

## Teachers' judgement, learning materials, and curriculum: Navigating in a changing educational landscape

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### Abstract

Teachers' choices of learning materials are made under conditions of a changing educational landscape. This small-scale qualitative study investigates how teachers reflect on their choice and use of learning materials in light of changes in the curriculum in Norway and the development of digital and analogue learning materials. It is based on focus group interviews with two groups of experienced teachers. The focus is on the subjects L1 (Norwegian), English and social studies. Our hypothesis is that there is often a tension between the teachers' professional judgement, the demands of the curriculum, and the available learning materials. The analysis of the interviews shows that the changes in the Norwegian curriculum pose challenges for the teachers, but also that the interviewed teachers are ready for these challenges. With the development of digital learning materials, the teachers do not see the analogue textbook as obsolete, but they have an intention to be able to combine analogue and digital learning materials. The study shows the need for supporting the teachers' professional judgement in light of the changes in the curriculum and the development of learning materials, both digital and analogue.

**Keywords:** teachers' judgement, learning materials, curriculum, L1, Social Studies

### Introduction

When teachers reflect on and make choices about their daily use of learning materials, they need to consider many different and sometimes conflicting factors, such as the demands of the curriculum, the availability of learning materials, the composition of the group of students, and their own knowledge and experience. In this article, we discuss how teachers in lower secondary schools (grades 8–10) reflect on their use of different learning materials, focusing on L1, English and social studies.

This study is a small-scale qualitative investigation intended as a pilot for a larger study, and is based on focus group interviews with two groups of teachers from a mid-sized town in Eastern Norway. Our aim is to raise and discuss some of the questions, challenges, and dilemmas that teachers might meet in choosing and using learning materials in a changing educational landscape. We focus on how the choices and considerations of the teachers, and their professional judgement, are related to the changes in the curriculum and the availability and quality of learning materials.

The research questions are: what is the basis of the teachers' consideration in choosing and applying learning materials? To what degree can their professional judgement govern these processes? In what

way do the demands of the curriculum and the available learning materials relate to this process? Our hypothesis is that there is often a tension between the teachers' ideal of what the perfect learning material situation is, the demands of the curriculum, and the available materials.

Earlier research has suggested that (ideally) the teacher should be the one making the professional choice of learning materials, thereby making the appropriate decisions (Harden & Crosby, 2009; Bugler et al., 2017; Coe, 2014). (In German and Nordic languages this is described as *didaktik*.) In practice, it will nevertheless be the case that constant changes and developments in the framework conditions challenge teachers' autonomy and professional judgement. In this article, we present a model for analysing the relationship between the teacher's judgement, the changing landscape of learning materials, and the official curriculum.

### A new curriculum in a changing landscape of teaching materials

In a study by Bundsgaard and Hansen (2011), learning materials are classified into three types: (1) functional learning materials (tools) that facilitate learning and teaching, such as a projector, a blackboard, computer programs; (2) semantic learning materials (texts) which include films, literature, and pictures; and (3) 'didacticised' learning materials that combine tools and texts to facilitate learning, for example, textbooks, portals, etc. 'Didacticised' material 'is the result of the process of anticipating and prescribing the activities that the teacher and student (should) perform' (p. 33). We focus on the relationship between curriculum, the three types of learning materials, and the teachers' judgement, especially with regard to changes in the curriculum, interdisciplinarity, and reading and digital skills.

Education policymaking is frequently subject to scholarly investigations, as is also the case in Norway. The educationalists Berit Karseth and Kirsten Sivesind have pointed to the previous educational reform, *Kunnskapsløftet* (Knowledge Promotion), which was introduced in 2006 and represented a shift from a content-oriented curriculum to a competency-oriented one (Sivesind & Karseth, 2010). The new curriculum (LK20) follows these paths (Karseth, Kvamme & Ottesen, 2020a; Sundby & Karseth, 2021), and the renewed use of this approach reflects ambitions and solutions common to a number of countries in the Western world. At the same time, LK20 must be seen against the backdrop of a specifically Norwegian context, not least when considered as a political project (Karseth, Kvamme & Ottesen, 2020b). LK20 has been viewed as giving the schools more autonomy in developing teaching plans and choosing learning materials (Koritizinsky, 2021, p. 14). The new curriculum emphasises interdisciplinary approaches to learning and introduces three interdisciplinary topics based on

... prevailing societal challenges which demand engagement and effort from individuals and local communities, nationally and globally. The pupils develop competence in connection with the interdisciplinary topics by working with issues from various subjects (Ministry of Education and Research, 2017).

These interdisciplinary topics are health and life skills, democracy and citizenship, and sustainable development. At the same time, deep learning was introduced as a learning strategy in order to accommodate 21st century skills, which in turn are viewed as a critically important set of skills needed to succeed in today's world. Previous research has identified a tension between the curriculum as a legal document, the profession's available space for action, and the supporting material offered by the Directorate for Education and Training (Karseth, Kvamme & Møller, 2020b). The focus on interdisciplinarity and the less detailed curriculum may give teachers the space to search for, facilitate, and develop learning materials beyond the textbook. However, it also challenges the teachers and highlights the need for them to use their professional judgement in their daily practice.

Since 2006, the Norwegian curriculum has defined five basic skills for learning in school, work, and social life. These basic skills are incorporated in all subjects at all levels, and the definition is thus adapted to the premises of these subjects, specifically reading, oral skills, writing, digital skills, and numeracy. In this study, we will concentrate on reading skills. In the Norwegian *Framework for basic skills*, which is used in the development of the curriculum, texts are understood in a broad sense, including different modes of expression. Reading is defined as follows: 'Reading means to create meaning from text in the widest sense. [...] To read involves engaging in texts, comprehending, applying what is read and reflecting on this' (Norwegian Directorate for Education and Training, 2012).

The emphasis on reading as a basic skill has put reading instruction and work with reading strategies on the agenda in all subjects. How students read different texts is, of course, related to the extent to which they have acquired reading skills and varied ways of reading, but also to what instruction they have received in reading different texts of varying degrees of difficulty and complexity. Many teachers in today's schools have received their education in a less digital age where the physical textbook was the most important learning resource. There is therefore reason to believe that the reading didactics they received in their own education also had their starting point in the analogue. Texts on the screen, however, present a number of different challenges for the reader compared with reading on paper. Among other things, they can offer dynamic modalities such as film and sound in addition to static modes of expression, and they are also characterised by hypertextuality and interactivity (Mangen, 2008). The reading paths – understood as the way in which the text can determine or order the way that we read it (Kress, 2003) – offered in texts on paper and on screen will therefore not be the same, and will accordingly require different degrees of interaction, attention, and critical approach from the reader.

The textbook has traditionally played an important role in Norwegian classrooms (Skjeltbred & Aamotsbakken, 2010, p. 17). It has offered an interpretation of the current curriculum, and has frequently provided adapted and quality-assured content and progression in the school subject. Furthermore, it has often presented suggestions for different ways that the students can work with the subject. This does not mean, however, that teachers have not been active in obtaining supplementary learning resources. They would have copied from various sources, used semantic learning materials, and produced further resources when they have perceived the textbook to be inadequate, or when they wanted to make other choices based on the student group and their own interpretation of the curriculum and subject. This is in line with international research that shows that teachers adapt and modify textbooks and other resources according to various factors such as their pedagogical notion and their interpretation of the students' need as well as local cultural conditions (Kolbeck & Röhl, 2018, p. 402).

This landscape has not changed significantly, if one looks at recent research in the field in Norway. In a Norwegian study, most teachers stated that the paper-based textbook was the learning material that was in use in their last lesson (Gilje et al., 2016, p. 71). However, a 'mixed culture' has developed in which paper-based and digital learning materials together constitute the learning resource landscape (op. cit., p. 17).

The use of digital learning materials was further reinforced by the closing of schools and the transfer to online teaching during the COVID-19 pandemic (2020–21). Norwegian teachers were already largely familiar with digital tools before the pandemic, but the sudden shift to online teaching made the affordances and opportunities of digital materials more apparent for teachers (Blikstad-Balas, Dalland, Klette, & Roe, 2022; Adedoyin & Soykan, 2020). Compared to other countries, Norway proved to be relatively well equipped for online teaching, with some regional differences (Norwegian Directorate for Education and Training, 2021).

Many students in primary schools in Norway have access to one or more digital devices. Although exact figures are uncertain, the Norwegian Directorate for Education and Training (2021) refers to a

sample survey showing that 81% of primary school pupils in the 100 largest municipalities have their own digital device at school. In primary school, students mainly use laptops, often Chromebooks, or tablets, primarily iPads (op. cit.). Often a combination of two or more different digital devices is used. This access to digital equipment obviously affects the choice of learning materials and learning resources, as well as teaching methods. Students' access to digital equipment therefore also affects teachers' subject didactic choices.

## Teachers' judgement, the curriculum, and learning materials

What determines the content and form/method in teaching? We focus on how the professional judgement of the teachers relates to the changes in the curriculum and the availability and quality of learning materials. We acknowledge that teaching depends on a variety of preconditions, such as traditions, the students' involvement, economic and organisational factors, or current events. Nevertheless, we will argue that the factors we investigate here are central to the discussions of teaching and didactics. We illustrate the relationship between a teacher's professional judgement, curriculum, and learning materials with this triangle (Fig. 1):

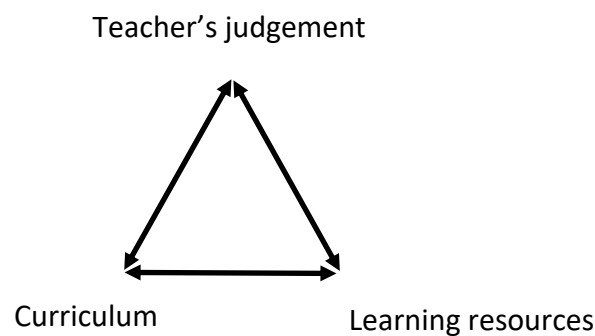


Fig.1: The triangle of teacher's judgement, curriculum, and learning materials

Our main interest is the teacher's judgement, and we assume that, from the teacher's perspective, the choice of form and content of teaching relies on both the formal curriculum as well as the available learning materials. However, when we see teachers, curricula, and learning materials as the corners of a triangle, we can further investigate the relationship between the three factors: Is the curriculum a limitation to the teacher's judgement, or does the teacher interpret the curriculum actively? (Or perhaps the teacher simply ignores the formal curriculum?) Are the learning materials the defining factor for the teacher, or does the teacher actively choose the learning materials most suitable for the aims of the teaching? Earlier research has identified different types of teachers based on their use of textbooks, such as Heinoen (2005) who distinguishes between four types of teachers: (1) individual innovators, (2) teachers who rely on educational materials, (3) curriculum-minded innovators, and (4) target-oriented innovators (Hansen, 2018, p. 370). This typology does not correspond directly with our triangle, but in our model the teachers who rely on educational materials will be placed near the bottom right corner of the triangle, while the curriculum-minded innovators might correspond to the bottom left. However, we need to keep in mind that the categories are not mutually exclusive and the arrows in the triangle show the relations between the three corners. For example, a target-oriented innovator might rely on the formal curriculum in formulating the targets for teaching.

One way of analysing the differences in perspective regarding the respective roles of curriculum–teacher–learning materials is in the differences between the Anglo-American curriculum tradition and the European-continental (or German) *Didaktik* tradition. The importance of the formal curriculum is,

unsurprisingly, emphasised in the curriculum tradition (Gundem & Hopmann, 2002; Krogh, Qvortrup, & Graf, 2021). While this is perhaps a rather simplistic view of the tradition, the idea is that the choices of content and form for the teaching are made in the curricular documents, and the role of the teacher is mainly to implement the curriculum in the most efficient way in order for the students to attain the prescribed goals. The choices of the teacher, in this view, are concerned with finding the most efficient method at the right moment.

In the *Didaktik* tradition, on the other hand, the role of the teacher is to act with professional judgement on questions of the aims, form, and content of teaching. In alignment with this tradition, the teacher's judgement is described as the possession of practical wisdom or phronesis, in accordance with how phronesis is emphasised in recent research on education (Nussbaum, 1997; Flyvbjerg, 2006; Biesta, 2015). Building on an Aristotelian idea, the Dutch educationalist Gert Biesta underlines that phronesis should be understood as a quality or excellence of the teacher, i.e., embodied educational wisdom. For Biesta, the way to develop this educational wisdom is by being engaged in practising judgement (Biesta, 2015).

We have interviewed experienced teachers, and accordingly we assume that they to a large degree have developed phronesis, and that their judgement is being used when they choose and apply different teaching materials in everyday school situations. Thus, our point of departure is a situated or socio-cultural view on learning, where the question of how different forms of learning materials are integrated into and used in teaching is central (Säljö, 2001; Illeris, 2004; Nilsen, Fauske & Nygren, 2007).

If we look at the preconditions for teachers' judgement, the curriculum and the available learning materials are of course in a sense given and outside the power of the teacher to change instantly. While the teacher can interpret and make choices about the curriculum as well as decide on the use of learning materials, both exist prior to the teacher making their decisions. In that sense, the prescribed curriculum and the learning materials can be regarded as frame factors for the teaching. Viewed in this way, we would have more of a timeline model of the process, with the curriculum and the learning materials as givens before the teacher's choice which in turn influences the actual teaching. Nevertheless, we find it oversimplified to use such a timeline model as it does not leave the relationship we are investigating open, and therefore in the following we will analyse the interviews with a focus on (a) the relation between the prescribed curriculum and teachers' judgement, and (b) the relation between the learning materials and teachers' judgement. This means that we investigate how the teachers in the interviews express their reflections on the curriculum, as well as their choice of and use of learning materials. A special focus will be on the development from analogue to digital learning materials and what this means for teachers' choices.

In Figure 1, there are double arrows between the three corners of the triangle in order to emphasise the dynamic relation between them. The (formal) curriculum affects the teacher, but the teacher also makes choices that affect the curriculum (not only as the enacted curriculum, but also the interpretation of the formal curriculum). In the same way, the learning materials not only influence the choices made by the teacher, but the different choices of the teacher also affect what learning materials are used and how they are implemented. And, while the formal curriculum definitely affects the production of learning materials, the learning materials available also influence the formulation of curriculum – on both the formal level and as the enacted curriculum. (An example of this is how digital competences and the use of digital sources are written into the curriculum.)

## Method: Focus groups

This study is based on qualitative focus group interviews with two selected group of teachers, in the following referred to as Gr.1 and Gr.2. The teachers were interviewed in order to gain information about their views and experiences on the use of different kinds of learning materials in their daily practice. This is in accordance with how this method has been described by David L. Morgan. According to Morgan, focus group interviews consist of three major components: (1) a method devoted to data collection, (2) interaction as a source of data, and (3) an active role of the researcher in creating group discussions for data collection (Morgan, 1997). The teachers in our study were interviewed in order to gain information about their views and experiences on the use of different kinds of learning materials in their classes in Norwegian schools. The first group consisted of three teachers, three researchers (including the moderator), and one student involved in the project. The second group consisted of four teachers, three researchers (including the moderator), and one student. The teachers all have extensive experience, mainly in teaching L1, English, and social sciences<sup>1</sup>. During the group interview session, we strove to create a safe atmosphere where the participants could freely share thoughts, experiences, and ideas on choosing and using learning materials. The participants were also relatively confident of each other, since many of them already knew each other, or had met at an initial meeting for the project some months prior to the interviews. The researchers played various roles, including that of moderator, listener, and observer (Krueger & Cassey, 2000). After being transcribed, the interviews were coded inductively in NVivo, with the codes 'learning materials' and the sub-codes 'books', 'digital vs. analogue', 'student-work materials', 'teacher-produced materials', and 'semantic learning materials'.

## Analysis: The teachers' reflections on navigating in and using learning materials

The teachers use both didacticised and semantic learning materials. The analogue textbook still has a status as important didacticised learning material, although it is clear that the use of learning materials has changed over time – and that the teachers reflect on both advantages and more problematic aspects in the use of textbooks. Many of the teachers have experience with different types of digital didacticised learning materials, such as portals that link to various themes and topics, and they reflect on how this changes the strategies for reading and learning for some students. The didacticised learning materials (including the analogue textbook and the digital learning materials) may, however, be used in different manners by both teachers and students.

### Reflections on different types of learning materials

As mentioned above, the textbook has traditionally had a strong position in Norwegian schools. In two examples, the teachers comment directly on the use of analogue textbooks, and it is clear that the use of learning materials has changed over the course of time, including the period in which many of the interviewed teachers have been working. The attitude towards textbooks is ambivalent, and books that are not up to date are considered problematic, as one teacher states:

... in social studies and Norwegian, I use very few books, because so few are ready for the new curriculum. In social studies, we have books made for the 2006 curriculum, and I don't think that is good enough. They are old and worn. I like using books because something happens when they are allowed to read in print (Gr.1).

<sup>1</sup> In the second group, one of the teachers who participated also had experience from the Swedish schools, but in this article, we focus on the answers that came from the Norwegian teachers.

Another teacher states that she has to make photocopies because the school does not have a budget to buy new books.

Economy may be an important structural restriction for the teachers in their choice and use of learning materials. However, when they are asked about what an ideal situation would look like, a number of the teachers express that they would like to be able to combine textbooks and digital material:

I would like to have the digital option, but I would also like to have the physical book. I see it especially in social studies, it is good to have the book. [...] To be able to see images side by side, to make notes by hand. I even see many of these boys who are very fond of the PC. They now prefer to sit and write notes by hand, because they lose concentration when they sit at the PC, and they don't get the results they want because they have spent a lot of time on other things on the PC [...] (Gr.1).

A second teacher then replies: 'I think they get tired sitting at the PC all the time', with which the first teacher agrees. (Gr.1).

In the answers coded as analogue vs. digital, the teachers discuss more fully the advantages and disadvantages of digital learning materials. Some of the teachers emphasise that digital learning materials may have an advantage as they are designed with what the teachers characterise as learning paths, and these paths provide opportunities for the students to work individually at their own pace, and also give the teacher the opportunity of monitoring students' answers and their work. A further advantage is that there are possibilities for the computer to read the text aloud, as well as other aids for the students.

Among the disadvantages of digital materials is the lack of a reading path. As one teacher states, it is 'because you don't see the beginning and the end the same way as you see on paper' (Gr.1). One of the teachers emphasises that some of the students – especially those who have acquired their own reading strategies, such as marking the text and writing notes while reading – gain more by working on paper than on a PC (Gr.1). The teacher's choice of digital or analogue learning resources may also depend on the students' motivation and attitudes towards schoolwork.

I sometimes find that the students who are tired of school would rather have it digitally. Because then they can hide a bit behind the screen, and then there are a lot of these impressions. It's something that happens all the time. While those students who have a very reflective way of seeing their own learning manage to switch between the digital and the analogue in a completely different way. Because they see that 'now I need to be analogue, and now it works to be digital' (Gr.1).

In matters of training in reading on a screen and reading analogue texts in teacher education, one teacher states: 'to read digital texts, (...) we didn't learn anything about it when we were educated' (Gr.1). Another teacher states: 'And then I've thought a few times that I don't know enough about how to teach reading on a screen, because I'm not used to it. I am from a different generation. We had a book' (Gr.1).

The teacher's different roles in using different learning materials, including functional learning materials (tools), is also a topic in the group discussions. One teacher mentions that she likes to make PowerPoint presentations and that it is an advantage that these can be saved for the students to return to, although on the other hand this method makes the teacher into more of a lecturer than a guide, and she prefers the latter. Another functional learning material, a Padlet, may facilitate teaching and may change the dynamics of the classroom, as this quote shows:

... we had Padlets where we read a text and taught in a very traditional way, but when you come with a digital resource and put it on a screen, where the students are in groups and can answer and write and see what others write, that is a world they recognise from Snapchat and smartphones and things like that. It resulted in huge engagement among the students (Gr.1).

However, the teachers are not uncritical of the tendency of students to need to have constant input and feedback: 'It is the TikTok generation, they get input all the time, don't they?' (Gr.1).

To sum up, the teachers' reflections on the learning materials provide a snapshot of the current situation, and they are not unequivocally decided as to whether either digital or analogue learning materials are 'best'. The teachers see advantages in the *textbook*, as it has a design that provides students with possibilities for concentrated learning. The teachers also think that analogue learning materials have some affordances with regard to competencies such as the ability to concentrate when reading longer texts, which is useful later in life. However, economic resources play an important part in whether the teachers use textbooks or not. Old and outdated materials force the teachers to find and apply material other than the textbook. Hence, it is not the textbook per se that is problematised, but rather the quality of the available textbooks.

The teachers find that digital learning materials have advantages in terms of being up to date, but also have disadvantages as the students can lose concentration and get tired if they sit for long periods of time at the computer. The digital learning materials provide opportunities for individual learning, different learning paths, and motivating exercises, but there are also pitfalls in that students who are bored with school, for instance, might hide behind the screen and seek other kinds of entertainment on the PC. It is mentioned by one teacher that the 'TikTok generation' craves constant stimuli. This might be an exaggeration, but is a point worthy of investigation, as to whether the changed media landscape also changes the students' ways of being attentive and their learning at school. The teachers generally would like to have access to both analogue and digital learning materials, as they provide for different types of teaching and learning and are hence regarded more as complementary rather than opposites.

### Reflections on the curriculum

In our interviews, the teachers refer several times to the new national curriculum, and how they use it in planning and teaching. An important factor here is the change made in the Norwegian curriculum that aims to implement the three interdisciplinary topics across the subjects. While this may give the teacher more room for decisions, conversely it may also make the curricular framework more complex for the teacher to navigate because the themes are to be incorporated into the subjects and are less specific than in the former curriculum. One teacher expresses it this way:

Almost all the topics have been removed from the subjects. [...] They have been elevated to a level of the skills that you want to cultivate. This has something to do with the skills for the future. What do you need in the future? Facts or topics? It might be that a lot of what you learn will be outdated, so that in 20–30 years it is what you have retained in being able to cooperate, being critical towards sources, being innovative, and being creative. It is those things that you want to cultivate (Gr.2).

The teacher continues: 'In a way, the interdisciplinary topics are fine because they can be approached in a variety of ways, and you get different angles from different teachers based on which subjects they have' (Gr.2).

An example from teaching was how the teachers had used the UN Sustainable Development Goals (SDGs) as a framework where the students had to come up with ideas on how to spend 9 billion (imaginary) kroner resolving the SDGs.



Whether it was a good solution in the end I don't know, but at least we trained them in argumentation and response. They had planned it and worked with it for weeks, they had high competence. But what did they use the competence for? This is my opinion, that language must be used for a purpose (Gr.2).

As can be seen in the quotes, the interdisciplinary topics and the overarching aims of the curriculum are part of the reflections and choices of the teachers.

### Teachers' judgement

The teachers interviewed express their reflections on teaching regarding at least three aspects: (1) the aims of the curriculum, (2) the interests and needs of the students, and (3) current affairs. One teacher describes her planning in quite a detailed manner:

I always plan teaching from what the students should learn. First, the aims of the curriculum, and then you look over a longer period of time. What is the overall aim of the curriculum? And then you must break it down into learning goals. The aims are always first. What should remain with the kids? And then you can begin to think about activities, texts, and learning materials. I also think it is important to make some differentiation. Even though everybody as a rule should attain the same goals, there can be some students who have different types of goals, sometimes IOPs [individual teaching plans]. I also plan learning activities and means from the question: what are the needs of this student? (Gr.1).

In the above example, the teacher takes the curriculum as the point of departure and formulates goals for the students individually.

Another aim is the future needs of the students, as one teacher expresses: 'We shall get them to read. They need to make it in society, so we take a lot of time to decode authentic texts' (Gr.1). The motivation of the students is also a factor, as one teacher puts it: 'are the students motivated by this text? NO? In that case, I ditch it.' (Gr.2) Another teacher provides more details:

I enter the class and think that here they will be using different skills. I think that we shall have some reading, and something that motivates and engages. Maybe some film clips, something that can make the student think, images, as a supplement to the textbook. Something that can provide variation and meet more students from the starting point they have. Motivate them to think and reflect themselves. I like using pictures a lot. As you [the other teacher] say: what has happened? Is there something in the news that is current? So, the variation is that they work on different skills during class (Gr.2).

One teacher goes into a discussion on the way the curriculum has changed and that there is less focus on specific themes and more on the competences that the student shall develop. 'Competence goals on factual knowledge or knowledge on a specific topic, there are less and less of that, and they are almost out of the curriculum in Norway [...]. Then it is not that important what we read, but what we do with what we read. This goes for social studies, religion [KRLE] and English' (Gr.2).

For the teachers, their own approach is also important: 'As a teacher it is important that you have ownership and motivation yourself for what you are teaching. Of the resources that I think I have available [...] I use those activities and resources that I also find interesting myself' (Gr.2). Some of the other teachers agree that personal choice not only makes teaching better but also that it is part of the fun for the teacher.

A final comment is dedicated to the role of the teacher from one of the teachers: 'I think the role of the teacher has changed a lot in recent years. You don't have the correct answer, you have more of a guiding role. If that becomes more apparent with the digital, I don't know' (Gr.2).

The possibilities of sharing learning materials and ideas for teaching when using digital learning materials, are brought up by one group. As one teacher states: 'we share everything digitally. It is shared with the colleagues and students' (Gr.1). When asked whether this is unproblematic, the teacher replies that 'some (colleagues) don't dare to share, because they are afraid that it is not good enough' (Gr.1). However, it is an advantage from the viewpoint of the teachers that they can easily share materials digitally.

To sum up, if we insert the statements of the teachers in the triangle (Fig. 1) we can see that the interviewed teachers value their own judgement in the choices regarding teaching. They express considerations on many aspects of teaching and also that it is necessary for their own feeling of ownership of the teaching – and fun. The curriculum plays an important role and the changes in the Norwegian curriculum serve as an important framing factor for the teaching. In this light, it is also important to discuss what it means when the curriculum (as the teachers describe it) changes from more content-oriented to more competence-oriented, as well as becoming more open in terms of broader topics and less specific content. For the teachers interviewed, these things seem to be regarded as an advantage. The learning materials, the last corner of the triangle, pose specific challenges and opportunities in a learning landscape where digitalisation and economic factors play important roles. The interviewed teachers are neither 100% analogue nor digitally oriented, but generally express that they ideally work with a mixture of analogue and digital materials. The possibilities for sharing ideas and learning materials with colleagues and students are regarded as an advantage for the teachers.

## Curriculum, learning materials, and teachers' judgement in a changing school

Change in the formal curriculum is a factor that teachers deal with as part of their professional life. In the case of Norway, not only has the content of the curriculum changed, but also the format has moved from more detailed content to a curriculum with more general parameters. The new curriculum has also introduced three interdisciplinary topics that the teachers must include in their teaching. Such changes in curriculum pose challenges for the teachers that highlight the need for the professional judgement of the teacher. In studying the teacher's professional judgement, we emphasise that learning materials are not entities isolated from the classroom: paraphrasing Kolbeck and Röhl's argument on researching textbook practices, we need to keep in mind that the learning materials are 'adapted, transformed, contested, subverted, or may even be banned from the classroom' (2018, p. 399). Teachers might use textbooks in very different manners: research on teachers' styles, roles, and goals in textbook use tell us that it is important to study how teachers use learning materials in practice. 'Teachers adapt and modify textbooks according to their (and their students') anticipated needs, their disciplinary culture, their political and cultural beliefs, and the wider societal contexts in which they are located' (Kolbeck & Röhl, 2018, p. 402). Maybe we can assume that teachers go through similar processes of adaptation and modification when they use digital learning materials. Whether digital learning materials open up to more or less creative practical use or whether former typologies on how teachers use textbooks will also apply to digital learning materials are questions that should be explored in future research. Although the use of different learning materials requires an understanding of their limitations and affordances, our interviews suggest that the teachers navigate easily between digital and analogue learning materials, and that the processes of judging and applying these two types of materials have similarities.

Learning materials would, in an ideal situation, be produced in accordance with the curriculum, while giving the teacher the opportunity to choose between different materials in order to fulfil the

aims of teaching with the specific group of students they are working with. In reality, as we see from the interviews, the changes in curriculum are not immediately translated into new learning materials. Moreover, even if learning materials are available on the market, the schools may not have the necessary funding to purchase them.

A further trend is the development of digital learning materials which poses both opportunities and challenges for teaching. If a 100% digital school might have been seen as the future of schooling some years ago, this does not seem to be the case now, either in reality or in the ideal situation as viewed by the teachers interviewed. When it comes to reading, analogue materials (textbooks) have some advantages that at least some of the teachers prefer, or at least they prefer a combination of analogue and digital materials.

This investigation began with the question of the teachers' judgement in relation to questions regarding teaching. Our interviews focusing on the relation between teachers' judgement, curriculum, and learning materials, show that the changing landscape of learning materials as well as the changes in the formal curriculum represent a challenge to the teachers' judgement. The teachers we have interviewed are ready for these challenges, but it nonetheless puts demands on the education of teachers, both in pre-service and in-service. We might assume that 'novice teachers' navigate differently in the changing landscape of learning materials compared with 'expert teachers' (Hansen, 2018, p. 371).

We can conclude that teachers' judgement plays an important role as they need to take decisions in a situation where the framing factors, in this case the formal curriculum as well as the landscape and media of learning materials, is changing. These teachers express professional judgement in their reflections on their use of learning materials.

Further research is needed (and will be undertaken in this project) to investigate how teachers perform judgements in their teaching, and how they navigate between the demands of the curriculum and the changing affordances of the learning materials available. This will shed light both on what it means to perform professional judgements, and on what kind of preparation is needed for the teachers. Furthermore, in a comparative view, other countries, such as Denmark, have experienced similar developments in the landscape of learning materials and (albeit in a quite different form) of the curriculum, and therefore it is interesting to investigate whether teachers in Denmark react and reflect similarly to the Norwegian teachers.


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