.org/10.1037/a0022086

Afflerbach, P., Pearson, D., & Paris, S. (2008). Clarifying Differences between Reading Skills and Reading Strategies. *The Reading Teacher*, 61(5), 364-373. https://doi.org/10.1598/RT.61.5.1

Amhag, L., Hellström, L., & Stigmar, M. (2019). Teacher Educators' Use of Digital Tools and Needs for Digital Competence in Higher Education. *Journal of Digital Learning in Teacher Education,*35(4), 203-220. https://doi.org/10.1080/21532974.2019.1646169

Bandura, A. (1982). Self-efficacy mechanism in human agency. *The American Psychologist*, 37(2), 122-147. https://doi.org/10.1037/0003-066X.37.2.122

Baron, N. (2017). Reading in a digital age. *Phi Delta Kappan*, 99(2), 15-20. https://doi.org/10.1177/0031721717734184

Bernard, R. (2008). Digital Storytelling: A Powerful Technology Tool for the 21st Century Classroom. *Theory into Practice*, 47(3), 220-228. https://doi.org/10.1080/00405840802153916

Bernhardt, E. B. (2011). *Understanding advanced second-language reading*. New York: Routledge.

Bourgonjon, J., Valcke, M., Soetaert., & Schellens, T. (2010). Students' perceptions about the use of video games in the classroom. *Computers and Education*, 54(4), 1145-1156. https://doi.org/10.1016/j.compedu.2009.10.022

Bråten, I., & Anmarkrud, Ø. (2013). Does naturally occurring comprehension strategies instruction make a difference when students read expository text? *Journal of Research in Reading*, 36(1), 42-57. https://doi.org/10.1111/j.1467-9817.2011.01489.x

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Brevik, L. (2014). Making implicit practice explicit: How do upper secondary teachers describe their reading comprehension strategies instruction? *International Journal of Educational Research*. https://doi.org/10.1016/j.ijer.2014.05.002

Brevik, L. (2016a.). The Gaming Outliers. *In Educational Technology and Polycontextual Bridging* (pp. 39-61). Rotterdam: Sense. https://doi.org/10.1007/978-94-6300-645-3_3

Brevik, L. (2016b). Tre myter om engelsk på yrkesfag. Bedre Skole, (2), 82-88. Retrieved from: https://www.researchgate.net/publication/304074022_Tre_myter_om_engelsk_pa_yrkesfag_Betydningen_av_a_se_elevenes_helhetlige_kompetanse

Brevik, L. (2020). VOGUE project. *Vocational and general students' use of English in and out of school.* UIO. Retrieved from: https://www.uv.uio.no/ils/english/research/projects/vogue/

Brevik, L. & Garvoll, K. (2019). Engelsk og onlinespill. 2. Retrieved from: https://www.researchgate.net/publication/333176335_Engelsk_og_onlinespill

Brevik, L., (2019). Gamers, Surfers, Social Media Users: Unpacking the role of interest in English. *Journal of Computer Assisted Learning*, 35(5), 595-606. https://doi.org/10.1111/jcal.12362

Brinkmann, S., & Kvale, S. (2015). *InterViews: Learning the craft of qualitative research interviewing (3rd ed.).* Thousand Oaks, Calif: Sage.

Buckingham, D. (2007). Digital Media Literacies: Rethinking Media Education in the Age of the Internet. *Research in Comparative and International Education, 2*(1), 43-55. https://doi.org/10.2304/rcie.2007.2.1.43

Cohen, L., Manion, L., Morrison, K., & Bell, R. (2011). *Research methods in education* (7th ed.). London: Routledge.

Compeau, D., & Higgins, C. (1995). Application of Social Cognitive Theory to Training for Computer Skills. *Information Systems Research*, 6(2), 118-143. https://doi.org/10.1287/isre.6.2.118

Cope, B., & Kalantzis, M. (2009). "Multiliteracies": New Literacies, New Learning. *Pedagogies (Mahwah, N.J.), 4*(3), 164-195. https://doi.org/10.1080/15544800903076044

Davies, C., & Brevik, L. (2016). The potential of digital tools for enabling the observation of comprehension in the classroom. *Nordic Journal of Digital Literacy, 10(2),* 102-117. https://doi.org/10.18261/issn.1891-943x-2016-02-02

Davis, F. (1985). A Technology Acceptance Model for Empirically Testing New End-User Information Systems. Thesis (Ph. D.) – Massachusetts Institute of Technology, Sloan School of Management, 1986. Retrieved from: https://www.researchgate.net/publication/35465050_A_Technology_Acceptance_Model_for_Empirically_Testing_New_End-User_Information_Systems

Davis, F. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319-340. https://doi.org/10.2307/249008

DeStefano, D., & LeFevre, J. (2007). Cognitive load in hypertext reading: A review. *Computers in Human Behavior*, 23(3), 1616-1641. https://doi.org/10.1016/j.chb.2005.08.012

Dyson, M., & Haselgrove, M. (2000). The effects of reading speed and reading patterns on the understanding of text read from screen. *Journal of Research in Reading, 23*(2), 210-223. https://doi.org/10.1111/1467-9817.00115

Erstad, O. (2015). Educating the Digital Generation: Exploring Media Literacy for the 21st Century. *Nordic Journal of Digital Literacy*, 10(Jubileumsnummer), 85-102. Retrieved from:

https://www.idunn.no/dk/2015/Jubileumsnummer/educating_the_digital_generation_-_exploring_media_literacy

Fenner, A., & Skulstad, A. (2020). *Teaching English in the 21st century: Central issues in English didactics* (2nd ed.). Bergen: Fagbokforlaget.

Fjørtoft, S., Thun, S., Buvik, M. (2019). *Monitor 2019.* Trondheim: SINTEF Digital. Retrieved from: https://www.udir.no/contentassets/92b2822fa64e4759b4372d67bcc8bc61/monitor-2019-sluttrapport_sintef.pdf

Garvoll, K. (2017). *The Gamer, the Surfer and the Social Media Consumer: Vocational students' English use in and out of school*. (Master thesis, University of Oslo). UiO: DUO Research Archive. https://www.duo.uio.no/handle/10852/57349

Grabe, W. (2009). *Reading in a second language: Moving from theory to practice* (The Cambridge applied linguistics series). Cambridge: Cambridge University Press.

Harmer, J. (2015). *The practice of English language teaching* (5th ed., Always learning). Harlow: Pearson Education Longman.

Hatlevik, O.E., Egeberg, G., Guðmundsdóttir, G.B., Loftsgarden, M., & Loi, M. (2013). *Monitor skole 2013.* Oslo: Senter for IKT i utdanningen. Retrieved from: https://www.udir.no/globalassets/monitor_skole_2013_4des.pdf

Holm, T. (2020). *Connecting English learning in and out of school: Teacher beliefs, student perspectives and bridging activities in the English classroom*. (Master thesis, University of Oslo). UiO: DUO Research Archive. https://www.duo.uio.no/handle/10852/79824

Høgskolen i Volda (2020). DigiGLU – digital kompetanse i grunnskoleutdanningen. Retrieved from: https://digiglu.hivolda.no

Jewitt, C. (2011). The changing pedagogic landscape of subject English in UK classrooms. *In Multimodal Studies: Exploring Issues and Domains* (pp. 184-201). https://doi.org/10.4324/9780203828847

Kagan, D. (1992). Implications of Research on Teacher Belief. *Educational Psychologist*, 27(1), 65. https://doi.org/10.1207/s15326985ep2701_6

Kerr, M., & Symons, S. (2006). Computerized Presentation of Text: Effects on Children's Reading of Informational Material. *Reading & Writing, 19*(1), 1-19. https://doi.org/10.1007/s11145-003-8128-y

Kingsley, T., & Grabner-Hagen, M. (2015). Gamification. *Journal of Adolescent & Adult Literacy*, 59(1), 51-61. https://doi.org/10.1002/jaal.426

Koda, K. (2007). Reading and linguistic learning: Crosslinguistic constraints on second language reading development. *Language Learning*, 57(1), 1–44. https://doi.org/10.1111/0023-8333.101997010-i1

Koehler, M., Mishra, P., & Cain, W. (2013). What Is Technological Pedagogical Content Knowledge (TPACK*) Journal of Education (Boston, Mass.), 193*(3), 13-19. https://doi.org/10.1177/002205741319300303

Kvale, S., & Flick, U. (2007). *Doing interviews* (The Sage qualitative research kit). London: SAGE.

Lankshear C., & Knobel, M. (2007) Sampling 'the New' in New Literacies. In M. Knobel, M. & Lankshear, C. (Eds.), *A New Literacies Sampler* (pp. 1-24). New York: Peter Lang.

Lee, Y., & Lee, J. (2014). Enhancing pre-service teachers' self-efficacy beliefs for technology integration through lesson planning practice. *Computers and Education*, 73, 121-128. https://doi.org/10.1016/j.compedu.2014.01.001

Liu, Z. (2005). Reading behavior in the digital environment: Changes in reading behavior over the past ten years. *Journal of Documentation*, 61(6), 700-712. https://doi.org/10.1108/00220410510632040

Mangen, A., Walgermo, B., & Brønnick, K. (2013). Reading linear texts on paper versus computer screen: Effects on reading comprehension. *International Journal of Educational Research. 58*. 61-68. https://doi.org/10.1016/j.ijer.2012.12.002

Masterman, E., & Manton, M., (2011). Teachers' perspectives on digital tools for pedagogic planning and design. *Technology, Pedagogy and Education*, 20(2), 227-246. https://doi.org/10.1080/1475939X.2011.588414

Munden, J., Sandhaug, C. (2017). *Engelsk for secondary school*. Oslo: Gyldendal akademisk.

Nebel, S., Schneider, S., & Rey, G. (2016). Mining Learning and Crafting Scientific Experiments: A Literature Review on the Use of Minecraft in Education and Research. *Educational Technology & Society*, 19(2), 355-366. Retrieved from: https://www-jstor-org.ezproxy.inn.no/stable/jeductechsoci.19.2.355?seq=1#metadata_info_tab_contents

Noyes, J.M, & Garland, K.J. (2003). VDT versus paper-based text: Reply to Mayes, Sims and Koonce. *International Journal of Industrial Ergonomics,31*(6), 411-423. https://doi.org/10.1016/S0169-8141(03)00027-1

OECD. (2010). PISA 2009. *Assessment framework. Key competencies in reading, mathematics and science*. Paris: OECD Publications. Retrieved from: https://www.oecd.org/pisa/pisaproducts/44455820.pdf

OECD (2018). PISA 2018 Results (Volume I). Retrieved from: https://read.oecd-ilibrary.org/education/pisa-2018-results-volume-i_5f07c754-en#page35

Opplæringsloven (n.d.) Lov om grunnskolen og den videregående opplæringen. Retrieved from: https://lovdata.no/dokument/NL/lov/1998-07-17-61#KAPITTEL_11

Pajares, F. (1992). Teachers' Beliefs and Educational Research: Cleaning up a Messy Construct. *Review of Educational Research*, 62(3), 307-332. https://doi.org/10.3102/00346543062003307

Petko, D. (2012). Teachers' pedagogical beliefs and their use of digital media in classrooms: Sharpening the focus of the 'will, skill, tool' model and integrating teachers' constructivist orientations. *Computers and Education, 58*(4), 1351-1359. https://doi.org/10.1016/j.compedu.2011.12.013

RAND Reading Study Group. (2002). *Reading for understanding: Toward an R & D program in reading comprehension.* Santa Monica, Calif.: Rand Science and Technology Policy Institute.

Rasmussen, J. (2003). Reading literacy performance in Norway: Current practices and critical factors. *European Journal of Education, 38*(4), 427-443. https://doi.org/10.1111/j.0141-8211.2003.00159.x

Sagli, S. (2017). *Teachers' and students' perception of vocational orientation in the English subject*. (Master thesis, University of Oslo). UiO: DUO Research Archive. https://www.duo.uio.no/handle/10852/57352

Skarpaas, K., & Brevik, L. (2018). Engelskfaget: Relevans som forutsetning for god yrkesretting. 74-79. Retrieved from: https://www.researchgate.net/publication/329358938_Engelskfaget_Relevans_som_forutsetning_for_god_yrkesretting

Sundqvist, P. (2015). Out-of-school digital gameplay and in-school L2 English vocabulary outcomes. *System.,51* (C), 65-76. https://doi.org/10.1016/j.system.2015.04.001

Tovani, C., & Keene, E. (2000). I read it, but I don't get it: *Comprehension strategies for adolescent readers*. Portland, Me: Stenhouse.

UNESCO. (n.d.). Literacy. The UNESCO Institute for Statistics. Retrieved from: http://uis.unesco.org/en/glossary-term/literacy

UNESCO. (2017). Fact sheet No. 45. *Literacy Rates Continue to Rise from One Generation to the Next*. The UNESCO Institute for Statistics. Retrieved from: http://uis.unesco.org/sites/default/files/documents/fs45-literacy-rates-continue-rise-generation-to-next-en-2017_0.pdf

Urquhart, S., & Weir, C. (1998). *Reading in a Second Language: Process, Product and Practice.* London and New York: Longman

Utdanningsdirektoratet [UDIR]. (2016a). *Norwegian vocational education and training (VET)*. Retrieved from: https://www.udir.no/in-english/norwegian-vocational-education-and-training/

Utdanningsdirektoratet [UDIR]. (2016b). *Rammeverk for FYR-prosjektet (2014-2016). FYR - Fellesfag, yrkesretting og relevans.* Retrieved from: https://www.udir.no/globalassets/upload/fyr/rammeverk-fyr.pdf

Utdanningsdirektoratet [UDIR]. (2020). English curriculum (ENG01-04). Retrieved from: https://www.udir.no/lk20/eng01-04

Wastiau, P., Blamire, R., Kearney, C., Quittre, V., Van de Gaer E., & Monseur, C. (2013). The Use of ICT in Education: A survey of schools in Europe. *European Journal of Education*, 48(1), 11-27. https://doi.org/10.1111/ejed.12020

Wästlund, E., Reinikka, H., Norlander, T., & Archer, T. (2005) Effects of VDT and paper presentation on consumption and production of information: Psychological and physiological factors. *Computers in Human Behavior*, *21*, 377-394. https://doi.org/10.1016/j.chb.2004.02.007

Ørevik, S. (2015). From book to screen: Changing genre patterns and communicative purposes. *Nordic Journal of Digital Literacy*, *2015*(2), 102-120. Retrieved from: https://www.idunn.no/dk/2015/02/from_book_to_screen_changing_genre_patterns_and_communicat

Appendices

Appendix 1: NSD evaluation

NSD NORSK SENTER FOR FORSKNINGSDATA

NSD sin vurdering

Prosjekttittel

Masteroppgave - Hvordan digitale hjelpemidler utvikler lese- og skriveferdigheter i videregående skole

Referansenummer

527185

Registrert

24.08.2020 av Tore Thomas Rockett Westre - 205748@stud.inn.no

Behandlingsansvarlig institusjon

Høgskolen i Innlandet / Fakultet for lærerutdanning og pedagogikk / Institutt for humanistiske fag

Prosjektansvarlig (vitenskapelig ansatt/veileder eller stipendiat)

Marit Elise Lyngstad, marit.lyngstad@inn.no, tlf: 97766963

Type prosjekt

Studentprosjekt, masterstudium

Kontaktinformasjon, student

Tore Westre, westre7@hotmail.com, tlf: 41765041

Prosjektperiode

28.08.2020 - 18.06.2021

Status

25.08.2020 - Vurdert

Vurdering (1)

25.08.2020 - Vurdert

Det er vår vurdering at behandlingen av personopplysninger i prosjektet vil være i samsvar med personvernlovgivningen så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet 25.08.2020 med vedlegg, samt i meldingsdialogen mellom innmelder og NSD. Behandlingen kan starte.

MELD VESENTLIGE ENDRINGER
Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. Før du melder inn en endring, oppfordrer vi deg til å lese om hvilke type endringer det er nødvendig å melde:
https://nsd.no/personvernombud/meld_prosjekt/meld_endringer.html

Du må vente på svar fra NSD før endringen gjennomføres.

TYPE OPPLYSNINGER OG VARIGHET
Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til 18.06.2021.

LOVLIG GRUNNLAG
Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse som kan dokumenteres, og som den registrerte kan trekke tilbake. Lovlig grunnlag for behandlingen vil dermed være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a.

PERSONVERNPRINSIPPER
NSD vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om:

• lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen
• formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke viderebehandles til nye uforenlige formål
• dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet
• lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

DE REGISTRERTES RETTIGHETER
Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: åpenhet (art. 12), informasjon (art. 13), innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), underretning (art. 19), dataportabilitet (art. 20).

NSD vurderer at informasjonen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.

Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

FØLG DIN INSTITUSJONS RETNINGSLINJER
NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

OneDrive er databehandler i prosjektet. NSD legger til grunn at behandlingen oppfyller kravene til bruk av databehandler, jf. art 28 og 29.

For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og eventuelt rådføre dere med behandlingsansvarlig institusjon.

OPPFØLGING AV PROSJEKTET
NSD vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til med prosjektet!

Tlf. Personverntjenester: 55 58 21 17 (tast 1)

Appendix 2: E-mail to teachers

Hei,

Du mottar denne e-posten fordi du har meldt interesse for prosjektet, og underviser engelsk i yrkesfag.

Jeg arbeider med en masteroppgave ved Høgskolen i Innlandet, som forsker på hvordan lærere benytter seg av digitale ressurser til å bidra til økt lesekyndighet i yrkesfaglig engelsk. Prosjektet har arbeidstittelen: «The modern classroom – how digital tools are used to promote reading and digital literacy in upper secondary school».

Hensikten med oppgaven er å finne ut hvordan lærere tar i bruk teknologi og særlig digitale ressurser i arbeidet med engelsk. For å kunne finne ut av lærerens synspunkter, vil jeg gjerne intervjue et fåtall lærere som underviser i engelsk yrkesfag, og tar i bruk digitale hjelpemidler i klasserommet. Intervjuet vil bli anonymisert og vil ikke kunne spores tilbake til deg.

Dersom du synes dette kunne være interessant, send meg gjerne en e-post angående når du har mulighet. Du sender et svar på denne e-posten (westre7@hotmail.com), hvor du oppgir følgende informasjon:

- Navn
- Hvilken skole du jobber på
- Hvilke studieretninger du underviser

I vedlegget vil du finne mer detaljert informasjon om intervjuene og forskningsprosjektet. Ta gjerne kontakt om du har noen spørsmål.

Med vennlig hilsen, Tore Westre
Lektor 5
Høgskolen i Innlandet, avd Hamar.
Tlf: 41765041

Appendix 3: Information letter to teachers

Forespørsel om deltakelse i forskningsprosjekt

The modern classroom – how digital tools are used to promote reading and digital literacy in upper secondary school

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å finne ut hvordan lærere benytter seg av digitale hjelpemidler, og hvordan disse hjelpemidlene kan bidra til å utvikle lese- og digitale ferdigheter i videregående opplæring. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Bakgrunn og formål

Denne studien vil utforske hvordan engelsklærere benytter seg av digitale hjelpemidler i klasserommet og i undervisningen; hvilke hjelpemidler, når de brukes og med hvilken hensikt, hva som fungerer og hva som ikke fungerer, samt hvordan lærere ser på utviklingen av lesekyndighet hos elever som i stor grad benytter seg av digitale hjelpemidler. Prosjektet er en masteroppgave innenfor lektorprogrammet ved Høgskolen i Innlandet.

Hvem er ansvarlig for forskningsprosjektet?

Høgskolen i Innlandet er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?

Utvalget er trukket ut gjennom kriterier som består av stilling, ansvarsområde, og utdanningsbakgrunn. Det vil i tillegg til deg være tre andre som får denne henvendelsen.

Hva innebærer deltakelse i studien?

Deltakelse i studien innebærer et intervju (ca. en halv time), som senere vil bli transkribert og anonymisert. Du vil møte personlig for et intervju, der det innledningsvis vil bli spurt om lærerens forhold til digitale hjelpemidler og hvordan de brukes i undervisning. Det vil hovedsakelig dreie seg om lærerens forhold til hjelpemidlene og deres oppfatning av effekt hos elevene. Det vil bli benyttet lydopptak, som senere, etter oppgavens slutt, vil bli slettet.

Hva skjer med informasjonen om deg?

Alle personopplysninger vil bli behandlet konfidensielt, og kun masterstudenten vil ha tilgang til dem. Personopplysninger og koblingsnøkkel vil oppbevares på en ekstern kilde, som igjen er atskilt fra intervjuopptaket og transkripsjonen. Alt vil være passord-beskyttet. Materialet vil anonymiseres, og du vil ikke kunne gjenkjennes i den ferdige masteroppgaven. Masteroppgaven skal etter planen ferdigstilles i mai 2021. Lydopptak og personopplysninger vil da slettes, og transkripsjonen vil bli fullstendig anonymisert.

Frivillig deltakelse

Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli anonymisert, og senere slettet.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke personopplysninger som er registrert om deg, og å få utlevert en kopi av opplysningene,
- å få rettet personopplysninger om deg,
- å få slettet personopplysninger om deg,
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Høgskolen i Innlandet har NSD – Norsk Senter for Forskningsdata AS – vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Hvor kan jeg finne ut mer?

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- Marit Elise Lyngstad, førsteamanuensis ved Høgskolen i Innlandet (e-post: marit.lyngstad@inn.no)
- Høgskolens personvernombud: Hans Petter Nyberg (e-post: hans.nyberg@inn.no, telefonnummer: 62 43 00 23)

Hvis du har spørsmål knyttet til NSD sin vurdering av prosjektet, kan du ta kontakt med:

- NSD – Norsk senter for forskningsdata AS (e-post: personverntjenester@nsd.no, telefonnummer: 55 58 21 17)

Dersom du ønsker å delta, eller har spørsmål om innholdet i studien, ta kontakt med masterstudent Tore Westre på 41 76 50 41, eller via e-post: westre7@hotmail.com

Studien er meldt til Personvernombudet for forskning, Norsk samfunnsvitenskapelig datatjeneste AS.

Med vennlig hilsen

Marit Elise Lyngstad Tore Westre (student)

Samtykke til deltakelse i studien

(Signert av prosjektdeltaker, dato)

Appendix 4: Interview guide

Interview guide – Master project

1) About the teacher:

a) Age, school, professional title
b) Which study programs do you teach?
c) How long have you worked as a teacher?
d) What is your academic background in English?

3) About the school

a) How many English teachers are there?
b) Do the English teachers collaborate?
c) If **yes**, in practice, how does this collaboration look like?

2) The teacher's relationship with digital resources/tools.

b) Do you frequently use digital tools in your teaching, if yes, what and how?
c) What kind of tools or resources do you primarily utilize?
d) Do you see any apparent positive or negative effects when using digital tools?
e) Why do you think digital tools have an important place in the subject of English in upper secondary?

4) Digital tools, when and where?

a) How do you determine when the use of a digital tool is most applicable when teaching English?
b) Do you prefer physical texts and tools rather than digital?
c) Do you feel comfortable with the use of digital tools?

5) Benefits and drawbacks

a) What are your thoughts on reading in the English subject?
b) What types of text do you prefer to let students read?
c) Do you find it hard to find digital material to use in the classroom?
d) What challenges do you face when using digital tools in English reading?

e) Have you seen an improvement in reading skills when implementing digital resources in the classroom?

Appendix 5: Sample of interview transcripts

1

Forsker: Hvordan bestemmer du om et digitalt hjelpemiddel vil være hensiktsmessig i undervisningen?

T: Du ser veldig an, ehm, også har man også en tanke på starten av skoleåret, hvilke man tror vil funke, sånn som i TIP så bruker vi noe som heter Car Mechanic Simulator, hvor de på en måte er mekanikere, og de kan legge på lyd, og spille in sånn: «nå tar jeg ut den og den», og så vurderer vi det, og legger det inn i vurderingen, den muntlige.

2

Forsker: Hvordan bestemmer du om et digitalt hjelpemiddel vil være hensiktsmessig i undervisningen?

K: Ja, si det ... heheh ... det kommer litt an på. Jeg tenker at jeg prøver å variere litt, så jeg tenker at hvis man skal jobbe med et stoff som er litt tungt og lange tekster, kanskje fakta tekster, så fungerer det jo bra å bruke tankekart i Creaza osv., hvis man skal jobbe med begrepet og korte ... ja ... opplysninger, så er Kahoot eller Quizlet fint.

3

Forsker: Hvordan bestemmer du om et digitalt hjelpemiddel vil være hensiktsmessig i undervisningen?

N: Jeg tar jo veldig utgangspunkt i gjengen som sitter foran meg, og har de på lag, og forsøker å finne ut hva de syntes er gøy. Og når de er opptatt av digitale hjelpemidler, og syntes det er en ålreit måte å lære engelsk på, så er det veldig bra, og da bruker jeg mer av det.

4

Forsker: Hvordan bestemmer du om et digitalt hjelpemiddel vil være hensiktsmessig i undervisningen?

F: Vel, det er en annen måte å jobbe på. Som ... ja, gir en annen måte for elevene til å utrykke seg på. Jeg bruker mange forskjellige former for digitale hjelpemidler. Det kan være vanskelig å vite hvilke som passer. Men man må prøve seg frem. Det jo et veldig godt alternativ til vanlig undervisning, og om du lager en video om et tema, så kan elevene gå tilbake å se på det. Det er positivt.