

Avdeling for lærerutdanning og naturvitenskap

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Master's thesis

The use of digital textbooks in upper secondary school English classrooms in Norway

Bruken av digitale lærebøker i engelsk-klasserom på videregående nivå i Norge

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Preface

This has been a long process, one that has run parallel to my first steps into the world of teaching. It has at times been a difficult process, and I owe the completion of this thesis to the many sources of help I have had throughout.

Susan Nacey, my supervisor, has gone above and beyond to help me complete the thesis, offering invaluable advice and suggestions at every turn. To any who may read this in the future, know that whatever she tells you, she is right.

My contacts at Gyldendal, the publisher whose textbook series I am exploring, have also been of great help. Ever since I contacted them about my thesis they have been available to answer questions and provide information whenever I have asked, with an attention to detail and willingness to help that one should strive to achieve. They have taught me that textbook design is everything but simple, and that there is more to the process than we as teachers might initially think.

To my informants, I thank you for your willingness to help and your insights into this topic. You have taught me that my own preconceptions about technology are not the norm.

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1. Introduction and research question

For centuries, the dependence on being printed on paper has determined some of the limits of school textbooks. In an increasingly digital age, this has begun to change, with digital resources and digital textbooks becoming increasingly available as alternatives to the traditional paper textbooks.

I started my teaching career when this change was already starting, and my special interest in technology had me excited to be part of a new, digital age of teaching. Between digital books I had access to through my job and those I could explore online, I developed a fascination for how many different approaches there are to digital textbooks, and the issues that face some of them. The topic of this study was born out of a desire to explore this further, and from a different perspective than my own.

This master's thesis consequently aims to explore how teachers use digital textbooks. Specifically, my research question is "To what extent do teachers utilize the features available in digital textbooks for teaching upper secondary school English in Norway?" This is a broad question, so to narrow down the scope I have selected a specific textbook to look at, Gyldendal's *Skills* textbook series. It consists of seven variants of the same book, each targeting a different vocational education program in upper secondary school. *Skills* is available both in printed form and in digital form through Gyldendal's digital textbook platform, Smartbok. In order to explore any connections between the textbook itself and the digital version of it, I treat *Skills* and Smartbok as two sides of the same coin for the purpose of this thesis.

To find an answer to the thesis question, I look at the publisher's intention behind *Skills* and Smartbok, and compare those to how teachers actually use the combination. Subsequently, I consider three sub questions. First, "how does the publisher intend for *Skills* and Smartbok to be used by teachers?" To answer this, I use a hybrid method that pulls together information from several sources, including those available to users of *Skills* and Smartbok. Second, "how do teachers use *Skills* and Smartbok?" To answer this I conducted qualitative interviews with four teachers who use *Skills* and Smartbok. Finally, "how does the teachers' use of *Skills* and Smartbok compare to the publisher's intentions?" Answering this requires

comparing the results from the previous sub-questions, as well as including other information gathered as part of this study.

1.1 The structure of the thesis

Chapter 2 of this thesis establishes some of the background information necessary for this discussion. Section 2.1 looks at what a digital textbook is, and gives examples of the many variations that exist. Sections 2.2, 2.3, and 2.4 will look specifically at the target for this study, *Skills* and Smartbok.

Chapter 3 will deal with the method and material used in the thesis. Section 3.1 specifically outlines the choice of qualitative interviews for gathering information from the teachers, while 3.2 explains the hybrid model used to establish the publisher's intentions.

Chapter 4 is the first of two chapters presenting results. Through individual sections for *Skills* and Smartbok respectively, its sections present the intentions of the publisher.

Chapter 5 subsequently looks at the information gathered from the interviews with the teachers. This is presented through one main subsection for each teacher, each divided into further subsections that deal with overarching themes. This tri-level structure is identical for all teachers.

Chapter 6 pulls together the information in chapters 4 and 5, comparing the information from individual teachers both with each other, and the publisher's intentions. This chaptered is structured based on overarching themes that bridges information based on connections that have been discovered. Finally, chapter 7 presents a summary of the main findings together with concluding thoughts.

2. Digital textbooks, *Skills*, and Smartbok

This chapter looks at what a digital textbook is, as well as the specific book series studied in this project. Section 2.1 goes into detail about what digital textbooks are, how they differ from paper textbooks, and gives examples of the variety of digital textbook platforms available. Section 2.2 provides an overview of the specific book series studied in this project, divided into subsections. 2.2.1 looks at some factors that are important to understand the design logic of the series. 2.2.2 covers the features of the textbook, whether printed or digital, while 2.2.3 covers the digital features specifically. Finally, 2.2.4 deals with the resource bank, the textbook series' format-independent online resource repository.

2.1 What is a digital textbook?

Before looking at examples of digital textbooks and the particular ones used in this study, it is important to define what a digital textbook is. A key difference between digital books and traditional paper books is the dependency the former has on a digital infrastructure. Whereas a traditional book printed on paper is essentially self-contained and universally usable by anyone, a digital book must exist within a digital infrastructure that determines key features. If a book is sold or rented out digitally, there needs to be a licensing system in place to handle this. The files need to be hosted, and there needs to be a system in place for distributing the books to the client software, possibly with copy protection to safeguard the content. Client software is needed to access the books, possibly on multiple operating systems, and this along with the underlying file structure and formats determine what digital tools are available to the end user. These include user interaction tools such as digital highlighters, pens, notes, bookmarks, navigation features like thumbnails, navigation buttons and search, zoom, and more advanced features like audio notes and handwriting conversion. They also include content consumption features such as embedded audio and video, hyperlinks, social media integration, interactive tasks, animations, 3D models, and additional files such as printouts, tests, or assessment forms. In short, there is an intricate web of technical considerations that form the digital infrastructure within which a digital book must exist, rather than any self-contained physical object like with a paper book.

A common term for such a system is *platform*, to refer to the collected digital infrastructure that a single digital book can exist within. Because each platform may differ greatly in the

key features mentioned above, and because a publisher or third party controls the platform and distribution of books on the platform, a book published on one platform is likely not compatible with another platform unless specifically designed as such.

There is a seemingly limitless number of such platforms on the market today, both in Norway and the rest of the world. In Norway, Gyldendal uses its own Smartbok platform ("Om Smartbok," n.d.), Aschehoug and Cappelen Damm have together launched Unibok ("Om Unibok," 2010), and BrettBoka ("Om BrettBoka," n.d.) has joined multiple publishers (including Cappelen Damm, Aschehoug, and Gyldendal) on another platform. Glerups ("Interaktiva böcker," n.d.) and Studentlitteratur ("Studentlitteratur," n.d.) are examples from Sweden, Kortext ("About Kortext," n.d.) from the UK, and Amazon's Kindle eTextbooks ("Kindle eTextbooks," n.d.) and Apple's iBooks ("iBooks textbooks for iPad," n.d.) are international examples. These represent just some of the many platforms available, few of which are interchangeable.

Furthermore, while some of the available platforms, such as Smartbok, are designed for only one publisher, many of them share a philosophy of having multiple publishers join forces on a single platform. However, these multi-publisher platforms are plentiful and not necessarily interchangeable either, resulting in the end result being the same, i.e. no truly all-encompassing platform. In Norway, Brettboka and Unibok are both examples of multi-publisher platforms, neither of which offer access to every digital textbook published by Norwegian publishers.

There are several reasons why these multi-publisher platforms might not be the best solutions for the publishers. Kaja Olavsdatte Bottolfsletten, editor at Gyldendal, lists some reasons why Gyldendal decided to limit the number of titles available via Brettboka (personal communication, November 14, 2016). First off, the number of copies sold via Brettboka compared to their own platform was low. Second, using a third-party platform entails a lack of insight into the development and operation of the platform. Maintaining a platform of their own allows publishers to be part of every step of the process and develop the product based on user feedback. Doing so also allows for integration with other products, such as Smart Tavle ("Smart Tavle," n.d.) or Smart Øving ("Multi Smart Øving — adaptiv læring for 1.-7. trinn," n.d.) in the case of Gyldendal. Finally, developing for multiple platforms is costly, both in terms of finances and other resources. This would potentially not be a problem if all publishers pooled their resources and agreed on one platform, but the

current market is not as unified and currently consists of multiple multi-publisher platforms, thus leaving a publisher with the choice of which one(s) to support, or whether to develop their own.

Outside of shared platforms, there are universal file formats that could free a book from requiring a specific platform. These include, but are not limited to, Portable Document Format (PDF) ("PDF. Three letters that changed the world.," n.d.), and EPUB (International Digital Publishing Forum, n.d.). These are rarely used for textbooks in their base, universal forms. Some platforms use them as the underlying file formats, invisible to users, while others use them with layers of copy protection on top. Looking through the application data created by Gyldendal's Smartbok books when downloaded for offline use ("Bruke Smartbok uten Internett," n.d.) shows that the various offline clients use standard formats such as Adobe Flash, MP3 and PDF to store the books. However, the files are 'hidden' from the user and meant to be read by the Smartbook client, not other software. Opening these files in other software would cause some Smartbok features not to work, as those require software designed for the Smartbok platform. Similar solutions that use generic file formats for proprietary solutions are also used by other platforms to varying extents, ostensibly due to considerations such as copy protection and control over technical features.

What all this means in practice is that each publisher or group of publishers have essentially invented their own type of "digital paper," where any book published within any particular platform is likely dependent on it to work. Whereas a paper book that has physically survived could be used by anyone 50 years from now, a digital book might be unusable in the future if the platform where it was published is shut down in the meanwhile.

The platform might also determine what formatting is used for the digital book. Many digital textbooks are simply digital versions of the paper equivalents, where the digital book would have a digital page 50 that is identical to page 50 in the paper book, similar to a scan. Others, such as the iBooks book *Animal Life Cycles* (Bladon, 2014) have simply adapted a horizontal formatting to better fit a horizontal screen orientation. Then there are books which break the traditional notion of a paper page completely. For instance, the Unibok version of *Fokus Samfunnsfag* (Haraldsen et al., 2013) has been reformatted to have an entire chapter per page, with the ability to scroll a continuous text, much like a web page.

Which platform a book is available on determines what features, tools, and formatting options are available for the book. As an example, embedded audio files and the ability to highlight words with a digital marker are common features in many digital book platforms, but unless the platform supports it, the book cannot support it either. Amazon's 'X-ray For Textbooks' feature ("Kindle eTextbooks," n.d., section "eTextbook Studying Features"), which provides content such as definitions or related material for a section of a textbook, is an example of a platform-dependent feature for which many other digital textbook platforms lack an equivalent. Apple's web page for its iBooks Author digital book creation tool highlights other possibilities ("iBooks Author," n.d.). In theory, anything that can be programmed can be included in a digital textbook, as long as it is supported by the platform. In addition, a book can be made to not use certain features of the platform, or use them in customized ways. An example of the latter would be to use the generic ability to have embedded audio for the specific purpose of teaching language dialects through using different voice actors, as opposed to just being an accessibility aid for students that need the text read to them, such as those with dyslexia or blindness.

A final key difference between paper and digital textbooks is the distribution method. For paper textbooks, a printed book will be sold to schools or individuals and remain in use in that form until a new version is released and put in use. A school may buy a large number of books and use them over a period of many years, lending them to new students every year. The publisher's revenue is from the initial purchase of the book, and any changes will have to be put into new versions or revisions or published as additional notes somewhere else. Because of the investment in books, a school may have to continue using a textbook beyond its intended life span and despite other, potentially better alternatives being available.

Digital textbooks are not physical, which has implications for their distribution, licensing, and life cycle. First, digital textbooks can be updated more easily, making it more viable to release minor revisions or corrections that do not require the release of a new edition of the book. Second, with copy protection being a part of most digital textbook platforms, the possibility of textbook rentals becomes a reality. Many platforms offer their books as digital rentals, selling access to the book for a specific period – often a year – rather than selling a digital copy of the book. The version of Gyldendal's *Skills* book for the "Electricity and Electronics" vocational upper secondary school education program costs 648 NOK for a paper copy ("SKILLS, elektrofag," n.d.) and 250 NOK for a one-year license to the digital book ("SKILLS, Elektrofag, Smartbok," n.d.). The digital version costs more than the paper

equivalent if used for three years, but has the benefit of potential updates, added digital resources, and no physical degradation or loss. It also ensures that the number of licenses purchased exactly matches the number of students, and with the investment being for only one year at a time, it makes it easier to switch to another edition or another textbook entirely.

Digital textbooks are still very new, and the technologies behind them are in their infancies. Both the advantages and disadvantages of using them are subject to change, and so are their similarities and differences to paper textbooks. What form this change will take is difficult to predict, but one vision of the future of textbooks is noted in Michael S. Mills' chapter in *Technological Tools for the Literacy Classroom* (Mills, 2013), where he talks about the importance of curation in today's internet-connected world:

Over the past several decades, there has been a tremendous shift in how educators and students communicate, learn, and share ideas. As society moves more toward creating and sharing information through the aggregation, filtering, and customization of digital content, it is imperative that educators create opportunities for students to do likewise. (p. 46)

He later envisions how textbooks can play a role in this:

Imagine how powerful a digital textbook or a blog, updated daily with the current news articles and videos and shared user-generated content, could better serve our students who are already accustomed to rapidly changing information, both as consumers and creators. (p. 48)

Whether the future of textbooks will look like this or something else remains to be seen, but it is important to keep in mind that with the move to the digital realm, textbooks are now subject to changes on the same level as other technology. As such, any description of a digital textbook is likely to be a temporary one.

2.2 Skills and Smartbok

As the previous subsection shows, it is difficult to talk about digital textbooks as a single concept because of how greatly the platforms differ in features and functionality, and how books utilize the available features. Consequently, this thesis looks at only one series of books, on a single platform. This means that any results will inherently only apply to that series of books and that platform, and that any comparisons to other digital textbooks and their platforms must be done with caution.

The book series in focus for the present investigation is *Skills*, a series of textbooks for vocational English in upper secondary school in Norway ("SKILLS - engelsk for yrkesfag," n.d.). *Skills* is available as a digital textbook on Gyldendal's own Smartbok platform, as well as in paper form. In addition, there is an online digital resource website called the *resource bank* that provides digital resources for both the digital and paper books. This section will look at how these three parts of the system work.

2.2.1 The *Skills* series of textbooks for vocational upper secondary school programs

The *Skills* series of books currently consists of seven different books, designed for seven different vocational program fields in Norwegian upper secondary school:

- *Skills, helse- og oppvekstfag* (Lokøy, Lundgren, Langseth, & Hellesøy, 2013b).
 - For the 'Healthcare, childhood and youth development' program ("Healthcare, childhood and youth development," n.d.).
- *Skills, bygg- og anleggsteknikk* (Lokøy, Lundgren, Langseth, & Hellesøy, 2013a).
 - For the 'Building and construction' program ("Building and construction," n.d.).
- *Skills, teknikk og industriell produksjon* (Lokøy, Lundgren, Langseth, & Hellesøy, 2013c).
 - For the 'Technical and industrial production' program ("Technical and industrial production," n.d.).
- *Skills, elektrofag* (Lokøy, Lundgren, Langseth, & Hellesøy, 2014b).
 - For the 'Electricity and electronics' program ("Electricity and electronics," n.d.).
- *Skills, restaurant- og matfag* (Lokøy, Lundgren, Langseth, Hellesøy, Underwwood, et al., 2014).
 - For the 'Restaurant and food processing' program ("Restaurant and food processing," n.d.).
- *Skills, service og samferdsel* (Lokøy, Lundgren, Langseth, Hellesøy, & Eriksen, 2014).
 - For the 'Service and transport' program ("Service and transport," n.d.).
- *Skills, design og håndverk* (Lokøy, Lundgren, Langseth, & Hellesøy, 2014a).

- For the ‘Design, arts and crafts’ program ("Design, arts and crafts / media production," n.d.).

These education programs are so-called “Vocational Education and Training” (VET) programs ("Norwegian vocational education and training (VET)," 2016) and part of the “National Curriculum for Knowledge Promotion in Primary and Secondary Education and Training,” LK06 (Ministry of Education and Research, 2005). In LK06, English in vocational upper secondary school is a two-year course, consisting of the 84-hour first-year course “English Vg1 Vocational Program (ENG1001)” and the 56-hour second-year course “English, Vg2 Vocational Program (ENG1003)” (The Norwegian Directorate for Education and Training, n.d.-c, n.d.-d). Totalling 140 hours over two years, the full course is equivalent to the 140-hour first-year course “English, Vg1 General Studies (ENG1002)” for students specializing in general studies (The Norwegian Directorate for Education and Training, n.d.-b). The *Skills* books are designed to cover both VG1 and VG2 using a single book.

Both these courses share a subject curriculum (The Norwegian Directorate for Education and Training, n.d.-a), and have the same written exam. However, seven competence aims call for adapting the curriculum to the students’ own education program, including aims covering vocabulary, reading, writing, and in-depth studies.

In addition, vocational adaptation of the curriculum is key in the 2014-2016 FYR project ("FYR - Fellesfag, yrkesretting og relevans," 2016; "Rammeverk for FYR-prosjektet (2014–2016)," n.d.). FYR is an acronym for “Fellesfag, Yrkesretting og Relevans” (Common core subjects, vocational orientation and relevance), and is part of a joint program between the state and county municipalities. The program is a continuation of the finished “Ny GIV” project and aims to improve the upper secondary school completion rate (Kunnskapsdepartementet, 2016). The FYR project itself aims to make common core subjects such as English more relevant and vocationally oriented for students, based on their chosen study program. Achieved through training teachers and sharing resources and experience, the focus is both on teaching throughout the year and on local oral exams (Dahlberg Pettersen & Kvellestad, 2015). A more detailed look at the FYR project and its implications for teaching English in Norway can be found in Myhre’s master thesis *Vocational English in Norway: A study of Attitudes* (Myhre, 2015).

In practice, this results in vocational English courses that should be quite different depending on the students’ study program, despite sharing a subject curriculum. As such, the need for

specialized textbooks for each vocational program is arguably clear, and outlined on Gyldendal's own information pages for the *Skills* books: "Having different books for the different program areas contributes to motivation and relevance. *Skills* helps train skills and vocabulary that the student needs for the exam and in working life" ("SKILLS, elektrofag," n.d., own translation).

To cater to both differences between education programs and the shared subject curriculum, the *Skills* books each have five vocational chapters and five chapters covering general English competence and other competence aims. These chapters alternate, with odd number chapters being devoted to general English language skills, while even number chapters cover vocational topics. The general chapters are mostly identical between books, but with some minor differences. These differences are listed in a document available in the resource bank ("Tekster i SKILLS - Oversikt over likheter og ulikheter i de generelle kapitlene," n.d.). For the vocational chapters, the content is adapted to each vocational program field, and is therefore different between books, but with the same overarching topics. Chapter 2 deals with the history of the trade, chapter 4 with safety, chapter 6 with tools and processes, chapter 8 with occupation practices, and chapter 10 with the future ("Skills," n.d., section "Bøkenes oppbygging").

As an example, Chapter 4 is called 'Safe and Sound' in all seven books, but with different content suited for the respective vocational program field's environment, health, and safety considerations. Chapter 5, called 'Cultural Affairs', is by contrast mostly identical in all books. In addition, there are minor differences in odd number chapters as well; for instance, the text "This is me" in chapter 1 talks about Douglas the future security guard in the book for "Service and transport" (Lokøy, Lundgren, Langseth, Hellesøy, & Eriksen, 2014, p. 12), while the corresponding chapter in the book for "Healthcare, childhood and youth development" (Lokøy et al., 2013b, p. 12) focuses on Robin the future nurse or health worker. This system means that while there are seven books in the series, they are really seven variants of the same book.

2.2.2 Skills features

The basic framework of the book is built around having seven books with slight variations and alternating vocational and general chapters, as previously described. The universal chapters are titled "Expectations," "That's Life," "Cultural Affairs," "Global Challenges,"

and “Other Voices,” with the other five chapters being vocationally oriented and different from book to book. Both the number of chapters and their focus differ greatly from two recent textbooks for specialization in general studies, *Tracks SF* (Sjøvoll et al., 2016) and *Targets* (Balsvik, Bratberg, Henry, Kagge, & Pihlstrøm, 2015), which both have fewer chapters and dedicate individual chapters to the North America and the British Isles. As Lund points out, the focus on these countries is common in English teaching in Norway (Lund, 2012, section “Hva slags kunnskaper vektlegges i lærebøkene?”). This is however not founded in LK-06, which simply mentions “English-speaking countries” (The Norwegian Directorate for Education and Training, n.d.-a). According to K.A. Arnkværn, editor at Gyldendal, both the wording of the competence aim and the general vocational focus of the books are reasons why there is less focus on specific countries in *Skills* (personal communication, March 20, 2017).

Each chapter is framed by a first page that establishes the focus of the chapter and useful vocabulary, and a box with questions titled “How did you do in this chapter?” at the end. In addition, there are self-assessment forms for each chapter available in the online resource bank. Within each chapter there is a mix of text types, encompassing both different literary genres, factual texts, “fact files,” listening exercises, grammar sections, and a section with various tips for English language learning, titled “improve your skills.” The text type of each text is listed in the index, along with an indication of its difficulty level, and is mentioned as a differentiation feature in Gyldendal’s *Skills* brochure (“Brosjyre Skills,” n.d., p. 6). Also mentioned as a differentiation feature on that page is the inclusion of “In short” versions of some of the texts, located immediately after the full text. Regardless of length, type, and genre, each text has a box which outlines what the student should be able to do after having gone through the text, as well as a glossary in the margin of each page.

For each text, there is also a number of tasks of varying types. “Before you start” are tasks located on the first page of some texts, providing a few introductory tasks designed to prepare the students for reading the text. “Read and understand” indicates tasks where students have to find information in the text, while “Practise” tasks help the students practice language skills related to the text, such as by using its theme or vocabulary. “Speak” tasks are oral activities, while “Write” tasks require longer written responses. “Explore” tasks explore the topic further by requiring students to gather external information to augment what is in the book. A final, less frequent type of task is called “Listen” (or sometimes “Listen and understand”) and requires the use of sound files available in the online resource

bank. These are sometimes tasks related to a text, but can also be standalone texts of their own. In addition to this categorization of tasks, one to three red dots are sometimes used beside the task number to indicate difficulty level, another feature classified as a differentiation tool in the above-mentioned brochure. These dots are found beside “Write” and “Read and understand” types of tasks, and have a connection to the “In short” versions of texts in that only tasks marked with one dot are guaranteed to be possible to answer based on the shorter versions of the text.

The “improve your skills” sections are independent of the chapter’s topic, and cover topics such as how to write a paragraph, how to learn new vocabulary, how to cite sources, and how to prepare for an exam – i.e. topics concerning communication. There are eighteen in total, each covering two pages. There are also language lab sections that are located at the end of each chapter and cover grammar rules, with accompanying tasks. Together these take the place of the appendices found in some textbooks.

2.2.3 The Smartbok platform

Smartbok is the brand name of Gyldendal’s proprietary digital textbook platform. Client software for the platform is available both as an online service accessed through an Adobe Flash-capable web browser as well as through offline-enabled applications for Windows (in two variants), MacOS and iOS (iPad) (“Bruke Smartbok uten Internett,” n.d.). The offline versions are intended to be used in situations with poor or no Internet access, such as on slow networks or during exams or tests. The offline versions do however not support the content layer available in the browser version. Head of digital logistics at Gyldendal, A.K. Drevdal, explains that this is due to the storage requirements it would entail. She also adds that a new browser version of Smartbok is on its way, one that moves away from Adobe Flash and in turn adds compatibility for mobile devices such as the iPad (personal communication, March 19, 2017).

Books on the Smartbok platform are digital replicas of the paper equivalents, using the same formatting as the paper books. The platform does however enable a variety of digital features, which can largely be divided into two: interaction tools with an accompanying content bank, and a content layer. The interaction tools and content bank are fairly universal across the client apps, but the content layer is client-dependent, and only available through a web browser. This means that the same digital book may have different features available for

use depending on what software client is used to access it. For instance, the iPad app experience will be slightly different than what you would get in the web browser on a computer. Because the purpose of this investigation is to look at the *Skills* series of books, the focus will be on tools available in and for the *Skills* books and their implementation there, which may differ from other textbooks on the same platform.

Interaction tools are features the user can use to interact with the book. The most basic of these concern page navigation. Most reminiscent of paper books is the ability to turn the page, either using on-screen arrows or hardware input such as arrow keys on a keyboard or touch screen swiping on touch screen devices using an offline client that supports it. Some of the clients also have a control panel that can be toggled on or off, with navigation buttons meant for use with a digital whiteboard. A quicker way to “flip through” pages can be achieved by using the navigation bar at the bottom, containing a slider and thumbnail previews. Finally, a search bar allows the user to input page numbers directly, or search the book for words and phrases.

In addition to page navigation, Smartbook has a zoom feature that allows the user to zoom in on sections of the page. This can be done using a zoom tool, touch screen, or keyboard and mouse buttons, depending on the software client and available hardware. Smartbook displays two pages at a time on horizontal screens which, combined with the use of the paper book’s original formatting, means that some devices might not have the screen resolution necessary to make the text readable without zooming.

Beyond navigation, Smartbook supports a few ways for the user to organize and add to the content of the book. A digital note system allows the user to add color-coded text notes anywhere on the page, with a small note icon that can be expanded into a text box overlay. There is also a digital highlighter that allows text to be highlighted in a variety of colors. Finally, each page can be bookmarked and given a custom title. Aside from being available on the original page, these user additions are also accessible through the content bank. The content bank is a separate section of the software that displays all user additions in one place, with filters for type and chapter, and sortable by page, date, or alphabetically. It allows the user to find and organize their own content independent from the original page to which it was added.

The second part of the digital features available in Smartbok comes via the content layer. The content layer is a layer of interactive elements placed on top of the digital book's pages to allow access to digital features. Central to this is the ability to play back audio recordings of text in the book by clicking on the text that you want played back. In the *Skills* Smartbok books, all text has been recorded professionally and added as an audio layer on top of the text, available on all Smartbok software clients. This includes recordings of everything from the table of contents, tasks, and vocabulary sections to the full texts in the book. This feature serves two purposes: First, it works as an accessibility tool for those who for various reasons need to have the text read to them. Second, with English being a language subject, it takes the place of audio CDs or other means of accessing recorded versions of the texts in the book. To properly fill this role, a variety of narrators have been used, adding nuance and variety in accordance with the competence aim "enable students to...listen to and understand social and geographic variations of English from authentic situations" (The Norwegian Directorate for Education and Training, n.d.-a). This exemplifies the necessity for looking at the Smartbok platform from the perspective of a single book – or series of books – as the implementation of audio recordings may vary between books on the platform. The mathematics textbooks *Sigma 2P-Y Påbygging* (Øgrim et al., 2014) is an example of a book that has a more basic implementation of the audio component of the content layer, due to mathematics not being a language subject.

In addition to the audio component of the content layer, there is a second component that is only available in the browser client, utilizing content available exclusively in its *content bank*. When viewing a *Skills* book through the browser, several icons will be overlaid on the pages, indicating the availability of additional material. A couple of these, such as links to documents and videos, are not commonly used in the *Skills* books, but more frequent in other books on the platform. Picture icons on the other hand are common in *Skills*, and clicking on one brings up a larger version of an image from the book. Also common are question mark icons, located next to tasks. These signal that a digital, interactive version of the task is available. Clicking on the question mark opens a new browser window with an interactive version of the task, which includes features for checking the correct answer as well as a test mode.

The last type of icon one might come across is the letter B, signifying "Basic Skills." "Basic Skills" is a second set of material and tasks for the related text in the book, described in Gyldendal's promotional brochure as "... an intensive course developed for students whom,

for various reasons, do not have the language foundation that the curriculum and the exam requires” (“Brosjyre Skills,” n.d., p. 2, own translation). The material and tasks available through the “Basic Skills” feature are not available in the paper book and require access to the digital resources. “Basic Skills” itself is unique to the *Skills* series of books, using the underlying interactive task system available through the content layer but in a way that is unique to *Skills*, again showing how a platform’s features can be utilized differently between books.

2.2.4 The resource bank

The third and final part of the system is the *resource bank*. Not to be confused with the content bank, it is a separate section of Gyldendal’s digital infrastructure and only available through a web browser, but not a part of Smartbok itself. It is an online library of additional digital resources for the book, similar to a digital resource website for a paper-only textbook. It comes in a version for students and teachers, with the latter requiring a free license tied to a teacher account. In practice the two versions are the same but with some additional content available if logged in as a teacher, such as tests, keys, and other material that students should not have direct access to.

Some of its features, such as some interactive tasks and “Basic Skills,” are also available through the Smartbok books’ content bank, but the resource bank has more content.

For *Skills*, the resource bank contains the following types of resources (“Ressursbank Lærer, TIP,” n.d.):

- Various documentation: Guides for using *Skills*, the resource bank, and Smartbok, as well as an overview of differences between *Skills* books, an overview of variants of English covered in the books, and an overview of topics covered by “Basic Skills.”
- Template forms for teacher/student conferences, assessment for learning, and per-chapter self assessment.
- A vocabulary list for the vocational program covered by the book.
- Media: Sound files for texts and listening exercises, illustrations as separate files, and some videos.
- Manuscripts for some oral exercises.
- Assessment forms and tests for the “improve your skills” sections.

- Chapter and term tests.
- Keys to exercises.
- Interactive versions of some tasks.
- “Basic Skills” content.

Because the resource bank contains resources not found in either the paper nor digital book, it is designed to be used with both. Paper book users will find that it offers some digital features that digital book users have access to from within the book, while other resources will be new to both types of users.

3. Method and material

The decision of whether to choose a quantitative or qualitative approach to a study is largely based on the topic and goal of the research in question. Dalland explains that the advantage of quantitative methods is that it gives us data that can be measured, while qualitative methods aim to study thoughts and experiences that cannot be measured or quantified (Dalland, 2012, p. 112). A description of qualitative research that is more specifically suited for this study is provided by Sandra Lee McKay, who explains that “qualitative research ... typically starts with the assumption that classroom learning must be studied holistically, taking into account a variety of factors in a specific classroom” (McKay, 2006, Chapter 2, Section "Research Traditions: Qualitative Versus Quantitative Research", para. 5).

Researching teachers' use and opinions of Smartbok as well as the publishers' intentions are both suited for qualitative approaches. There may be many factors affecting a teacher's use of digital books, requiring an approach that aims to establish what these are, without assuming to know what they are beforehand. As Kvale (Kvale & Flick, 2007) writes:

Qualitative research refrains from setting up a well-defined concept of what is studied and from formulating hypotheses in the beginning in order to test them. Rather, concepts (or hypotheses, if they are used) are developed and refined in the process of research.

Choosing to look at a specific digital textbook platform, Smartbok, and limiting the study to look at the specific book series, *Skills*, are decisions that are based on a desire to limit some of these factors for the sake of comparability. This assumes exactly what McKay outlines; that a holistic study is necessary. The results may form a basis for further quantitative research, but its initial form must be qualitative.

3.1 Qualitative interviews: teachers

Information gathering for this study was done using qualitative interviews. Kvale introduces interview research by asking a simple question: “If you want to know how people understand their world and their lives, why not talk to them?” (Kvale & Flick, 2007, p. 1). He goes on to say that “through conversations we get to know other people, get to learn about their experiences, feelings and hopes and the world they live in.”

Patton divides interviews into three approaches, noting that they “differ in the extent to which interview questions are determined and standardized before the interview occurs” (Patton, 2015, p. 437). The information conversational interview is very open, utilizing spontaneous questions (p. 438). The interview guide approach lists questions and issues to be explored during the interview, but leaves it to the interviewer to explore within those, utilizing the guide as a checklist more than a strict recipe for the interview. Finally, the standardized open-ended interview approach “requires carefully and fully wording each question before the interview” (p. 439). Of these three approaches, the interview guide approach provided the best option for this study, allowing me to explore the various aspects of the topic while still maintaining an overview of topics I wanted to cover.

Patton notes that the detail of the interview guide depends on how many issues can be specified in advance, as well as how important it is to ask questions in the same order for each interview (p. 439). The order was less important here than the ability to explore every aspect of a teacher’s experience with *Skills* and Smartbok. Consequently, some questions were intended to glean information about aspects of using these, while others were intended to provide background information about the teachers. What Dalland describes as deliberate nativity is important, making sure that every question is asked and answers are explored further, in order to avoid assuming what is meant by a comment (Dalland, 2012, p. 159).

The resulting interview guide, appendix 1, is the result of several revisions. It is divided into sections that explore overarching issues, while providing a list of questions that should be covered in the course of the interview. The structure of the guide is similar to that used to present the findings in the interviews in chapter 5, but not identical, as some changes were made to improve comparability based on the results of the interviews. The questions were not used verbatim, rather serving as the checklist described by Patton (Patton, 2015, p. 439), and as such were formatted based on what I personally would find useful during the interviews. The holistic nature of the topic, with many individual features in and concerning *Skills* and Smartbok being interconnected, helped predict that teachers would discuss multiple issues together, outlining usage scenarios and interconnectivity that could not have been planned. In practice, the guide was an invaluable tool to make sure that all issues were properly explored. The benefit of hindsight would provide grounds for further revisions, especially in order to reflect the lower interest in technical issues compared to my assumptions.

The interviews were conducted with four teachers from a Norwegian upper secondary school where *Skills* and Smartbok is in use. The initial number of teachers was decided on the basis of who volunteered to be interviewed after the school's staff members had been informed of the purpose of the study and what it would entail. Such a research design has both advantages and disadvantages. When it comes to possible disadvantages, four teachers can be considered a low number of informants, resulting in a lack of representability and an inability to generalize to a wider population. Furthermore, limiting the study to teachers from one school can limit the number of interconnected factors that are covered by the study. Considerations such as the school's budget, study programs, collective technical training, support availability and quality, technical focus, pre-existing digital resource use, and others could all potentially affect the results. At the same time, however, limiting the study to one school has the advantage of eliminating some of these possible external factors, which in turn can help keep the focus on the teachers.

Kvale's answer to how many subjects is required is simply to "interview as many subjects as necessary to find out what you need to know" (Kvale & Flick, 2007, p. 43). He also explains that there is a point of saturation where new interviews yield little new knowledge. I concluded that I could expand the number of teachers and possibly schools should the need arise. After conducting the four interviews, I began to get a picture of where the teachers shared experiences, and where they differed. Furthermore, a holistic approach such as that adopted in the present study has the advantage of generating enough avenues of research to explore that the danger of covering too much seemed more likely than exploring too little. Consequently, I concluded that I had enough information for a study of this scope, both in terms of the number of informants and variety. This is a qualitative study, not a quantitative one, so accounting for "every" scenario was never the intention.

An application was filed with the school in order to get permission to interview the teachers, who in turn were given a brief oral overview of the type of questions that would be asked, but not a detailed list of questions. It would have been helpful for the teachers to be more aware of the details beforehand, allowing them to think through two years' worth of *Skills* and Smartbok use. However, some of the questions deal with features that they could be unaware of, as well as technical problems they may not have had, potentially causing them to do carry out their own research into the potential benefits of the digital resources under investigation, thereby potentially affecting their answers.

Each interview lasted around 1.5 hours and was conducted during the spring/early summer of 2015. The teachers had been informed beforehand that they could withdraw at any time, either before, during, and after the interview. They were also asked if they could be contacted for follow-up questions, to which all agreed, and I later contacted them to clarify a few points and provide a few more pieces of background information. Each subject decided whether the interview would be conducted in English or Norwegian; three preferred Norwegian, one preferred English. Only written notes were taken, a decision made based on two factors. First, it negated the need to register the research project with the Norwegian Centre for Research Data, as personal data could easily be excluded. This cut down on preparation time and allowed for a more flexible interview schedule. Second, taking notes allowed for an immediate overview of the conversation, and made it easier to maintain control over what issues needed to be explored further, as well as what issues had been brought up in connection with others. This approach did provide a challenge with regards to my typing speed, but ultimately it was not a problem and I would make the same decision again, as it enabled me to better explore the issues then and there.

3.2 Hybrid model: publisher

Finding a way to properly explore the publisher's intentions was a challenge. In the end, I chose a hybrid approach, combining multiple sources of information. Part of the information was gathered from a meeting with representatives from Gyldendal in October 2014. As well as being a 'meet and greet' with people I later corresponded with via email, it allowed me to ask some questions regarding *Skills* and Smartbok, as well as outline my project. A week later, I returned to Gyldendal as a participant in their "Smartbok day," a conference for teachers from all over the country who want to learn about Smartbok. It included several presentations and discussions, where I was allowed to take notes for my study, in addition to attending as a teacher along with a colleague.

The material available for Gyldendal that describes *Skills* and Smartbok, including promotional material and guides available to teachers, was also explored in this investigation. In addition, a considerable amount of my information comes from email conversations with representatives of Gyldendal over the course of the last few years. These have included new questions, follow-up questions about information gathered previously or elsewhere, discussion of technical challenges, and validation of information included in the

final thesis. Finally, they have read sections 2.2.2, 2.2.3, 2.2.4 and chapter 4 to ensure that the information there is correct.

4. Publisher's intentions

This chapter presents the publisher's view about the potential their digital material offer for English classrooms in Norway, including how they intend the material to be used in a 'best-case' scenario. Section 4.1 discusses their views on *Skills* as a textbook, independent of the format used. Section 4.2 continues by discussing Smartbok, specifically *Skills* Smartbok. Finally, section 4.3 sums up the most important aspects of the publisher's intentions with *Skills* and Smartbok.

4.1 How does the publisher intend for *Skills* to be used?

Section 2.2 provided a look at the features of both the Smartbok platform and the *Skills* textbooks. This chapter looks at how the publisher, Gyldendal, intends for these features to be used in practice, highlighting some of the reasoning behind the products and how they are intended to work together.

One of the most basic ideas behind *Skills* is to provide a textbook that is tailored for the students' education program. The seven books cover almost every vocational VG1 program, with the exception of "Agriculture, fishing and forestry." According to Gyldendal editor K.O. Bottolfsletten, the decision to not publish for this last VG1 program was difficult; the deciding factor was the variety within the field making it difficult to create a book that would fit everything within the program (personal communication, March 2, 2017).

In addition to this VG1 program, there are also multiple VG2 programs where the choice of book is not obvious. VG1 programs are quite general compared to specialized VG2 programs, where the focus is often on more specific vocations rather than entire fields. Some of these are fairly direct continuations of their VG1 equivalents, but others are so-called cross-specialization programs, which are possible continuations of multiple or all VG1 programs. "Refrigeration and heat pumps" is one such program, which is a second-year program available after both VG1 "electricity and electronics" and "technical and industrial production." The program combines both, thus raising the question of which book is best suited. According to Bottolfsletten, the books have been designed with this in mind, by including texts suitable for cross-specialization programs (personal communication, March 2, 2017). However, similar to the issues with producing a book for "Agriculture, fishing and

forestry,” there is a limit as to how comprehensive this adaptation can be, considering the number of VG2 programs and combinations.

In addition to having multiple variants to choose from, there are some possible problems related to having a single book for both VG1 and VG2. Considering the vast number of VG2 programs available, a student might be faced with a new class, teacher, vocational focus and even a new school for what is essentially the second half of the same course. Consequently, there is no guarantee that the second half of the course uses the same variant of *Skills*, or even *Skills* at all. The teacher might also have little or no any insight into what a student has done the year before, and might be faced with students whose first years of English study in VG1 greatly differed, making it difficult in many cases to have a clear continuation from one year to the next.

To address these issues, the intention behind *Skills* is to use the “improve your skills” sections to teach the core knowledge a student needs for exams, while offering choices for how to approach the various competence aims (personal communication, March 2, 2017). Under LK06, competence aims are designed so that teachers and schools can adapt the education to specific students and groups of students. Consequently, there are many ways to reach the competence aims (“Rammer og handlingsrom for arbeid med læreplaner,” 2016). *Skills* is designed following a similar philosophy, using “improve your skills” as a framework for teaching underlying skills, but treating specific texts and tasks as a collection of resources available for the teacher to choose from. Teachers can pick and choose what material to use and how to use it, and also supplement with external material. This is particularly important with cross-specialization programs, where the vocational material in the book might not suit a specific VG2 program.

This philosophy also means that the chapters do not have to be covered in order, and the same goes for the texts in a chapter. It is also possible to skip parts of the book without there being continuation problems (personal communication, October 7, 2014). Tasks are also generally independent of each other, although some may require the completion of other tasks as a prerequisite. The provided difficulty indicators can be used to select from tasks based on difficulty, and to gradually progress to more difficult tasks. The task categories can similarly be used to focus on specific skills, and also simply provide variety. The underlying idea is to leave as much as possible up to the teacher by offering suggestions rather than instructions.

Despite this philosophy, the books can also be used more linearly. Numbered chapters, a mix of texts and exercise types, and suggested year plans and chapter tests in the resource bank ensure that the book can be covered in a more linear fashion. The year plans, available for both VG1 and VG2, suggest a time frame for each chapter, progress linearly through the chapters, and offer suggestions for assessment that covers a variety of competence aims and methods ("Year plan: SKILLS Teknikk og industriell produksjon Vg1," n.d.). The decision to spread out the "improve your skills" sections throughout the book rather than consolidate them in a single chapter also supports this approach by introducing two such courses per chapter. The year plan also dedicates a column to the "improve your skills" sections to signify their importance. Furthermore, the year plan introduces a clear division of the book between VG1 and VG2, with the first six chapters being covered during the first year and the last four during the second.

A final consideration is "Basic Skills." "Basic Skills" offers an independent approach to the same general topic as the texts in the book. For the "Basic Skills" sections in the first part of the book, these do not require dealing with the original text at all, as any reference material required for the tasks is included in the "Basic Skills" section. Further out in the book however, these tasks begin to refer to material in the book. Gyldendal editor K.A. Arnkværn explains that this design is based on the thinking that working with "Basic Skills" in the preceding chapters will have helped progress the students to where they can work with the shorter versions of the text.

"Basic Skills" is only available as an additional tool, and thus not a part of either the printed or digital book per se, although the digital book provides convenient shortcuts to the related "Basic Skills" content. This content is not designed for use by all students, as explained by its description as "... an intensive course developed for students whom, for various reasons, do not have the language foundation that the curriculum and the exam requires" ("Brosjyre Skills," n.d., p. 2, own translation). In other words, "Basic Skills" is a tool that teachers can utilize when working with students who are not sufficiently proficient for the level presumed by either the book or the competence aims for the subject. The reasons for students being at an insufficient proficiency level can be varied, such as challenges like dyslexia, gaps in their education due to illness or other factors, or immigrant students missing prior English education.

Altogether, *Skills* is a series of books that is designed to provide a vocationally relevant approach to the subject for as many vocational programs as possible. The books focus on core skills through “improve your skills” while leaving teachers with a great deal of freedom to decide what other material from the book to use, and how. This is evident in all aspects of the books, from text and task selection to online resources and “Basic Skills.”

4.2 How does the publisher intend for *Skills* Smartbok to be used?

In an interview with representatives from Gyldendal, the development of Smartbok was explained to be the natural evolution of many years’ worth of working with digital tools related to teaching, such as CD-ROMs and the internet (personal communication, October 7, 2014). According to them, the gap between what technology teachers are able and willing to adopt and what is actually possible to do has sometimes been quite wide. As such, Smartbok is not an attempt to introduce as much technical innovation as possible, but rather to lower the threshold for adopting new technology. The idea is to offer something with clear similarities to existing products, but increased capabilities. Key to this is maintaining the concept of a textbook, albeit in digital form. Research has shown that teachers tend to rely heavily on a textbook (Hodgson, Rønning, & Tomlinson, 2012, p. 69; Simensen, 2003, p. 74), which means that retaining this familiarity is a key step in making the transition manageable for teachers. This is similar to the design logic of *Skills* as a linear textbook that does not have to be used in that way; it opens up more choices while still maintaining the concept of a book.

This is an important point when considering the potential of digital textbooks. Whether one thinks back to Mills’ vision of digital textbooks as curators of online content (Mills, 2013, p. 48) or even just the more advanced digital textbooks available today, the current iteration of the Smartbok platform could be considered simple and lacking in features. This is however by design, as teacher adoption is paramount to the platform’s success, and focusing on core features is intended to avoid overwhelming users with unfamiliar technology. Nevertheless, the number of questions regarding more advanced features from attendees at one of Gyldendal’s Smartbok presentations indicate that this is a tradeoff that might leave more advanced users wanting more (personal communication, October 15, 2014).

The decision to keep digital pages identical to their paper equivalents also has implications with regards to adoption. With the digital book being identical to the paper book, the two also naturally become more interchangeable, and a class and its teacher can use a mix of paper and digital books if desired. The ability for the teacher to have the book projected on a screen without it being a different version than the student's paper books is one example. It also means that, aside from having to learn the digital control inputs, anyone who can navigate the paper book can navigate the digital book. This is not a given in a market where promotional material for competing products refers to interactive images, interactive galleries, scrolling sidebars, pop-overs, 3D images, and HTML modules ("iBooks Author," n.d.). All of these similarities to a traditional paper book ensure that the step from paper to digital is more gradual with *Skills* than with some of the competition. The hope is that adoption of the digital version will be easier.

The head of digital logistics at Gyldendal, A.K. Drevdal, explains that this decision was based on developmental considerations at the time, but also that the design has its advantages (personal communication, January 2, 2017). For instance, keeping the same page layout works well for students in primary and lower secondary schools, where the books are rarely used on mobile devices that would benefit more from reformatted content. Gyldendal is considering changing this design, but doing so would entail changing the production process for the books.

Moving the focus to individual features, audio recordings available by clicking the related text is one of the core features of Smartbok. This makes it easy to access the recordings compared to having audio files available online or on a CD. In addition, as previously mentioned, *Skills* includes regional variants of English in concordance with the competence aims in the subject, rather than just as an accessibility feature, providing a tool for teaching and learning language variety. This focus on audio is based on the intention for the feature to be used often, by both teachers and students, and for both practical and didactic reasons.

Another core feature is the ability to highlight text and add notes. Gyldendal explains that the ability to personalize a book on a per-user basis reintroduces a feature lost with the introduction of school-provided, borrowed textbooks in upper secondary school (personal communication, October 15, 2014). Students are usually not permitted to write in borrowed textbooks, which removes a potentially useful pedagogical tool. Digital textbooks allow for a specific focus on teaching study techniques that utilize these highlighting and note-taking

features. One example was to use specific colors for specific types of notes, like teacher comments or the students' own notes.

Gyldendal also highlights the ability for the book to be projected onto a projector screen or digital whiteboard ("Hvorfor velge Smartbok?," n.d., section "Nyttig for læreren"). A device with access to a digital book on a device capable of connecting to external screens can replace a document camera or overhead projector, providing teachers with a way to display the book for the entire class. While this is a feature of the devices that can display Smartbok rather than Smartbok itself, it is nonetheless a benefit of using Smartbok over a paper book.

A final consideration is the benefit of no longer needing a physical book. A 400+ page physical book takes up space and adds weight to be carried around by both teachers and students, which Gyldendal also emphasizes in its list of Smartbok advantages ("Hvorfor velge Smartbok?," n.d., section "Nyttig for eleven"). Digital books avoid this, but also introduce a dependency on access to a working, compatible device for access to the book. The availability of client software for various platforms is thus crucial in providing access from as many devices as possible. There is already Smartbok software available for a range of devices, and the upcoming changes to the web version, mentioned in chapter 2.2.3, will expand compatibility even further.

Using a software client other than a web browser also provides offline access to the books, a feature that is advertised as a solution to internet connectivity problems that may interfere with accessing the book ("Bruke Smartbok uten Internett," n.d.). Gyldendal explains that this feature is also intended to allow access to the books during mock exams and exams, which allow the use of aids that do not allow communication (personal communication, October 15, 2014).

Digital books also allow for new approaches to licensing. The Smartbok platform allows schools to rent books for a certain period of time rather than buy physical copies. The financial aspect of this will depend on a variety of factors, such as for how long a physical book is used, its cost versus renting a digital version, and whether student numbers are stable enough to require the same number of the same book from year to year. Gyldendal points to more universal advantages in its list of reasons to choose Smartbok, including easy purchasing and administration systems, ability to easily switch textbooks, wide device

compatibility and compatibility with the Feide universal login system ("Hvorfor velge Smartbok?," n.d., section "Nyttig for skolen og kommunen").

4.3 A summary: The complete *Skills* + Smartbok package

Skills, Smartbok, and the resource bank are the three components of a system that gives the teachers a great deal of freedom, both in what they teach and how they teach it. *Skills*, being the actual textbook, offers seven variants of the book along with a textbook philosophy based around the idea of "Improve your skills" as the core, supported by material that is optional and interchangeable without causing issues with continuity. In many ways, *Skills* is more a collection of material for the teacher to choose from than it is a book designed to be used linearly, although the latter is also possible.

Smartbok allows for using the books digitally, maintaining compatibility with the paper book by keeping to the same formatting; this decision was based on the desire to maintain familiarity with the textbook concept. In doing so, the digital and paper books become fairly interchangeable, especially once you consider that the resource bank provides access to many of the Smartbok's features even for those who do not have access to it. This allows for mixing the formats used and choosing what best fits personal preferences and needs.

Smartbok's functionality could be considered limited when compared to features available on other platforms, as outlined in chapter 2.1. This is however an intentional decision that prioritizes ease of use, anywhere access and adoption over complexity. Core to this decision is allowing anyone to use all features of Smartbok, rather than have some people use a few. The next chapter presents interview results with the teachers, which begins the exploration into the degree to which this philosophy translates to real-world use

5. Teacher's experiences and perceptions

This chapter presents the information provided by each of the interviewed teachers in turn. Each subsection is organized in an identical way for each teacher. The first section for each teacher presents background information about the teacher and their use of *Skills* and Smartbok. The second chapter presents their opinions and experiences with book design, followed by sections presenting their opinions and experiences on *Skills* features, Smartbok features, and the resource bank. The penultimate section for each teacher explores their experiences with any technical difficulties, followed by a final section summing up their overall opinion and thoughts about the future of digital textbooks.

Teachers 1, 3, and 4 elected to have the interview in Norwegian, while teacher 2 elected to have it in English. Consequently, quotes from teachers 1, 3, and 4 are my own translations, whereas for teacher 3 they are direct quotes.

5.1 Teacher 1

Teacher 1 has just turned 50, and has been a teacher for close to 25 years. She describes herself as being somewhere in the middle in terms of technical knowledge, explaining that she is capable of doing the basics but not fully utilizing every technological tool available. The technical aspect of a teacher's job is described as difficult when a tool is new, but she likes to learn, and consider such tools to be helpful once the tools can be used in day to day teaching without running into technical difficulties.

She has used *Skills* and Smartbok for a couple of years, since the release of *Skills*, in a variety of classes exclusively on the VG1 level. She has not used other digital textbooks, but have used a variety of other digital resources available for paper textbooks in the past. Both paper and Smartbok have been used, in a variety of combinations including classes where only the teacher has a Smartbok and ones where the entire class has it.

The books have mostly been used linearly, and as such it is primarily the first part of the book that has been used. This decision is explained to be due to the book being quite new, and so she wants to become familiar with the book and the texts in it before experimenting more with a non-linear approach.

Both students and teacher use the book exclusively on computers running Microsoft Windows, and exclusively in the web browser. The existences of an offline version and any version other than the browser version were unknown to the teacher prior to the interview. Consequently, the offline versions have never been used by her, and the students have never been instructed in its use. As she has only taught VG1 using *Skills* and Smartbok, offline access on exams has not been an issue.

Teacher 1's training in using Smartbok has consisted of guidance from colleagues as well as from a representative from the publisher, same as the other teachers. She considers the session with a representative from the publisher to have helped, but also wishes for a follow-up course. In addition, she explains that learning to use technology is something she often does together with other colleagues, and refers to this as part of the "sharing culture" at the school.

5.1.1 Book design

The teacher is familiar with the vocational focus of the *Skills* books, including their alternating chapter structure, same as the other teachers. She has used several of these books herself, primarily those for 'Healthcare, childhood and youth development' and 'Building and construction', and is very familiar with the similarities and differences between the books.

The vocational focus of the books is described to be a major advantage of the *Skills* series of books, and one that is appreciated by both the students and her, teacher 1 explains. It makes the texts more relevant, which helps motivation. The availability of books for specific programs is described as a nice tool for differentiating between education programs and is something that "acknowledges that the students have chosen their education program."

Having a book that spans two years of teaching is simply described as "good." She thinks of the book as having separate sections for VG1 and VG2, and while she has not taught VG2 using *Skills*, she imagines that having access to "VG1 texts" is a good way for students from other schools to read up on VG1 curriculum.

5.1.2 *Skills* features

Teacher 1 likes having separate vocational and non-vocational chapters. She does however feel that the vocational chapters are not specific enough to the study program, instead being quite general at times. She thinks that this is where the teacher is expected to adapt the material to the students, as she is aware of how many jobs exist within an education program. Having students who want to become excavator drivers and masons in the same class is mentioned as an example of this.

“Boy classes” is a concept that she mentions in this context. Some education programs, with ‘building and construction’ being mentioned specifically, often have very few or no girls in them, she explains. In addition, the proficiency level in some of these classes may be lower than in others. Teacher 1 feels that vocational texts that deal with topics familiar to the students are crucial in these classes. Some students are quick to ask, often not politely, about why they are learning about a specific topic. This type of feedback still happens when using *Skills*, the teacher explains, but less often when dealing with vocational texts, even if they are the more generic ones.

The teacher also highlights texts that deal with the history of the vocations within that education program. This is something she feels is not covered much in vocational subjects, and that doing it in English is a good way to do it. She explains that unlike a lot of the other vocational content in the book, this historic look at the vocations is often new to the students, and something many find interesting.

The non-vocational chapters also garner praise. Topics like online bullying and drug addiction are highlighted as topics that are relatable for the students, and “boy classes” are again mentioned. Many of the texts are described as being “topical,” with the lyrics from artist Pink’s “Fucking Perfect” mentioned as an example (Lokøy et al., 2013b, p. 109). This song is included in the *Skills* book for ‘Healthcare, childhood and youth development’, is described as being loved by the students, and deals with an important topic that the teacher explains as being very relevant to many in that education program.

She does however feel that there is a lack of “good stories that encourage reading,” where plot and characters are in focus. Here she suggests that a compendium of optional texts might be one way to add to the texts in the book, and asks if it is not possible to do this through Smartbok, where it “does not take up any space.”

The “In short” versions of text are also considered useful. These are mostly used with students with lower reading proficiency, and the teacher explains that the decision to use them depends more on the student than on which text it is. She also notes that when the students have access to a Smartbok, playing back the audio for the full version can often be combined with students reading the shorter version themselves.

The “improve your skills” sections are covered as the class comes across them in their linear approach to the book. The teacher notes that this may very well change as she becomes more familiar with the book, and that she is already finding herself using these sections more independently of their location than the rest of the material, especially for revision. The courses offered through this feature are good, and they are easy to access when the situation calls for it, as long as she remembers that they are there.

The “Language Lab”-sections are not used to the same extent. She occasionally uses them to refresh grammar rules and have students do some quick exercises, but not as frequently as she uses “improve your skills.”

The other types of tasks are also used regularly. Here she picks tasks based on her judgement of their value, calling some of them “good,” but others “clumsy, single-track and repetitive.” The red dots that indicate difficulty are useful to help her differentiate, but she notes that they are only an indication of difficulty and not always a good one.

One type of task she has never used is listening exercises where the audio file is not available in the Smartbok directly, only in the resource bank. She explains that she has tried to get these to work, but is only aware of them being located “somewhere else,” choosing to use some expletives to emphasize her frustration with trying find out where.

5.1.3 Smartbok features

Teacher 1 feels that having access to the book digitally is a useful option, and one that the students also like. Her experience is that students have the book with them regardless of whether it is digital or paper, but also notes that the two-year nature of the book results in a big and heavy paper book. It is not always beneficial, however, and she notes that it is easier for students to pay attention to the teacher when they use the paper book. She also points out that the school’s internet is not always fast or stable, a problem that does not affect paper

books. Since she was not aware of the offline functionality prior to this interview, she cannot speak to that as a solution to connectivity problems.

Projecting the book onto a projector is something she finds to be a core feature of using Smartbok, in combination with the ability to pan and zoom sections of the pages. She projects the book often, both to show texts and go through solutions to tasks, depending on what tasks they have been working on. Students often choose not to use their own book when it is up on the projector, and it encourages cooperation and oral task solving when everyone sees the same sections. Having these visuals is important for a lot of students, she notes, and it is one of her primary motivations for using Smartbok.

Audio playback is another feature she considers to be essential. Students are not required to have headphones with them, so it is often the teacher that controls audio playback through the classroom's speakers. This is something she does for most texts they cover, whereas she used to only do it occasionally when audio versions came on CDs. She explains that it is especially useful for students with reading difficulties, and that it allows her to assign homework that she otherwise would not because students now have the ability to have texts and tasks read to them at home. When asked about what she does in classes where the students do not have access to Smartbok, she notes that the school often buys single Smartbok licenses for students who need the audio feature.

Interactive tasks are not as essential as some of the other Smartbok features. She sometimes uses them to go through the solutions to tasks on the projector, but students generally write down their answers on paper or in Microsoft Word. Part of this is because she is unsure or whether students can save their work when using the interactive tasks, which has led her to use them mostly for repetition and classroom work where the answers will not be checked.

The interactive tasks are however more useful when they come in the form of "Basic Skills." Her experience with this feature is that it is crucial in some classes, while redundant in others, depending on the students' proficiency level. For students who struggle with the material in the book itself, she has found that "Basic Skills" can provide a sense of accomplishment that she explains is very much needed with some students. For some it might be the only thing they can master, while for others it can be a stepping stone to the material in the main book, such as the easiest task combined with the "In short"-versions of texts.

The least used features for this teacher are text marking and notes. She has occasionally highlighted words on the projector, and briefly showed students how to use these tools, but it is not a feature of which she controls the use. She explains that many students do not show much interest in it, and that those that do, can use it on their own as a study technique.

5.1.4 Resource bank

When asked about the resource bank, teacher 1 reveals that she is not quite sure about what it is or where it is. Consequently, she is not sure if she has actually used it. When asked if any of the types of resources in resource bank sound familiar, she answers that she is not aware of them being available.

5.1.5 Technical difficulties

Teacher 1 feels that the Smartbok system is mostly stable and functional. She mentions some issues with licenses in the beginning, without being able to provide more detail, and explains that it was resolved and that there have not been any major issues since. Loading speed is sometimes a problem, but one that she experiences when accessing anything online on the school's network, and so she does not consider it to be a Smartbok-only problem.

5.1.6 Overall opinion

When asked to briefly sum up her overall opinion of *Skills*, teacher 1 highlights vocational focus and refreshing, relevant texts as the high points, as well as “improve your skills” as the most useful single feature. The biggest downside is that it can become repetitive, and more literary texts with a focus on characters and plot would help.

The same question regarding Smartbok puts audio playback and “Basic Skills” at the top, along with the ability to project the book onto a larger screen. The biggest downside is when students do something else on their computers under the excuse of having the Smartbok open.

Given the choice between the paper and digital versions, teacher 1 would want to use both in combination. On the one hand, some students really benefit from “Basic Skills” and audio recordings, but on the other, they lose focus more quickly when using their computer to access the book. As such, she feels that the choice of paper or digital depends on the students. If she had to choose one, however, she would choose Smartbok. Even if it was only

a digital copy of the paper book without any special features, it would still have some advantages, such as the ability to display it on a larger screen and ease of access.

She is unsure of whether digital books are the future, but thinks they will be, based on the idea that anything computer related is the future. It is unlikely that digitalization will stop or start going backwards. She notes that students also need to learn digital skills, and that it is considered a basic skill. That however emphasizes the need to develop Smartbok further, she ends.

5.2 Teacher 2

Teacher 2 describes herself as someone who is “not a computer genius,” but who manages to learn what she needs through “a lot of trial and error.” She relies on colleagues and the school’s IT department to figure out how to do something technical, and has had success with this approach.

She has used *Skills* and Smartbok since *Skills* was published and specifically asked to be among the first at her school to start using them. The reason for this was a desire to see student’s reactions to the new technology, to see if it helped students who would otherwise forget their book, and to see if it would help students keep focus in class. Smartbok is the first digital textbook she has used, but she has used digital resources for paper books in the past. She has taught both VG1 and VG2 education programs that are branches of the ‘technical and industrial production’, ‘electronics and electricity’, or ‘building and construction’ programs. The books for those programs have been used, and she has used all parts of the book. Like teacher 1, teacher 2 has both taught classes where only the teacher has a Smartbok and ones where everyone has access to it.

Both students and the teacher have used the book exclusively on computers running Microsoft Windows, and exclusively through the web browser. She is aware of there being an offline version, and have heard about it from Gyldendal representatives, but it was never explained to her how to get this working and she has not looked into it.

Her Smartbok training is from two courses held by a representative from Gyldendal, one for teachers and one for students, the former of which the other interviewed teachers also attended. She notes that she found these courses to be unhelpful, saying that the representative “didn’t say much to teachers and less to students.”

5.2.1 Book design

Teacher 2 is a 50-year-old woman with three years of experience teaching upper secondary school and seven for primary and lower secondary school. Like the other teachers, she is also familiar with the vocational focus of the *Skills* books, including their alternating chapter structure and different variants of the book. She has used multiple variants of the book, mostly the three mentioned above. The vocational focus is important to her and she thinks that it is important for the students to learn English they will actually need for the future.

This is particularly true for VG2 classes where there are only two lessons per week, and there are both exams, mock exams, and an in-depth project that need to consider.

She does however feel that the chapters could be more logically organized, using the notion of a missing “red thread” to describe how she perceives the situation. This is part of the reason why she does not use the book linearly, but rather “picks and chooses regardless.” She knows that it can be challenging to continue on VG1 when the teacher has done this on VG1, but that is going to be a problem in any case. She teaches some cross-specialization programs, and often finds herself with entirely new mixes of students on VG2, breaking any continuity with VG1 long before the book is taken into consideration.

5.2.2 Skills features

Teacher 2 likes having separate vocational and non-vocational chapters, despite feeling that they lack continuity. For the vocational chapters, she generally uses the material that’s in the book, but she describes some of the texts as being “corny.” “They talk to the students like they’re stupid,” she says, citing the text “On Call-Out” from the book for ‘building and construction’ as an example (Lokøy et al., 2013a, p. 303):

Had one in [building and construction] with a plumber who’s called out. Toilet is running over. And as a teacher you wonder why it’s there. Is it to show the reality of being on call? Or show the danger of flushing down stuff? Is there a way to give the info in a more meaningful way?

She says she often flips through the book thinking that many texts look down on students. She feels that texts could focus on vocational topics in Norway, but in English. “There are plumbers in Norway. They need to learn how to do the job in Norway, not Australia.” She goes on to say that it matters little that the book is “shiny and on [the students’] computers” if she does not feel she can use some of the texts in it.

A similar concern is voiced for the non-vocational chapters. Again, the notion of a missing “red thread” is mentioned, and she wishes she had known more about the intention of the authors, in order to communicate their intention to the students. The poem “Nice Ass” by Jesse Cameron Alick is mentioned, a poem that is part of the non-vocational chapter 3 in the *Skills* books. She says the students do not understand it, that they think it is only about a “nice ass.” She feels like she ends up being an English teacher that teaches morals, which is something that she feels should be done in other classes, in the students’ own language. For English, she asks why a text like that is there.

The same question of “why” extends to literary texts, she says. Some are good, others seem out of place. She feels that she spends a lot of time on text selection, and does not feel like there is anything in Smartbok that improves this, since the digital books are identical to the paper equivalents but often much slower when flipping through pages. Some of the texts are good though, she emphasizes, so it all becomes a matter of finding and using those. She cannot imagine ever following the book linearly.

The “In short” versions of text are useful, she explains. They help students who need them, but they also confuse some students, in her experience. Some students continue reading the short version after reading the full text, without that being her intention. She wishes that these shorter versions of texts had been available to her as a teacher, perhaps in Smartbok somehow, but not to the students. Then she could control their use.

She also likes “improve your skills.” The information provided by these sections is described as “good, thorough, explained well...good job.” Students sometimes do not understand why they work on them there and then, but she feels that it is important for them to work on language skills and to know where this information is located for when they need it. She does wish that they were in a chapter by themselves, a “toolbox chapter at the end,” instead of being spread throughout the book.

The language lab sections on the other hand are not used. She has plans to use them at some point, but has not done so yet.

Her experience with the tasks in the book is very similar to those of the other informants. She uses them, but picks tasks carefully, and does not think that all of them are good. She describes good tasks as being those that require students to create something, not just recite something, and the book has both types. The difficulty indicators she is less fond of than teacher 1, explaining that some students get discouraged by seeing three dots on a task. She wishes these were in her own Smartbok, or hidden somehow, not visible to students.

Teacher 2’s experience with the external listening exercises is very similar to that of teacher 1. She has tried to use them, but have not been able to find out where they are located.

5.2.3 Smartbok features

Teacher 2 shares teacher 1’s opinion of digitally available books being useful, even noting that students who do not have access to Smartbok themselves want access when they see her

use her Smartbok. She admits that some students are better at using the Smartbok than she is. Even in classes where only she has it, it is a useful tool, as the ability to project to an external screen is very useful. Her usage of this feature is very similar to that of teacher 1, and the same goes for her opinion of it as an important, core feature. Helping the students keep focus in class was one of her reasons for wanting to try Smartbok, and she feels that is working out well. She adds that oral activity is a core part of her teaching, and that projecting the book onto a screen makes it easier for everyone to work with the same material and do activities orally.

Internet connectivity problems are mentioned, and as with teacher 1, offline access has never been used. Teacher 2 explains that she expects the publisher to show them this feature, as she feels she does not have the time, even if there is a guide to it somewhere. “Give me something that shows me where the features are,” she says.

The audio recordings of the book are used often, similar to with teacher 1. She also notes that some students use the ability to have tasks read to them, touching on the same aspects of accessibility that teacher 1 talked about. The similarities continue with their use of the interactive tasks, which teacher 2 also uses only occasionally, instead preferring to write down answers somewhere else or do them orally. The drag and drop tasks she feels are a “waste of time” as students can easily do them orally instead.

With “Basic Skills” however the two teachers differ. Teacher 2 has never used that feature, and while she believes that some of her students would benefit from it, she does not feel that it is a requirement. In addition, some students have expressed an unwillingness to be assigned other tasks than the class at large. She does not plan to go against their will on this unless it becomes absolutely necessary.

The two teachers also differ greatly in their use of the text highlighting and notes features. Where teacher 1 never really uses this feature, teacher 2 lights up when asked about them and exclaims that she loves those features. She uses it often, highlighting text and adding notes as part of the process of working with a text. Adding translations or explanations for slang is a specific example she mentions. She shows the students what to add on the projector, and they add it in their book, assuming it is a class where students have Smartbok. The added notes and highlights are often accessed through the content bank, which the students and she use like a summary.

5.2.4 Resource bank

Her reaction to being asked about the resource bank is less enthusiastic. She explains that she has looked at what is there, but mostly used it to “steal ideas,” as she is not sure about how to use everything that is there. When asked about specific types of material located in the resource bank, her replies vary from not knowing about some of them to not using the rest. Overall, the resource bank is not something she really uses, despite knowing about it and where it is.

5.2.5 Technical difficulties

Teacher 2’s experience with the stability of Smartbok is less positive than for teacher 1. She mentions many examples of situations where the book would not load or take a long time to load. She vividly remembers one 45-minute lesson where the book was stuck loading for the entire lesson. Other times she has been unable to turn the page, or been unable to use the search feature. She is not sure if these issues are caused by the school or the Smartbok platform, but considers it a waste if something cannot be used, regardless of where the issue lies. Using the offline versions might help, she knows, and she considers her own technical skill level and lack of interest in figuring out the offline versions to be part of the problem.

5.2.6 Overall opinion

Teacher 2’s favorite part of the *Skills* books is “improve your skills.” She also likes the inclusion of progressively more difficult tasks, but not that the indicators of these are visible to students. Similarly, she would move the shorter versions of texts somewhere else. Her biggest wish for a future revision would be to have the author’s intention behind texts and tasks included somewhere. If this exists for *Skills*, she is unaware of it, she notes, and she has seen this inclusion with other books. She feels like it would be easy to include this digitally, in the Smartbok system, also making it her biggest wish for a Smartbok improvement. “When making a book, you’d think you’d want it to be used like intended,” she comments.

More training and easily accessible guides to the features in Smartbok are also on her wish list. She likes having access to the book digitally, and the interactive features she uses such as notes and projecting the screen are very useful, but she considers her own use of Smartbok to be at a basic level. She believes more training and practice would help this, but that this would have to come from the school or the publisher. Students also have trouble

understanding how to use many of the features, she says, and they have had even less training than her.

Overall, she believes that there are more positive aspects of *Skills* and Smartbok than there are negative. Her initial wish for a tool to help students focus in class has been fulfilled, and she is very happy about that. She is aware that Smartbok has many features to offer, but her use of it really comes down to having digital access to the book, both for forgetful students and for projecting the screen. There is no doubt in her mind that digital books are the future, and she would definitely choose the Smartbok version over the paper version of *Skills*.

5.3 Teacher 3

Teacher 3 is 45 years old and has 8 years of experience teaching upper secondary school. He considers himself above average when it comes to use of technology, and has used many technical tools in his teaching, such as various teaching platforms, online tools and resources, videos, and blogs. Smartbok is however the first digital textbook he has used.

He has used *Skills* and Smartbok for the two years since *Skills* was released, a result of the school asking for anyone willing to try it out. His reasons for wanting to try them out was to see if they would make it easier for him to access the book on a day to day basis, and to see how the digital book had been designed compared to traditional online resources for paper books.

Since then he has used *Skills* on both VG1 and VG2 'building and construction', VG2 branches of 'healthcare, childhood and youth development', as well as VG1 'technical and industrial production'. Consequently, he has used all parts of the book.

Unlike the other two teachers, he has only used it in classes where the students have the paper book, not where they have access to Smartbok. He has used the book primarily on a computer running Microsoft Windows, although he notes that he initially tried the iPad version, but gave up on it due to difficulties with the app and because he uses a computer for everything else. Other than this brief period with the iPad app, he has not used any offline versions.

Like the other teachers, he has seen a presentation of Smartbok by a representative from the publisher, but found it to be quite general. He was offered the option to contact the publisher

for further assistance, but prefers to try for himself or ask colleagues. He explains that his colleagues often have or have had the same questions, so they understand what he asks, and they can often find solutions together.

5.3.1 Book design

As with the other teachers, teacher 3 is familiar with the book design, the different variants of the book, and the vocational focus. He likes the design as it combines general knowledge needed for exams and vocational knowledge needed for working life. Having multiple variants of the book is useful, but he feels that having a single book for both years is a more important feature. This helps continuity, and reminds students that the VG2 exams draw from both years, a fact that can often be forgotten when students switch schools and education programs. This is less effective if the schools do not use the same book, he notes, but even then, the VG2 students have access to all parts of the book they are switching to.

Like teacher 2, teacher 3 picks out the texts he feels are best from the book, and does not follow the book linearly. He explains that this is because he does not consider all texts to be usable, and the order in which he covers topics rarely lines up with the book.

5.3.2 Skills features

Despite not using all texts, he enjoys the mix of general and vocational texts and the varying text types. He particularly likes the factual texts, describing them as “windows into various topics,” useful as starting points for further study. At the same time, he feels that some of them can oversimplify the topics. This is something he believes is a result of feedback from teachers pointing to students in vocational programs needing easier material than students attending specialization in general studies, and that the simplification has been taken too far at times.

Adapting the material too far is also how he describes the literary texts. He questions the decision to have so many vocational literary texts, as many of them can only be summarized, not analyzed. This can cause problems on exams, he explains, as it leaves students without much to say about a text. His experience has shown that students themselves pick the excerpt from “Oliver Twist,” included in chapter 2 of some of the *Skills* variants, when asked to talk about a text on an exam. They pick it because it can be analyzed, he explains, and adds that

he thinks that they would have picked more modern texts if the book had included good, modern literary texts.

Having access to shorter versions of texts is a feature he uses quite often. Using them for differentiation, like the other teachers, is one way to use them. However, he explains that he also uses them to let students get a quick overview of a text before reading the full version, regardless of the students' proficiency level. He also feels that this approach can help students who would otherwise be overwhelmed by the full text get through it.

His opinion of "improve your skills" reflects those of the other teachers. He thinks they are good, uses them often, and he thinks that putting focus on those types of skills is a wise design choice. He does however share teacher 2's wish for these sections to be located together, and thinks that the only decision to split them up is to avoid overwhelming the students, at the cost of easy access when they need them.

Teacher 3 explains that he has used the sections entitled "Language Lab" in the actual language lab, having confused the meaning of the title. He uses the language lab often, he explains, but generally prefers other activities than the ones in the book. As such, he has only used those sections a few times.

With regards to tasks, he is as selective as the other teachers. He uses some of them, but picks them out beforehand, and does not trust that all of them are good. In particular, he feels that there are too many comprehension tasks, where the answer can just be picked from the text with little effort. He would have liked more tasks that require reflection. He also mentions "Basic Skills" in this context, as he thinks the same system that is used for "Basic Skills" could be used to offer more challenging tasks for students who need those. This would allow there to be more tasks to choose from without them taking up space in the book, he explains. He understands the logic of having the online tasks be interactive copies of the tasks in the book, but he feels that it is a wasted opportunity to not have more tasks available online.

Teacher 3 also shares teacher 2's view of the difficulty indicators. His experience is very similar to hers, citing students who are discouraged by seeing the dots. He's unsure of why they are printed in the students' books, and thinks that they should only be visible to the teacher. If that were the case, he would have liked them to range to four or five dots, providing more accurate indications of difficulty.

Unlike teachers 1 and 2, teacher 3 has found and used the listening exercises that require external audio files from the resource bank. He does not think it is difficult to get the technical aspect of this working, but in his experience, the exercises are too difficult for the students. Even with repeated listens and discussions afterwards, students miss details. He thinks that the recordings could be shorter, and that there could instead be more of them. He thinks this would help motivation and concentration, and adds that since we live in Norway, any opportunity like this to listen to different variants of English is very much needed.

5.3.3 Smartbok features

Teacher 3 is less enthusiastic about having access to a digital version of the book than the other teachers. He likes the idea, but cites many instances of technical problems that have led him back to the paper version. Initial load times is one problem, and he also cites a problem with sometimes ending up in the trial version of the book, which is restricted to a few chapters. Before he figured out what the problem was, he thought that the system denied him access to parts of the book.

In addition, he mentions his own habits as a reason why he has gravitated back to the paper book. Being able to quickly flip through pages is one of the benefits of using paper, he says. Nevertheless, he sees the value of having the book available as a backup, especially at home where he does not always have the paper book. Similarly, he sees the value of offline versions of the book, but has never used it beyond his initial iPad experience.

His preference of the paper book also results in him projecting the book onto a larger screen far less frequently than the other teachers. Doing this is the exception, not the rule, he says. Sometimes he finds it useful to be able to point to and explain something in the book, but he thinks that most of the texts are simple enough that this is not necessary.

Playing back audio recordings of texts is however something he uses quite often, although not necessarily with the book projected to a larger screen. He thinks this feature is well executed and that the quality of the recordings is good, but he considers it a “better CD” more than anything else.

The interactive tasks are described as “disappointing.” He tried them in the beginning, but explains that he expected the feature to be much better considering how it had been presented as “revolutionizing” by the publisher. In his experience, the same functionality has

been done better by others, as online resources for paper books. Having a wider variety of material in addition to what is in the book and technical features such as being able to link to tasks are examples he lists for what he means by others having done it better. Overall, he feels like the point is mostly gone when the online tasks are the same as what is in the book.

He is similarly unimpressed by “Basic Skills.” Some students might be at that level in terms of their proficiency, but says the tasks are so “childish” that even those students refuse to do them. He points to tasks about learning the names of weekdays as something he feels constitutes “mocking the students.” Again, he describes the feature as something he tried in the beginning, but never started using regularly.

Highlighting is a feature he uses occasionally. Since the students do not have access to Smartbok, he is left to use it to show them what to pay particular attention to in the book, particularly with factual texts. He does wish that the students had access to Smartbok so they could do the same, along with adding notes, and thinks that this would open up for teaching study techniques, practice taking lecture notes, collect their notes, and similar activities.

5.3.4 Resource bank

As with the other teachers, the resource bank is the least used part of the *Skills/Smartbok* ecosystem. He explains that he has used the keys to tasks a few times, and downloaded some of the audio files used for listening exercises, but not anything else. He is aware of what is available, but finds the resource bank to be inferior to the online resources of other books.

5.3.5 Technical difficulties

When asked about technical difficulties, teacher 3 refers back to the issues he’s mentioned earlier in the interview, and adds that there have been fewer issues lately. Part of that is from him no longer using many of the features he tried out in the beginning, but he thinks there have been improvements beyond that. The books are still slow to load though, he notes, both at home and at school. He gives this as the reason for preferring the paper book, saying that he does not trust the Smartbok to work quickly and consistently. He knows that the reasons for this might be the internet connection where he is, but since he knows that the paper book will work, he is less interested in trying to “fix” the Smartbok by using the offline version.

5.3.6 Overall opinion

As the best feature of *Skills*, teacher 3 points to having a single book span two years of teaching. He also likes the mix of vocational and general material in the books, but would like more advanced texts. He would also like the difficulty indicators removed from the students' version of the book, and put all the "improve your skills" sections together.

For Smartbok, he likes the idea behind it, and the idea of having an easily accessible digital book. He wishes for the digital aspects of the platform to provide more supplemental material, however, rather than digital duplicates. He explains that he teaches based on competence aims, not by following the book, and so he wants more choices for both texts and tasks. Adapting "Basic Skills" to the age group better would also be an improvement, but he admits that he does not know exactly how that would look.

Given the choice, he would stick with the paper book, but sees the advantages and disadvantages of both. He is not against moving to digital at one point, but only if and when the technical challenges have been solved, a job that he is not willing to take part in. He wants a solution that is fast and reliable, not a work in progress. Digital books are the future, he thinks, but he feels that it is important to tread carefully as we digitize everything. Today's youth use a lot of time on technology, and he thinks there are advantages of not everything being part of that.

5.4 Teacher 4

Teacher 4 is a woman in her early forties with 15 years of teaching experience, and she considers her technical knowledge to be "average." Occasionally she gets help from colleagues, but she is mostly self-taught, and rarely has any difficulties accomplishing what she wants – including using Smartbok.

She has used *Skills* and Smartbok since the release of *Skills*, having been asked to test it out when it first came out. In her VG1 classes, both the students and the teacher have access to Smartbok, while in her VG2 classes, only the teacher has access. The classes she teaches are within the 'technical and industrial production', 'building and construction', and 'electronics and electricity' programs.

Both teacher 4 and her students have mostly used Smartbok on computers running Microsoft Windows, although she has herself used it on iPad as well, and occasionally looked up something in the resource bank on her phone. She says she mostly uses the iPad for quick access, and outside of that, neither her students nor she have used the offline versions of Smartbok.

Like the other teachers, she has attended a Smartbok course by the publisher, although she says that this did not introduce anything new to her.

5.4.1 Book design

As with the other teachers, teacher 4 is familiar with the book design, the different variants of the book, and the vocational focus, and she appreciates the effort put into the many variants. She says the students enjoy vocational topics, so she has used a lot of time on those. On VG2 it is however important to prepare them for the written exam, which requires covering more of the general topics, she explains. As a result, she does not follow the book linearly, instead picking what she needs from throughout the book. At the same time, she tries to stay within the first part of the book on VG1, and the second part for VG2, in order to maintain continuity. This does not always work, she says, as not all schools use *Skills*, and her VG2 classes generally have at least some students from other schools.

5.4.2 Skills features

Teacher 4 explains that although she teaches with a clear vocational focus in vocational classes, this does not always mean using the Skills book's vocational content. The texts are generally decent, she says, with a greater variety and relevance than *Tracks*, a competing textbook for vocational English classes. She is less enthusiastic about the tasks, and feels that some of them belong in primary school, citing tasks where students are asked to match pictures with words as an example.

Her opinion of the literary texts is similar to that of teacher 3. She feels there are too few literary texts that can be analyzed and encourage reflection, citing Ernest Hemmingway's "A Day's Wait" as an example of a good short story, one that she has seen used in another textbook but that she does not feel has an equivalent in *Skills*. The factual texts are great, she says, but there are too many of them compared to good literary texts. She discovered this when she sat down to make a list of good texts to put on the reading list for the oral exam,

coming up with few that could be analyzed with literary terms, mirroring teacher 3's concerns.

Teacher 4 also share's teacher 3's approach to the "In short" versions of texts, using them not only for differentiation, but also to let students get an overview of a text before reading the full-length version. She says that for some students, the shorter version allows them to work with a text they might otherwise have difficulties working with.

Her opinion of "improve your skills" mirrors those of the other teachers, praising the feature. She says that she uses them in combination with her own material, especially on VG2 as preparation for the written exam. Students need to work with the tips these sections provide multiple times, she says, and she feels that having the sections spread out throughout the book makes them feel like something that is covered once and then forgotten about. Since students can bring downloaded documents to the written exam, she wishes there was a way to save all the "Improve you skills"-sections from the Smartbok into a single document for this purpose.

Teacher 4 has not used the "Language Lab"-sections, citing NDLA as her source for grammar activities. She has however used the listening exercises, and explains that it is possible to have a listening exercise as part of the oral exam, so she wants the students to have some experience with listening exercises. She wishes she could print the texts, however, as it would help some of her students whose listening proficiency makes it difficult for them to catch every detail. It surprises her to learn that you can do that from the resource bank if you have access to the teacher-only content.

When it comes to the tasks in the book, she elaborates on her previous comments about them by saying that she finds all of the tasks in the book to be "superficial." Too many of them only ask the students to find information in the text, which is too easy for many of the students. She shares the other teachers' views here, and she also touches on a similar desire as teacher 3 for the digital book to offer a greater variety of tasks. Her opinion of the tasks as generally being too easy also means that she has not used the difficulty indicator system at all.

5.4.3 Smartbok features

Teacher 4 is very fond of having the textbook available digitally, calling it “genius.” She says that students generally have their computers, and Smartbok then ensures they have their book as well. When students do not have their computers, however, it is “less genius.” Here she wishes for support for cellphones, as they could serve as a backup for students who do not have their computer, a role that is currently filled by having spare paper books and pen and paper.

She goes on to elaborate on her experience with the offline functionality, saying that so far, they have simply used the paper books on exams. The offline functionality could be useful in classes where they only have the Smartbok, she says.

Like teachers 1 and 2, teacher 4 considers the ability to project the book to an external screen to be essential. It is one of her most used Smartbok features and one of the primary advantages of Smartbok for her as a teacher. This praise also extends to the audio playback feature, which she also uses often. Both her students and she use this feature, she says.

The students also use the interactive tasks, she says. Some prefer to write on paper, while others prefer the interactive tasks. She often skips going through tasks collectively in favor of walking around and observing students’ individual progression, and in those cases, the paper book has the advantage of being more portable than the traditional laptops that the teachers have access to. She acknowledges that her iPad could be of use here, but as it is old and her private iPad, she rarely brings it to class.

When asked about “Basic Skills,” teacher 4 laughs and says that “they are certainly basic.” She has noticed many instances of the tasks being outright wrong, which some students notice themselves, while others get confused. The latter group is those who actually need “Basic Skills” the most, she says, and they like the feature. She mostly uses it with those students when they work individually, and she finds that it gives them a sense of accomplishment. It is “frightening” that any student at upper secondary school level has a use for tasks this simple, she says, but she is glad that she does not have to find a textbook for primary school in order to provide the students with tasks like those in “Basic Skills.” That would be very demotivational, she explains. Overall, she thinks that since they do not take up any space in the book other than their icons, she is glad that they are there.

Highlighting text is not something her students or she has used, she explains, but they have used the note feature. Students lose anything they write on paper or in their book, she says, so adding notes in the Smartbok is a good way to ensure that they can find them later. They sometimes use the feature to write down answers to tasks, and occasionally for adding information about a text.

5.4.4 Resource bank

Teacher 4 has occasionally used the resource bank, but very rarely. She has used some of the self-assessment forms, but find them difficult to use when she does not follow the book linearly. She has also used the keys for the tasks, as well as audio files. Overall, however, she pays little attention to what is in the resource bank unless she goes there to look for something specific.

5.4.5 Technical difficulties

There were some issues with licenses in the beginning, she explains, similar to what teacher 1 describes. After that, there have been occasional problems with students logging in with the wrong account or other small problems, but this was mostly in the beginning.

She has experiences issues with internet connectivity and consequently slow Smartbok loading, but notes that she does not have these issues at home, so she is quite sure that the school's internet connection is to blame. She is aware that the offline versions of the book could help, but does not consider it worth her time to look into that feature.

Teacher 4 is the only one of the four teachers to have noticed issues with tasks interactive tasks providing the wrong answer. She thinks this is something that needs to be fixed immediately, and that a book should not provide wrong information, especially not when the problem is with a feature that targets those students who are least likely to notice.

5.4.6 Overall opinion

Overall, teacher 4 thinks *Skills* is a logically designed book, but one that could use better literary texts. For Smartbok, her favorite features are the ability to project the book to a larger screen and the audio playback feature. She also likes the ability to save answers to tasks as notes that students cannot easily lose, but also notes that she feels like that is not

what the note functionality was meant for, and that a dedicated feature for saving answers to tasks would be better. This could even include a way to write and save essays, she says.

Given a choice, she would want to keep both the paper book and the Smartbok, citing technical issues as her reason not to fully give up the paper book. If forced to pick one, she would keep the Smartbok, because it is always accessible. She thinks it represents the future, jokingly adding that she is “afraid it is.” Still, having both would be preferable, she ends.

6. Comparing and contrasting the teachers' and publisher's perspectives

This chapter discusses the experiences and opinions of the teachers (presented in chapter 5), comparing and contrasting them both with each other and with the publisher's intentions concerning how the digital materials could best be used (presented in chapter 4). The chapter is structured on the basis of certain themes that arose during the interviews. Section 6.1 first discusses the technical challenges that may arise when using digital tools such as Smartbok, and the factors that may affect adoption of digital textbooks. Section 6.2 looks at the design choices that were made with *Skills* and Smartbok, and how these fit in with the teachers' use and opinions. Section 6.3 considers the notion of having 'Improve your skills' as a core feature supported by a variety of texts, including the teachers' opinions of both 'Improve your skills' and the texts. From there, 6.4 expands into discussing tasks, both in terms of quality and the interactive task system, which includes "Basic Skills". Section 6.5 rounds off the discussion of features by looking at audio and annotation features, before section 6.6 looks at the basic implications of going digital, such as the ability to project the book to a larger screen. Finally, section 6.7 considers further avenues of research that this study has not encompassed.

6.1 The technical barrier of entry

The four teachers interviewed for this study have a somewhat similar background and basis for using Smartbok. They are all experienced teachers, and within 10 years of each other in age. They all work at the same school, and consequently have access to roughly the same equipment and human resources, i.e. colleagues, IT department, and any visiting representatives from the publisher. This ensures comparability, even though it might arguably reduce the degree of variation among informants.

From the information provided in the interview, teachers 3 and 4 have explored more of what the Smartbok platform has to offer than teachers 1 and 2, both with regards to the resource bank and devices outside of computers running Microsoft Windows. Teacher 3 is the informant who gives the impression of having explored more of the features of Smartbok than the others, which is perhaps surprising considering that he is the one of the four to have returned to almost exclusively using the paper book. This indicates that it is not necessarily

those who have the most technical skills who are willing to adopt new technologies. Rather, his explanation of wanting a fully working product and not wanting to be part of the task of getting to that point – i.e. through testing and reporting back – suggests that a teacher's willingness to be a test subject is also important.

The other teachers have all faced technical challenges to some extent, and teachers 1 and 4 express a desire to keep using both versions of the book. Nevertheless, they indicate a willingness to accept the shortcomings because of the advantages, to a greater extent than teacher 3. Both teachers 1 and 2 however express a desire for more training, especially teacher 2, who is quite vocal about training being needed and expecting the school or publisher to provide it. Some training material is available, as evident by their use as source material for parts of chapter 4, indicating that this material is either too difficult to find or that finding it is not something she is willing to spend the time or effort to do.

These factors validate Gyldendal's desire to make the barrier of entry for their Smartbok platform as low as possible. As established in chapter 4.2, they have prioritized lowering the threshold for adoption, rather than packing the platform full of more advanced features. Keeping the book format when going digital is what allows schools to mix and match the paper and digital books the way these teachers describe, and it would be interesting to learn what these four teachers would think of a fully digital book that uses a different format and more advanced features. It could give them more of an incentive to explore the possibilities and more actively seek training, or it could hinder adoption, as Gyldendal fears.

The teachers' use of the offline functionality – or lack thereof – is an interesting discovery. Given the network problems they all report, a problem predicted by Gyldendal given their web page for the offline functionality ("Bruke Smartbok uten Internett," n.d.), it would be logical for this feature to be useful for both the four teachers and the students. Instead, none of the teachers report using it outside of testing the iPad app, which requires it. The feature is arguable not hard to find, with an image banner advertising it on the front page of the website used to log into the browser version ("Smartbok," n.d.), and the teachers report knowing of its existence. Teacher 2 attributes her not using it to a lack of knowledge of where it is and time to sit down and find out, while teachers 3 and 4 rely on the paper books as their offline alternative. However low the threshold to use this feature is, it might not be low enough, especially given that it competes with the paper book. A potential avenue for

further research would be to look at whether the existence of a paper book hinders adoption of features of a digital book.

Overall, the barrier of entry for using Smartbok does not seem to be too high, with other factors than technical difficulty affecting its adoption. Training and awareness could perhaps further its adoption, however it seems that the publisher and the school might have to take a more active role in that process. Gyldendal should perhaps consider increasing their training efforts, relying less on teachers to explore on their own.

6.2 Design choices

All four teachers appreciate having seven variants of the same book, some more than others. They all teach multiple study programs, and all mention the importance of teaching vocational English, which emphasizes the difference between the English course for vocational students and general studies students, despite the competence aims being the same.

Different publishers have taken different approaches to this problem, and each solution has implications both for teaching and for the digital aspect of the textbook, whether it is a digital book or digital resources. For Cappelen Damm's *Tracks* books, there are three alternatives ("Tracks YF: Engelsk for yrkesfag," n.d.). The first offers a single two-year book along with a license-only online resource for each vocational program, essentially leaving it to the digital resource to offer variety between education programs. The second is more similar to *Skills* in that there are eight books to cover the different education programs, but these are only for VG1, with VG2 being covered by a single book. Finally, the third option uses the same VG2 book as option two, but combines it with a single book for VG1 as well, downplaying the variety aspect. In the case of *Skills*, Gyldendal has published seven variants of the same two-year book, have a digital textbook version that uses the same formatting as the paper version, and have little extra available digitally that is not in the book.

The many different approaches exemplified by only two publishers here show that the vocational aspect adds complexity when designing a textbook and accompanying digital resources. It is also a complexity that is evident from the interviews with the teachers. There is agreement that having a two-year book is preferable, with teacher 3 even describing it as

more important than having multiple variants of the book. Teacher 1 uses the book mostly linearly, whereas the others jump back and forth more. Teacher 1 brings up the question of whether the digital version of the book could contain additional texts, and teacher 3 similarly wants more tasks available in the resource bank. Teachers 2, 3 and 4 all want to rearrange parts of the book, specifically the “improve your skills” sections, with teacher 4 also wishing for the ability to export these sections into a separate document. Teacher 2 also wants to hide the “In short” texts and the difficulty indicators from students, the latter of which teacher 3 also wants to do.

What is evident here is that if asked to design the *Skills* books and the Smartbok platform, these four teachers would each have their vision of how those would look. They would also likely allocate resources to different aspects of the final package quite differently, with teacher 3 favoring traditional online resources more than having a digital version of the book, and teacher 2 being the one most likely to not print a paper book at all.

This gives an insight into the challenges faced by a publisher in catering to an audience of teachers – and presumably students – who have differing opinions of what the final package should look like. Gyldendal’s design decisions might be opposed by one user, or loved by another. Without exploring Cappelen Damm’s decision to offer three alternatives deeper it is hard to say if it was made because of the varying opinions of its users, but it would serve as a potential solution – at least so far as to satisfy two more preferences.

Publishing a textbook is however not an easy task, and the inclusion of a digital component does not help that. Alternatively, one could consider the paper version to be the addition, as it would be possible for *Skills* to exist entirely as a digital Smartbok, potentially freeing up resources and eliminating constraints that the paper version entails. It is a matter of priorities, and when this then extends to involve seven variants of a book, the task becomes yet more extensive. Gyldendal editor K.A. Arnkværn explains that the job of creating seven variants of the book, along with the number of files that the digital components resulted in, was greater than anyone at Gyldendal had predicted (personal communication, May 9, 2017).

It is also important to remember the nature of a digital textbook platform: it is used for more than one textbook. While it can have advantages in that the development cost is not all attributed to one textbook, it also has disadvantages in that it can limit what is possible to do with a textbook, especially if that feature would not have a use case for other books.

Teachers may view every aspect of the book, including the digital textbook platform, in the light of teaching a specific situation, like vocational English in upper secondary school. The publisher may not have the option to develop for a situation this specific, however. A digital textbook platform developed exclusively for *Skills* would likely be different than the current iteration of Smartbok, and given the cost of such an endeavor, likely fictional.

6.3 Texts and “improve your skills”

The quality of the texts in *Skills* is mentioned by all the teachers. While they do acknowledge some of them as being useful and good, there is quite a bit of criticism. Literary texts are mentioned by all as a point of criticism, with teachers 3 and 4 focusing on their use as subjects of analysis on exams, teacher 1 wishing for texts that encourage reading, and teacher 2 simply expressing confusion as to the purpose of some of them.

For the former argument, it should be noted that the place of literary analysis at this level in LK06 is questionable. During a lecture for English teachers at Hamar katedralskole, Bronia Hamilton from Hartvig Nissens upper secondary school pointed this out by asking the audience of teachers how many times the word “analyze” is used in the competence aims for ENG1001-ENG1003 (personal communication, November 25, 2016). The answer is zero. The English version of the competence aims uses the phrase “discuss and elaborate on” for the only competence aim that specifically mentions literary texts (The Norwegian Directorate for Education and Training, n.d.-a, section “Culture, society and literature”). Mariya Popova studied how English literature is taught in Norwegian upper secondary schools in her master’s thesis, and concludes with several points relevant to this discussion (Popova, 2010, p. 95):

The openness of the new curriculum is the reason for its various interpretations, which may lead to conflicting situations when the teachers have to decide what textbook they will use. When it comes to the approaches to literature teaching, the teachers decide for themselves what methods they will use.

....

The teachers decide what their students have to know and remember in terms of literature, since the curriculum does not specify how much literary competence the students are supposed to obtain during the course.

She also concludes that “the teachers say that motivating their students to read is one of the most important tasks they face, since many of them experience that the young people do not

like to read,” a description that has relevance to teacher 1’s comments about literature in *Skills*.

There are also mixed opinions of the other texts in *Skills*. Both teachers 2 and 3 find the factual texts to be too simple at times, and while teacher 4 likes them, she thinks there are too many of them. Throughout the interviews there were also specific examples mentioned of texts that exemplify criticism that the teachers have. Teacher 1 describes the lyrics to the song “Fucking Perfect” as topical, Teacher 2 explains that students misunderstand “Nice Ass,” teacher 3 mentions “Oliver Twist” as a good literary text that is included, while teacher 4 wishes for an equivalent of “A Day’s Wait,” which she has seen in another book.

Considering that the competence aims are as open as they are, all the teachers’ comments have merits. Their comments do not extend to all the texts, so it can be argued that Gyldendal has chosen a mix of texts that aim to give everyone something they can use, and that these teachers simply take issue with those texts in that mix that do not specifically cater to their interpretation of the competence aims. The more universal desire for more, better literary texts might be a point to take away from this, however, considering the universal agreement concerning it among these teachers.

Bridging this discussion to that of section 6.2, the question arises of whether the task of publishing seven variants of a book has required resources that could have otherwise been used to improve the quality of the texts. Teacher 1 asks if it would be possible to have a compendium of extra texts via Smartbok, and it is not unreasonable to imagine that being a possible way to relocate resources if there had been fewer variants of the book. Whether that trade would have been worth it, and whether it would be possible to do both, would only be speculation. In any case, such a feature would have to be in the resource bank if the digital book were to be identical to the paper version, but there is no technical reason this could not be done. “Basic Skills” exemplifies how the Smartbok platform allows for additional resources to be placed in the resource bank, and even how quick access can be added to the Smartbok version of the book.

The counter argument to such a compendium is that *Skills* is not necessarily meant to be used on its own. Gyldendal themselves noted that *Skills* is designed to be used with external resources if necessary, a core part of the philosophy concerning “improve your skills.” This moves the discussion into the realm of teachers’ dependability on the textbook, mentioned in

chapter 4.2 in relation to the familiarity of using the paper book format for the digital book. Three of the four teachers stated that they do not use the book linearly, with teacher 1's linear use being a result of wanting to learn the book. Whether this 'pick and choose' mentality extends beyond the boundaries of the book to include external material would have been a useful avenue to explore further in the interviews, hindsight being what it is. Teacher 4's mention of using NDLA for grammar activities, and teacher 3's reference to further study when describing the factual texts as "windows into various topics" both indicate that the book is not their only source of teaching material, however. Not having "A Day's Wait" available in *Skills* might very well be solved by the teacher having access to it somewhere else. On the other hand, relying too much on teachers augmenting the textbooks they use does not fit in all that well with wanting to maintain the textbook concept for the sake of adoption.

A final point regarding texts is brought up by teachers 2 and 3. They both point to flipping through pages as being an advantage of paper books. It is interesting how something as simple as flipping pages quickly can score points in paper's favor. It is however something that can arguable be important if the book is not used linearly, especially if the teacher is not yet familiar with the entire book.

One thing is clear from the teachers' comments about texts in *Skills*: the content of the textbook matters. This is perhaps obvious, but it is worth noting when dealing with digitalization, where the focus is often on what is new, not how it preserves the tried and true.

It is also clear that whatever the teachers think of individual texts, their opinions are more positive concerning "improve your skills." Some of the teachers would like these sections to be arranged differently, but their usefulness is not disputed. With the publisher's intention being for these to form the core experience for *Skills*, with everything else being a matter of the teachers' preferences, they have arguable hit the mark with this feature. Considering the openness of the competence aims, there is arguably logic behind allowing for different approaches. In addition, as Gyldendal editor K.A. Arnkværn notes, students can bring both the textbook and other material to the exam, so communicating in English should take precedence over learning factual details by heart (personal communication, March 20, 2017).

The apparent success of “improve your skills” does raise some questions about the future of textbooks, questions that link back to the discussion in section 6.2. There are eighteen “improve your skills” sections, each consisting of two pages, which means that the well-liked core of seven 400+ pages long books is 36 pages in total, and the rest is a collection of optional material of which the teachers have more varied opinions. Printing all these extra pages used to be necessary when that was how the material was made available to the teachers, but should we still be doing it in the digital age? Cappelen Damm’s licensed based online resource, mentioned as alternative 1 of their *Tracks* package in section 6.2 (“Tracks YF: Engelsk for yrkesfag,” n.d.) moves a lot of the material online, and the collective teaching resource website NDLA (“Hva er NDLA,” 2016) is an increasingly comprehensive alternative to the traditional publisher-controlled textbook altogether. Jan-Louis Nagel wrote an article about using NDLA as a textbook back in 2010, where he writes (Nagel, 2010, paragraph 5, own translation):

A standard English textbook had a life span of 5-6 years on average, then it had to be replaced – but you were never quite satisfied in any case. I now have a textbook that is updated up to the last week’s events and currents interests. It can be adjusted and edited based on input – the editorial office accepts tips and suggestions. There are so many topics and so much material that I can pick out exactly what I need.

What he writes is very similar to what the teachers report in the interviews, that they pick and choose material and are not entirely happy with what is available. It is also similar to Mills’ vision for the future of textbooks (Mills, 2013, pp. 46-48), outlined in section 2.1. Not having to print the textbook, as well as having a larger collection of material to choose from, may very well be the result of an English subject that is so open to different approaches. It could eliminate the need for a traditional textbook, which could have implications for adoption, and it could also blur the lines between digital textbooks and online resources like the resource bank – a line that is arguably somewhat washed out already considering the overlap between Smartbok and the resource bank. What the publisher’s role in this would be is as speculative as anything, but maybe they will be left to sell licenses for teaching material collections independent of the notion of a textbook to bind it together, perhaps aside from a small book simply called *Improve your skills*.

6.4 Tasks and “Basic Skills”

As with the quality of texts, the quality of the tasks in *Skills* is highly criticized by the interviewed teachers. Again, their criticism is not all-encompassing, instead emphasizing the need to manually filter out the good. Using different words, they all describe a collection of tasks where they as teachers need to filter out the ones that they consider “good.” There is concern of the focus on comprehension tasks, and a call for more tasks that challenge the students more.

At the same time, it is evident from the interviews that there are many situations where there is a clear need for material and tasks that target less proficient students. The “In short” versions of texts, difficulty indicators, and “Basic Skills” have all been mentioned as being used for the differentiation options for which they were intended. Teacher 1 says that “Basic Skills” can be useful in one class and redundant in another. As such, it is hard to argue for the removal of any material that is deemed “too easy,” as it is likely just redundant in that particular situation.

Interestingly, “Basic Skills” gives us a look at how digitizing the tasks might help make sure that the redundant tasks are not quite as visible, in that it is in fact a separate set of material and tasks only available digitally. Unless you look for it in the resource bank, or click the B icon in the Smartbok, it is entirely out of your way. There is then arguably no reason why there could not be an additional icon in the Smartbok, bringing up a set of additional tasks that targets a different proficiency level than “Basic Skills,” a possibility teacher 3 mentions. This would seemingly please both teachers 3 and 4, who both wish for the online resources to provide additional tasks, rather than interactive versions of the same tasks. A system like this could potentially replace the difficulty indicators altogether, although the publisher would have to consider how to present this to avoid the issues that teachers 2 and 3 mention with regards to pupils seeing the difficulty indicators and being put off by their implied difficulty.

At the same time, adding more tasks requires more resources, while simply moving them breaks compatibility with the paper version, looping the discussion back to one of what to prioritize. Even in a world where publishers could assign infinite resources to a textbook, a world that is very much fictional, doing so would eventually affect usability by making it hard to find and become familiar with all the options.

There may however be one area from which the resources could be reallocated without these four teachers protesting: interactive tasks. Aside from “Basic Skills,” whose digital-only existence almost makes their interactive nature a given, the four teachers do not use the interactive tasks much. Teacher 3 is disappointed in their technical design, citing the lack of ability to share links, a feature that does in fact exist if using the resource bank. He also dislikes that the tasks are straight up copies of the texts in the book. Teachers 1 and 4 want a way to save the answers, a feature that is available, but seemingly hidden on the last page of a task after it has been converted into a test, where it is designed to let students export their results. Teacher 2 meanwhile finds the drag-and-drop functionality of tasks to be a “waste of time” compared to doing the tasks orally.

These comments include some misunderstandings of the capabilities of the system that bridge back to the discussion in 6.1. As such, this feature might be more useful to these teachers if they had been trained in its use. The same extends to the listening exercises, which teachers 1 and 2 had trouble finding, and whose transcripts teacher 4 mistakenly thought did not exist.

There is also a problem with the reliability of these interactive tasks. Teacher 4 brings up this issue, pointing to cases where the tasks have provided the incorrect answers. One example of this, independent of teacher 4’s mention of the problem, is present in the resource bank for ‘building and construction’ at the time of this writing. One of its “Basic Skills” tasks asks students to translate personal pronouns, by dragging and dropping boxes containing Norwegian translations next to the English equivalents. The Norwegian personal pronouns “du” and “dere” both translate as “you” in English, causing there to be two options containing “you” in tasks that include both. Unfortunately, these are not interchangeable in the interactive task, so it will only accept a specific pairing of “du”/“you” and “dere”/“you.” Selecting the “you” intended for “dere” when asked about “du” results in the answer being marked as wrong. Figure 1 shows a screenshot of how the system treats the wrong combination.

BS Chapter 1 BA / Building History / BS 2.3 To build. Å bygge.

BS 2.3 To build. Å bygge.

Combine the sentences with the right translation. Kombiner setningene med [Les mer](#)

We build a house.	Vi bygger et hus.	✓
I build a house.	Jeg bygger et hus.	✓
You build a house.	Du bygger et hus.	✓
She builds a house.	Hun bygger et hus.	✓
He builds a house.	Han bygger et hus.	✓
You build a house.	Dere bygger et hus.	✓

Figure 1. Screenshot of task, by author

This problem is understandable from a programming point of view, with the system designed to match two predetermined phrases, not analyze their grammatical validity. Any such special circumstance would consequently have to be programmed into the system. It is however unlikely that a teacher would make the same mistake if the task was done on paper. As teacher 4 explains, some students do not understand that issues like these are technical problems, at which point the system is providing misinformation.

This particular example is one of several that I am aware of, some of which have been fixed, while others remain. Gyldendal editor K.A. Arnkværn admits that the scope of *Skills* and *Smartbok* has affected quality control (personal communication, May 9, 2017). Fixing these issues is important to them, but that requires knowledge of their existence. As teacher 3's comments about not wanting to take part in the job of fixing issues exemplify, the threshold to contact the publisher and help them might be high for some. On the one hand, it would benefit the teacher by improving a product they use, and textbooks have never been error free – now we just have the ability to have digital books fixed and updated remotely. On the other hand, it can be time consuming, and is essentially a free service the teacher offers to a company that initially charged money for a product with faults. It could be argued that publishers should have testing periods where the products are free but issues are to be expected and reported, a practice many software companies use. Then again, this would add to the cost of developing a digital book by postponing the date at which the products start

bringing in licensing money, and there is no guarantee that a test of any length solves all problems. The abovementioned issue's presence four years after release proves just that.

6.5 Audio and annotation features

Gyldendal's decision to spend a lot of resources on the audio elements of *Skills* can arguable be said to have paid off. All the teachers use the feature, and they have many positive comments about it, which speaks to its quality and implementation. Having audio recordings for a textbook is nothing new, emphasized by teacher 3's description of it as a "better CD," but in being easily available to both teachers and students, increasing its use, spending additional resources to do it well is arguably more warranted than with some older audio solutions. The variety of voice actors help teachers teach language variety, which teacher 3 mentions as a necessity considering we live in Norway, where access to speakers of different English variants is limited. Smartbok's audio feature is a general feature of the platform, but for Skill it has been enhanced to also help teach competence aims in the subject, exemplifying how general features can be adapted to specific subjects.

Furthermore, the easy access from the Smartbok, as well as the option to have every bit of text played back as audio, is something that helps with students who for different reasons need this. During Gyldendal's Smartbok presentation in October of 2014, a member of the audience praised the feature for being much better than the old audiobooks that were given to students with dyslexia (personal communication, October 15, 2014). The direct connection between written words and spoken audio made it easier for students to see the connection, she said. The interviews show a similar praise of it for this use case. It is a great accolade for Smartbok when its general-purpose audio implementation replaces and improves on what used to be a special access tool.

The positive attitude and praise of this feature not only validates Gyldendal's decision to spend extra resources on it, but also their underlying idea of focusing on the core features. This does not however seem to extend to Smartbok's annotation features, i.e. the ability to highlight text and add notes. Teacher 2 is the one who uses these features the most, whereas the others use them occasionally or not at all. Teacher 3 speculates that he would likely use the feature more in classes where the students all had access to Smartbok, and teacher 2 similarly explains that her use of the feature is dependent on this factor. Consequently, a study looking at teachers who exclusively teach classes where everyone uses Smartbok

might have uncovered more on the use of these features. Nevertheless, these are features that are used to some extent, whether to teach reading strategies or to take notes, such as save answers for tasks.

Gyldendal makes a good point in that students now borrow the books from the school, and that they therefore cannot write in them. Smartbok here provides an advantage in that it allows students to personalize books without making changes that will carry over to the next year, as accounts are per-student and the books are licensed for a year at a time. It can however be argued that this feature is not as extensive as it could be. Teacher 4 wishes there was a better way to save answers for tasks, for one, and teacher 1 explains that her students generally write the answers down somewhere as well. Comparing Smartbok to standard features of the PDF format, which has a range of annotation features, Smartbok lacks support for handwritten annotations, audio annotations, and fillable forms, among others. The latter would allow students to type text into special areas on the page, without having editing permissions for the page at hand. As with many textbooks, *Skills* has a range of tasks that would benefit from having digital equivalents of writing directly in the book. The current iteration of Smartbok relies on external interactive tasks instead of these features, and between the teachers' opinions of the interactive tasks and the wish to write down answers, the argument could be made that developing the annotation features further would be more beneficial. That being said, such a change in functionality would be platform-wide, and the Smartbok platform is used for more than just *Skills*, so such a decision would depend on other considerations.

6.6 Basic implications of going digital

Many aspects of the *Skills*/Smartbok combination are specific to the platform and the particular textbook, but some are more universal, natural consequences of going digital. These are features that most, if not all digital textbook platforms would support, but this does not negate their usefulness.

One of the most basic ones of these is that having a digital book allows the teacher to display it on an external screen, such as a standard projector or a digital whiteboard. As evident from the interviews, this is a feature that the teachers use, and that some consider to be major advantages of Smartbok. This feature is essentially the successor to overhead projectors, and their usefulness similar, but improved both in terms of quality and ease of use. While not a

feature of Smartbok per se, it fits in with the design logic of focusing on core functionality. Gyldendal also offers another product called Smart Tavle, which integrates with Smartbok to offer more advanced features on large classroom screens ("Smart Tavle," n.d.). This feature has not been covered in this study, both because it is a separate product that could form the basis of a study in and of itself, and because the informant school did not use it. Given the results here, however, showing the ability to show the book on a large screen as being important to some teachers, it is an interesting potential avenue for further research.

Teacher 2's motivations for using Smartbok are also related to the external screen discussion, with her hoping – and subsequently confirming – that it would help her students focus, specifically when she projects the book on a projector. Teacher 1 claims that students having the book on their computers however can have the opposite effect, resulting in students using Smartbok as a pretense to do other things on their computers, a problem that the paper book do not have. It seems here that Smartbok can have both advantages and disadvantages when it comes to keeping the focus of the students, based on how it is used. Digital devices stealing the attention of students is an often-discussed problem, with some schools introducing measures such as “cellphone hotels” or no-phone policies. Consequently, it can be considered a disadvantage of Smartbok that it requires the students to use a digital device. Whatever else can be said about paper books, students cannot use them to browse Facebook.

This issue may however be one where the technology just needs to catch up. Apple has made recent advances in this area, releasing software that enables teachers to launch apps on student iPads, as well as lock them into a specific app (Apple, 2017). With Smartbok already being available on iPads, and an upcoming version of Smartbok expanding this support further, it can be argued that the problem is with the school's use of equipment without such features. Whether schools are prepared to let the use of digital textbooks dictate what devices are used is a different question, especially considering the many other uses of a student device.

Regardless of their effects on student focus, digital textbooks do have the advantage of potentially being more accessible. Several teachers praise this feature, and while internet connectivity speeds affect the reliability of it, there is no getting around the fact that Smartbok has the potential to remove a 400+ page book from the list of what both teachers and students need to carry around. The interviews show that this can both be useful for

teachers who need access to the book at home, and help students remember to bring the book to class, among other advantages. The addition of a PC or similar device to the students' required equipment in the last decade has had the unfortunate effect of adding a substantial amount of weight that they need to carry, and digital textbooks have the potential to reverse this and leave them carrying only a digital device – while at the same time adding a single point of failure. Teacher 4 has a definite point when she says that Smartbok is “less genius” when the students do not have their computers. Hopefully the upcoming update to the Smartbok platform, which will enable access from devices without Adobe Flash support, will help this by letting students use their personal devices to access Smartbok, like teacher 4 wants.

6.7 Possible future research

The interconnected nature of a textbook, especially a digital one, creates many avenues for research, and this study only explores some of them. One possibility for further research would be to replicate this study, but with different choices concerning the textbook and digital textbook platform that are under investigation, or with informants with different backgrounds. Both offline use and use on devices other than Windows computers would be avenues to explore without moving beyond *Skills* and Smartbok. The same goes for extending the study to include students.

Cappelen Damm's *Skills*-equivalent *Tracks* has been mentioned several times in this study as having taken a different approach to the problem of catering to different vocational programs, and could form the basis for a similar study. Looking at a non-vocational English course would be another option, and beyond that there are many other subjects that each come with potential implications for the design and use of a digital textbook. This does not stop at Norway's border, with countries all over the world facing the same move to digital textbooks as us – some of which are significantly ahead.

This study also does not look at the validity of either the publisher's intentions or the teachers' actual use in terms of pedagogic or didactic theory. Doing so could provide an answer to whether the teachers' comments about the quality of some texts and tasks is warranted.

We are also only beginning to see the extent of what is possible with digital teaching tools. With tech companies working on technologies such as augmented reality, virtual reality, and mixed reality, which all have potential use in education (Person Education, 2016), the future may see us move further and further away from the concept of a textbook. With each new innovation comes new avenues of research, and new realities that teachers are asked to adopt.

7. Conclusion

This study aimed to explore the question “To what extent do teachers utilize the features available in digital textbooks for teaching upper secondary school English in Norway?”. In doing so, it was necessary to limit the scope of the study, focusing specifically on Gyldendal’s *Skills* series of textbooks for vocational upper secondary school English, including both its paper version and digital textbook version on Gyldendal’s Smartbok platform. The study compared the publisher’s intentions, studied through a hybrid approach, with the experiences and opinions of teachers using *Skills* and Smartbok, gathered through qualitative interviews

This revealed that the use of digital textbooks is dependent on many factors. With Smartbok, Gyldendal has chosen to focus on core features in order to ensure familiarity and adoption. This entails both maintaining the paper textbook format for the digital book, and limiting how many features are included in the Smartbok platform. This has worked to some extent, with teachers generally being able and willing to use the digital textbook. There are, however, several examples of features that are not being used because of a lack of knowledge of their existence or how to use them. There are varied opinions of the available training opportunities, with some electing to rely on colleagues, while one informant wants the school and publisher to provide more training. One informant also describes hardly any problems related to a lack of proficiency, but has nevertheless elected to mostly keep using paper books until the technical challenges have been fixed, a process in which he does want to be involved.

While the technical barrier of adoption might require a careful approach to the digitalization of textbooks, there are aspects of the new possibilities that make teachers want different approaches to the one Gyldendal has chosen. There is general agreement that focusing on core communication skills is beneficial, and most of the teachers have moved away from following the book linearly. While Gyldendal has designed *Skills* to work for both styles, this decision has left some of the teachers with a desire to rearrange the book according to their own preferences, as well as expand the digital portion to offer a greater variety of tasks and texts that add to those in the book, rather than duplicate them. Some of their wishes coincide with Mills’ (2013) vision of the future of textbooks and Nagel’s (2010) experience with NDLA, both of which speak of the possibilities technology offers for providing up-to-

date material. This indicates that the current iteration of Smartbok as a digital copy of the paper book might not be the best solution in the long run.

The nature of a “perfect” digital textbook, if there is such a thing, is out of the scope of this study, but it is clear that publishing a digital textbook can have its challenges. With *Skills* being a book series for vocational English, the seven variants that resulted from a desire to offer great vocational adaptation has seemingly affected other aspects of the product, such as quality control for interactive tasks. Furthermore, with teachers having differing opinions of how everything should look and work, finding a good middle ground is challenging.

At the same time, advanced features are not what the teachers appreciate the most. Interactive tasks are rarely used, much less so than the ability to project the book to a larger screen. Audio playback features are also well-liked and frequently used, and improve on the possibilities afforded by older tools such as CDs. This indicates that Gyldendal’s decision to focus on core features may have been wise. There are examples of arguably more advanced digital textbook platforms out there than Smartbok, but it may be too early to make the transition, assuming it should be made at all.

At the end of the day, digital textbooks are just another iteration of a teaching tool that has existed in various forms for hundreds of years. They have advantages and disadvantages, and their design, their adoption, and the extent of their use depend on a wide range of factors. This study does not provide a guide to all of these, but it offers a glimpse into how a selection of teachers use one interpretation of the idea of a digital textbook. Time will tell if they were on the right side of history, or if the future of textbooks is something entirely different than *Skills* Smartbok.

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English abstract

After hundreds of years of being confined to paper, textbooks are going digital. Different publishers have different views on what a digital textbook should look like, and in the middle of this are the teachers who use these books to teach. Are they on board with the change, or are they being left behind by the digitalization?

This study aims to explore the question “To what extent do teachers utilize the features available in digital textbooks for teaching upper secondary school English in Norway?”. To limit the scope of the study, it looks specifically at Gyldendal’s *Skills* series of textbooks for vocational upper secondary school English, including both its paper version and digital textbook version on Gyldendal’s Smartbok platform. The research question is furthermore broken down into three sub-questions. First, “how does the publisher intend for *Skills* and Smartbok to be used by teachers?”. Second, “how do teachers use *Skills* and Smartbok?”. Finally, “how does the teachers’ use of *Skills* and Smartbok compare to the publisher’s intentions?”

To answer the first question, I collect information using a variety of methods in order to map the publisher’s intentions. For the second question, I conduct qualitative interviews with four English teachers at an upper secondary school in Norway. Finally, I compare and contrast these findings to determine to what extent the teachers utilize the features of *Skills* Smartbok, and what some of the factors are that determine the extent of their use. This study does not provide a guide to every aspect of the ongoing digitalization of textbooks, but it offers a glimpse into how a selection of teachers use one interpretation of the idea of a digital textbook.

Norsk sammendrag

Etter hundrevis av år med å være begrenset til papir, blir lærebøker nå digitalisert. Forskjellige forlag har forskjellige meninger om hvordan en digital lærebok bør se ut, og i midten av det hele er lærerne som bruker disse bøkene til å undervise. Er de med på disse endringene, eller har digitaliseringen etterlatt dem?

Dette studiet har som mål å undersøke spørsmålet “til hvilken grad bruker lærere funksjonene som er tilgjengelig i digitale lærebøker til å undervise engelsk på videregående nivå i Norge? “For å begrense omfanget av studiet, ser det spesifikt på Gyldendal sin *Skill* serie med lærebøker for yrkesfaglig engelsk på videregående nivå, inkludert både papirutgaven og den digitale utgaven på Gyldendal sin Smartbok-plattform. Forskningsspørsmålet er ytterligere delt i tre underspørsmål. For det første, “hvordan mener forlaget at *Skills* og Smartbok skal brukes av lærere?” For det andre, “hvordan bruker lærere *Skills* og Smartbok?” Til slutt, “hvordan stiller lærernes bruk av *Skills* og Smartbok seg i forhold til forlagets intensjoner?”

For å svare på det første underspørsmålet, samler jeg inn informasjon via en rekke metoder for å kartlegge forlagets intensjoner. For det andre spørsmålet, utfører jeg kvalitative intervjuer med fire engelsklærere på en videregående skole i Norge. Til slutt sammenlikner jeg funnene for å finne ut til hvilken grad lærerne bruker funksjonene i *Skills* Smartbok, og for å finne noen av faktorene som påvirker bruken. Dette studiet gir ikke en guide til alle aspektene ved digitaliseringen av lærebøker, men gir et innblikk i hvordan et utvalg lærere bruker én tolkning av idéen om en digital lærebok.

Appendix 1: Interview guide

Background

1. Why you use the Skills Smartbok, for how long you have used it, and in what vocational programs and levels?
 - What parts of the book have been used
 - Do you have any other reasons for using it?
2. Could you tell me a bit about your technical background?
3. Have you received any training or other form of help in learning how to use Smartbok and/or Skills?
 - If yes, from whom?
4. Have you used other Smartbok books than the Skills books?
 - Which ones?
5. Have only you as a teacher used it, the students as well, or both?
6. What devices have you used it on?
 - Online or offline?
7. Are you familiar with the Skills book's division into vocational and non-vocational chapters, and the difference between variants of the Skills book?

Individual features

For each of these features, explore the informant's thoughts on:

Have they used them? The students? To what extent?

What is your opinion of them?

Have you heard any opinions about them from students?

General

- The design of Skills: similar non-vocational chapters, different vocational ones
- The use of a single book for two separate years of teaching
 - Does this affect what chapters you teach?

Skills features

- Vocational chapters
- Non-vocational chapters
- Factual texts
- Literary texts
- “In short” versions of texts
- “Improve your SKILLS” sections
- “Language lab” sections
- Listening exercises (where the text is not in the book)
- Tasks in the book
 - o Specific task types, such as “Speak” or “Read and understand”?
- The difficulty indicator system

Smartbok features

- Having the book available digitally online
- Having the book available digitally offline
- Digitally projecting the book to a large screen
- The click-to-listen feature for text in the book
- Interactive tasks in the book
- Basic Skills

-
- Marking text
 - Adding notes in the book
 - Resource bank
 - Go into detail if necessary:
 - o Interactive tasks
 - o The self assessment forms for each chapter
 - o The key to tasks
 - o Pictures
 - o Audio files
 - o Notes
 - o Highlighted text
 - o Video

Technical issues

Have you ever had trouble with getting the Smartbok service to work?

- o If yes, how often?
 - o If yes, determine if these are caused by the user, school infrastructure or the service
 - o If the user, refer back to if the subject has received training or help, inquire into why the problems persist.
 - o If the school, how does that affect the usability of Smartbok?
 - o If the service, determine if these coincide with known outages, and if not, determine the problem
- o If yes, enquire into the use of online and offline versions

Have you ever experiences issues with the Smartbok features after the book is open?

Have you ever experienced issues with the content of the book, such as tasks that give the wrong answer?

Overall opinion

What is your overall opinion of the Skills series of books?

- o What are the best features of the Skills books, if any?
- o What are the least useful features of the Skills books, if any?
- o Other thoughts on the Skills book that haven't been covered?

Are you missing any features from the Skills books?

Have you heard any general opinions about the Skills book as Smartbok from students?

What is your overall opinion of Smartbok?

- o What are the best features of Smartbok, if any?
- o What are the least useful features of Smartbok, if any?
- o What are the biggest challenges of using Smartbok, if any?
- o What are the biggest pedagogical advantages of Smartbok, if any?
- o Other thoughts on Smartbok that haven't been covered?

Are you missing any features from the Smartbok platform?

Have you heard any general opinions about the Skills book as Smartbok from students?

What is your overall opinion of the Skills books in Smartbok format?

Do you prefer the paper version of the book, or the Smartbok?

Is this the future?

Can I contact you if I have additional questions or to read through anything?