Legitimation of digitalisation in education. A case study of vocational student teachers´ lesson plans

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ABSTRACT

In 2018, the curricula and subject syllabi in Sweden were revised, the aim being to increase the digital competence of pupils. This article presents a study of how vocational student teachers at upper-secondary school legitimise the use of digital tools in their lesson planning as a means to support the learning of pupils. This provides knowledge of what vocational student teachers view as central to their teaching. Using Theo van Leeuwen's legitimation analysis, the lesson plans of 25 vocational student teachers, as well as eight ethnographic interviews, were analysed. In legitimation, the vocational student teacher argues using references or actions that need to be performed, or not performed. The task of the argument is to justify language or actions so that they are acceptable to others. Legitimation also makes visible the relationships and responsibilities between different parties. The results show that vocational student teachers legitimise their choices to authority. The lesson plans are based on the relationship of vocational student teachers to their own actions in teaching. However, how pupils develop their learning and digital competence is not affected. The digital tools as resources in teaching are legitimised with reference to speed, agility, control, and overview. The use of digital tools links strongly to writing, which affects the educational environment and professional life.

Keywords: vocational student teachers, teacher education, lesson plans, digitalisation, legitimation

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SAMMANFATTNING

2018 reviderades läroplanerna och ämnesplanerna i Sverige med syfte att stärka elevernas digitala kompetenser. Syftet med denna artikel är att undersöka hur yrkeslärarstudenter i gymnasieskolan legitimerar användning av digitala verktyg i lektionsplaneringar för att stödja elevers lärande. I artikeln analyseras vilken kunskap, vilka möjligheter och utmaningar som yrkeslärarstudenter konstruerar som legitima i sina lektionsplaneringar i relation till digitaliseringsreformen. Detta ger ett kunskapsbidrag om vad yrkeslärarstudenterna motiverar som centralt i undervisningspraktiken. Utifrån Theo van Leeuwens legitimeringsanalys analyseras 25 yrkeslärarstudenters lektionsplaneringar samt åtta etnografiska intervjuer. Legitimeringsanalysen illustrerar yrkeslärarstudentens argumentering med referenser eller med handlingar som behöver utföras, eller inte utföras. Argumenten har till uppgift att rättfärdiga språkande eller handlingar så de blir accepterade av andra. Legitimeringen synliggör även relationer och ansvar mellan parter. Resultaten visar att yrkeslärarstudenterna legitimerar sina val till auktoritet. Lektionsplaneringarna utgår från yrkeslärarstudenternas förhållande till sitt eget handlande i undervisningen. Hur eleverna ska utveckla sitt lärande och digitala kompetenser berörs dock inte. De digitala verktygen som resurser i undervisningen legitimeras med referenser till snabbhet, smidighet, kontroll och överblick. Användande av digitala verktyg är starkt kopplat till skrivande vilket inverkar på studie- och arbetsliv.

Keywords: yrkeslärarstudenter, lärarutbildning, lektionsplanering, digitalisering, legitimering

INTRODUCTION

In this article, I address questions about what knowledge, opportunities, and challenges vocational student teachers (VSTs) construct as legitimate in lesson planning in relation to digitalisation. During their teacher training, student teachers are taught how to develop lesson plans that relate directly to current governing documents. In Sweden, revisions were made to policy in 2018 when digitalisation was added to the content of curricula and subject syllabi (Swedish National Agency for Education, 2017).

Digitalisation is given high priority by the Swedish Ministry of Education (2017). The Swedish Ministry of Education sets digitalisation as a general term linked to competence, access, and the use of digital technology and digital tools. In the present article, I subscribe to this broad definition of digitalisation as digital competence and/or the use of digital tools. The Swedish Ministry of Education places great responsibility on teachers to develop digitalisation opportunities at school:

> The goal of the government is for Sweden to be the best in the world at employing the possibilities of digitalisation [...] For this, schools play a central role by providing the opportunity to develop the ability to use and create using digital technology and an understanding of how digitalisation affects the individual and the development of society (Swedish Ministry of Education. (2017, p. 3: my translation)

However, there is an inherent contradiction in the fact that policy points out the opportunities that come with digitalisation yet fails to be forthright and show the challenges or issues that digitalisation presents in teaching. This is not unique to Sweden. Internationally, research is limited in the vocational teacher training system in Europe, and little reference is given to problems encountered by teachers in vocational education (Misra, 2011). Furthermore, little is known about how key competences[1] are integrated into vocational teacher training and how this is supported at a national level (Cedefop, 2020; Voogt & Pajeja Roblin, 2012).

The European Reference Framework of Key Competences (EU, 2018) emphasises the fact that key competences and technologies have a large role to play in a highly interconnected world; however, many pupils do not have adequate literacy and digital competence to be successful in their studies and work. In fact, one out of every five 15-year-old pupils has serious difficulties acquiring sufficient reading and science skills. Literacy issues are also markedly large among the adult population in the EU: up to one third are proficient at only the lowest levels of literacy; 44 % have low digital skills; and 19 % have no digital skills (EU, 2018). As such, digitalisation in education has become a policy priority across Europe. Several Europe 2020 Strategy flagship programmes integrate and support the digitalisation of education and training systems: for example, *Agenda for New Skills and Jobs, Youth on the Move, Digital Agenda and the Innovation Agenda, Renewed EU Agenda for Higher Education, School Development and Excellent Teaching for a Great Start in Life*. The programmes emphasise that digitalisation means changing ways of learning and teaching for employability while also

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[1] The European Reference Framework of Key Competences 2018 states eight key competences: 1) Literacy competence; 2) Multilingual competence; 3) Mathematical competence and competence in science, technology and engineering; 4) Digital competence; 5) Personal, social and learning to learn competence; 6) Civic competence; 7) Entrepreneurship competence; 8) Cultural awareness and expression competence. This new reference framework replaces the original framework of 2006. The eight key competences are defined by the European Commission as a combination of knowledge, skills, and attitudes appropriate to the context (European Union, 2018).

emphasising a need for teaching competence to integrate digitalisation in a meaningful way into daily teaching practice (Conrads et al., 2017). This is why vocational teachers play an important role in addressing these challenges and supporting the acquisition of skills so that, through their teaching, they prepare pupils for an increasingly digitalised professional life. Indeed, more jobs in the next decade are expected to require more advanced digital competences and literacy skills (Cedefop, 2020; Avis, 2018; Slyte, 2020).

Government-initiated innovation reforms are also highlighted as official legitimation of teaching practice and function as a lever (OECD, 2009). The Swedish National Agency for Education (2017) emphasises that the starting points for its definition of digital competence as articulated in Swedish curricula and subject syllabi are the formulations drawn up by both the EU and the Swedish Digitalisation Commission. Yet the key competence literacy is not stated in the Swedish curriculum as being a special competence in relation to digitalisation. In the Swedish National Agency for Education publication *Get a View on Digitalisation at Upper-Secondary School Level* (2017), views and reasoning are presented that lie behind the policy document revisions that came about as a result of digitalisation. The material has been produced to show how digitalisation can serve to give pupils an equal education. Not least, digital tools are highlighted as hugely instrumental in pupils' development and learning in teaching situations. Specifically, it mentions the use of simulations as well as response tools for pupil feedback. Digital tools are viewed as particularly significant for the planning, implementation, and evaluation of teaching:

> Furthermore, teaching needs to be consciously organised and implemented so that the digital tools really are used in such a way that they support pupils' learning. A less planned use of digital tools and media without a clear purpose and goals risks impairing learning. (Swedish National Agency for Education, 2017, p. 13: my translation)

What this shows is that teachers in Sweden are explicitly encouraged to attach great importance to conscious planning of the use of digital tools so that these help rather than hinder pupils in their learning. As well as this, there are high expectations on teacher training to educate and prepare student teachers to develop professional digital competence for use in their teaching (Cedefop, 2020; Douse & Uys, 2019; Björk Gudmundsdottir & Hatlevik, 2017). Teacher training programmes must prepare student teachers about how digitalisation can be used in the planning of teaching and in teaching itself. In addition, lesson planning has received increased attention as a crucial factor in the quality of teaching after the success of lesson study (Stigler & Hiebert, 1999/2009; Sims & Walsh, 2008; Darling-Hammond, 2013). The study of the lesson plans of VSTs is especially interesting since the role of the vocational teacher is dual (Andersén, 2013; Arneback & Nylund, 2017). Like other teachers, vocational teachers teach several subjects while they prepare their pupils for employment in the trades. Teacher training is consequently of primary importance for the development of digitally competent vocational teachers. This article is based on a study that involved 25 VSTs who during their teacher training were assigned the task of developing lesson plans wherein digitalisation would be a key element in their teaching. The aim of this study is therefore to examine VSTs' legitimation of digitalisation in lesson planning so that, through the use of digital tools, they support pupils in their learning. The following research questions were asked:

i)   How is digitalisation legitimised in the lesson plans?

ii)   How do digital tools in the lesson plans link to the development of pupils' learning?

BACKGROUND

The following literature review consists of studies on how to develop professional digital competence in teacher training and draws attention to the lack of knowledge about studies among VSTs.

Developing professional digital competence

With the rapid increase in digitalisation within society and at schools come demands on teacher training to prepare student teachers to integrate technology in teaching (Harteis, 2018; Björk Gudmundsdottir & Hatlevik, 2017; Stenliden et al., 2021; Instefjord & Munthe, 2016; Dobricki et al., 2020; Lindfors et al., 2021; Lund et al., 2014; Tondeur et al., 2012). In this article professional digital competency in the teaching profession (Lund et al., 2014) includes the following three aspects: technology proficiency, pedagogical knowledge of learning processes, and links to disciplinary and situated practices.

Previous research shows there to be a lack of knowledge about VSTs and their use of digital technology (Mørk Røkenes & Krumsvik, 2014; Lucas et al., 2021; Dobricki et al., 2020; Gustavsson, 2013). In fact, Mørk Røkenes and Krumsvik (2014) write: "Remarkably, no studies reported on student teachers' ICT-training in […] vocational teaching subjects" (Mørk Røkenes & Krumsvik, 2014, p. 260). Even though there may be a lack of research on the digitalisation training of VSTs, there is nonetheless research on the digitalisation training of student teachers in other teacher training programmes. Instefjord and Munthe (2016) looked at how digital competence is addressed in teacher training programmes. Their results show that there is little evidence of digitalisation in the curriculum documents of teacher training programmes. Professional digital competence is not prominent in general, in subject-specific descriptions, or in field studies. In their overview of research on digital competence in teacher training, McGarr and McDonagh (2019) show there to be a gap between the two practices of personal and professional/pedagogical use. Technology use is not translated into professional pedagogical school practice.

Research shows that in teacher training, there tends to be a focus on technology rather than on human activities in terms of the use of technology for teaching and learning (Dobricki et al., 2020; Björk Gudmundsdottir & Hatlevik, 2017; Mørk Røkenes & Krumsvik, 2014; Koc, 2013). Similarly, Björk Gudmundsdottir and Hatlevik (2017) also found that newly qualified teachers who experience distractions in their teaching practice also had greater difficulties meeting the curriculum goals that were technology-related. These findings indicate that student teachers critically reflect on the advantages and the disadvantages in teaching practice but lack the examining processes of learning with technology in relation to theory and hands-on knowledge. In addition, Houston (2008) discusses how, in teacher training, it is not so much the development of an understanding of how to use technology that is crucial but rather of how to use technology and how to train students to analyse the strengths and quality of outputs for the pedagogical context. Valtonen et al. (2015), meanwhile, argue that student teachers generally have positive attitudes and are active users themselves of technology in everyday practice. However, they are hindered by limited theoretical learning conceptions to see the potential and added benefits of digital applications for teaching and learning. In addition, Tondeur et al. (2012) have conducted a systematic review of qualitative studies focusing on strategies to prepare student teachers to integrate digitalisation into their classroom

teaching. The findings emphasise the importance of planning sessions to enhance the learning experience by designing lesson plans, practicing in teaching, and providing feedback.

Training VSTs to write lesson plans can be seen as a means for them to develop professional digital competence. Also, the textualisation of problem handling is a key resource in supporting learning processes, fostering expertise, and developing professional competence (Karlsson & Nikolaidou, 2016). In addition, Hellne-Halvorsen et al. (2020) argue that digitalisation places more focus on text-based working life and engagement in profession-specific communication and generic literacy practices. Ottestad et al. (2014) also emphasise the complexity of being a teacher while pointing out the absence of studies that show that competence on the part of the teacher promotes pupils' digital competence at school. They argue that teacher training has a special place in the preparation of student teachers to develop professional digital competence so that they can foster pupils' digital competence in the pupils' academic subject studies. This being the case, Ottestad et al. argue for the importance of student teachers being trained to align digital competence with foundational skills (reading, writing, mathematics, speaking, using digital tools) and with school curricula.

THEORETICAL FRAMEWORK

In this study of how VSTs plan to incorporate digitalisation into their lesson plans, the concept of legitimation will be used in accordance with van Leeuwen's (2008) framework *The Legitimation Framework in Discourse and Communication*. Van Leeuwen puts a focus on the fact that discourses "not only represent what is going on, they also evaluate it, ascribe purposes to it, justify it" (van Leeuwen, 2008, p. 6). Thus, legitimation is used to answer spoken or unspoken questions about "why we should do this" and "why in this way" (van Leeuwen, 2008, p. 105). Van Leeuwen argues that one answer to "why" questions can be "because I say so" (van Leeuwen, 2008, p. 106) and the "I" represents the fact there is authority vested in the "I". This "I" can, for example, be because "I" am an *expert authority* on hair colouring as a skilled hairdresser, or "I" follow the example of a *role model* with a wise and experienced colleague, or "I" follow the long *tradition* of baking bread with real sourdough. The actors are set in certain roles to perform as agents of knowledge in a given context.

The framework of legitimation is therefore constructed to analyse how the answers are constructed in the discourse and can contribute to highlighting issues for reflection that face legitimation (van Leeuwen, 2008). Thus, legitimation justifies the function of individuals' actions and language use in an official role. In their actions, the speaker or writer provides arguments with reference to the reasons and courses of actions that either had to or did not have to be taken. These arguments justify those actions they expect others to disagree with, or challenge or attack them so that the action is acceptable to others. In everyday informal talk, we give explanations for, or accounts of, what we say or do in a way that is acceptable. In addition, we provide more arguments, references, and reasons if we can expect disagreement or resistance. To analyse the construction of legitimation in discourse, van Leeuwen discusses four major categories of legitimation:

- *Authorisation* by reference to law, tradition, and people with institutional authority
- *Rationalisation* by reference to effects, goals, and uses
- *Moral evaluation* by reference to value systems
- *Mythopoesis* by reference to moral tales

These forms of legitimation can occur separately or in combination, as well as in longer or shorter formats in both text and talk. Language is central to the framework of legitimation, but van Leeuwen emphasises how legitimation can also be expressed in multimodal ways, such as visual or musical forms: for example, in movies, in games, and with visual symbols. The total framework of legitimation is extensive. The four major categories are in turn constructed by several subcategories, which together provide a summary of the essentials in the major category. To illustrate van Leeuwen's (2008) framework, categories needed to be selected for this article. Drawing on one of the four major categories, namely *authorisation* (which is the only category apparent in all lesson planning), Figure 1 and Table 1 illustrate explicit examples of chains of argumentation.

In Figure 1, the square brackets indicate choices by the actors. An actor can, for example, both give recommendations as an *expert* in line with the curriculum, as well as write about themselves as a *role model* in a blog about life as a working VST in a rural setting.
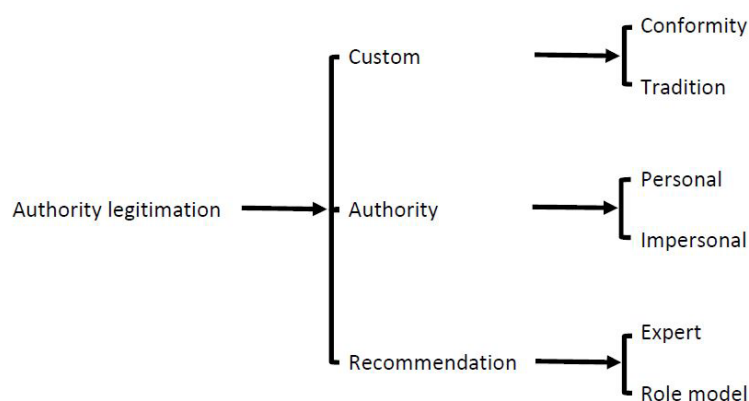

Figure 1: Subcategories of authority legitimation (After van Leeuwen, 2008, p. 109)

In the chain of subcategories of authority legitimation, van Leeuwen (2009) writes that *conformity* answers what everybody else does, whereas *tradition* is about what we have always done. *Personal* is vested in people in their role in a particular institution, but *impersonal* authority is the legitimation of rules, regulations, and laws. *Expert* authority legitimacy derives from expertise, and *role model* is a member of a group.

Table 1 provides examples of how the categories in the authorisation legitimation chain are interpreted using the lesson plans in this study.

Table 1: Examples of legitimation of authorisation in the lesson plans		
Category	**Subtype**	**Example translated into English**
Custom	Conformity	In healthcare, IT, digital tools and other technical equipment are used (Text 5)
Custom	Tradition	As a reward after each lesson, I use the digital question game Kahoot (Text 2)
Authority	Personal	Because the log book is in Google classroom, I can make corrections there directly if pupils use the wrong name of a tool (Text 20)
Authority	Impersonal	since I teach subjects that require the use of a computer (Text 22)
Rekommendation	Expert	It is important in our digital world that we teachers act as supervisors for our pupils (Text 23)
Rekommendation	Role model	and see me as having good skills and experience in the reading of blueprints from my time working as a pipefitter (Text 21)

Thus, van Leeuwen's framework is used in this way in the critical analysis of the construction of legitimation in the discourse.

METHODS

This section describes data collection and data analysis. It starts with a description of the data collection. After this, the steps in the data analysis are presented. Finally, an illustration is provided of how advanced and supplemented information about legitimation has been created by my ethnographically inspired method that I term "interviewing with the informants' written text".

Data collection

Data was created at a Swedish university between autumn 2018 and spring 2019 in conjunction with the introduction of the 2018 revision of the Swedish upper-secondary school curriculum. How VSTs legitimise their use of digitalisation in lesson plans is interesting to examine for several reasons. First, the revisions must be presented as legitimate for VSTs so that they understand the official actions and implications of the changes. Second, VSTs must demonstrate in seminars and academic papers that they can legitimise their didactic choices in relation to research and proven experience. Third, VSTs also need to legitimise their strategies so they can avoid critique, disagreement, and disapproval from their peers in seminars, their examiners, and the pupils they plan to teach. In their official position and role, VSTs are expected to show that they understand and legitimise a set of institutional decision-making boundaries and actions.

The present study was conducted after I was contacted by the coordinator of a campus course to give a lecture to the VSTs about digital writing: the course itself was about digitalisation in relation to learning and assessment. All empirical data was created after the end of the course, and all participants provided their written and informed consent to be part of the study. VSTs were informed in written and spoken form that research would be conducted in accordance with the ethical guidelines of the Swedish Research Council (2017) and the General Data Protection

Regulation (GDPR)**.** Taking part in the study were 13 female and 12 male VSTs who represented the following vocational programmes: the Children and Leisure Programme, the Building and Civil Engineering Programme, the Electricity and Energy Programme, the Vehicle and Transport Programme, the Trade and Administration Programme, the Industrial Engineering Programme, the Restaurant and Food Programme, the Heating, Ventilation, and Air Conditioning and Real Estate Programme, and the Care Programme. All participants in the study were already working as teachers in upper-secondary schools and had experience (several months to several years) of classroom learning and teaching. The students were mid-way through their studies, having completed three of six semesters at the time of the study.

The data has three parts: instructions about the course assignment itself and mandatory course literature; VST lesson plans; and ethnographic interviews. First, the instructions for the course assignment were examined, where the VSTs were assigned the task of writing a lesson plan about planning with digitalisation in their own classroom teaching. They were free to decide on the extent and content of the planning, but there was one criterion: "digitalisation should be a living element of this planning". The VSTs had to consider potential obstacles and opportunities that digitalisation present in teaching and had to be able to make didactic choices in their teaching. Second, the empirical data (lesson plans) comprised 25 VST lesson plans (228 pages in total). Third and finally, individual ethnographical interviews were conducted with eight of the 25 VSTs. These were video-recorded in Adobe Connect and transcribed in whole. Interviews took approximately one hour each. These eight were selected as part of the process of forming a deeper understanding of legitimation of digitalisation in lesson plans. The VSTs represented several vocational upper-secondary school programmes (hairdresser, construction worker, baker, electrician, business economist, forester). However, this study was not interested in identifying individual perceptions or programme-specific views on upper-secondary school education; as such, specialisations are not mentioned in this text.

Data analysis

There were two phases in the data analysis. The first involved examining i. the instructions in the lesson plan course assignment; ii. the context of vocational teacher training; iii. the study guide; and iv. the mandatory course literature. Furthermore, all twelve subject syllabi were read for the vocational programmes at upper-secondary schools as well as all curricula and subject syllabi referred to in the different programmes. In 17 of the 18 national curricula for the vocational programmes, there are explicit outcomes linked to digitalisation. Only the bakery programme lacks explicit mention of digitalisation in the programme outcomes. The second phase involved an analysis of how VSTs legitimise their use of digitalisation in their lesson plans. In this second phase, the VSTs' lesson plans and the ethnographic interviews were analysed in line with van Leeuwen's framework (2008). The analysis was performed in two steps based on the two research questions. The legitimation of digitalisation in lesson plans and interviews was identified and categorised after a close reading and examination: for examples, see Figure 1 and Table 1. The analysis showed there to be a huge spread in terms of number of legitimations and of text length in individual lesson plans and interviews. In addition, Björkvall and Nyström Höög (2019) identified heterogeneous character of data, and I – like them – treat the trends in the data as a whole, thus "allowing for comparisons between the overall distribution of different categories of legitimation in the data" (Björkvall & Nystrom Höög, 2019, p. 403).

Several of the lesson plans were not developed enough when it comes to the scientific argument to make it clear what VSTs based their legitimation on. Therefore, it proved itself to be very worthwhile to hold ethnographic interviews (Hammersley & Atkinson, 1983) with informants to deepen the legitimation of digitalisation. Kullberg (1996) stresses that the ethnographic interview does not involve a prepared list of questions. Instead, they are planned and conducted by the researcher when the need arises in the process and in relation to the research. In this study, the lesson plan is a point of reference where I as researcher can triangulate the legitimation in the lesson plans. The reference point means that I can discuss my reading of the text in depth with the informant who has written the text in the lesson plan.

Inspired by what Pink calls "interviewing with images" (Pink 2007, p. 82), I developed an ethnographically inspired method that I call "interviewing with the informants' written text". Unlike Pink, however, who shows the informants photographs she herself took, my informants in the interviews did not interpret new material that someone else had produced. Like Pink, however, I see the use of visual representation (in this article, the written lesson plans) as an opportunity to build – by way of conversation – a deeper understanding and complementary information from the informants themselves about the legitimation of digitalisation. Figure 2 below illustrates an example from one of the ethnographic interviews in Adobe Connect. The top of Figure 2 shows the VST and me talking about the marked reference point in the lesson plan: "the emphasis of this work will be placed on digital technology and pupils' documentation". In the excerpts from the transcribed interview, the VST then argues for the importance of examining the relationship between digital tools and documentation, and responds to research question 1. The VST then continues to more fully legitimate with knowledge and experiences of support and training to integrate digitalisation and digital tools into learning. The latter responds to research question 2.

Figure2: Example of the ethnographically inspired method *"interviewing with the informants' written text"*. The left part of the picture shows the VST's lesson plan. In it, I have marked a reference point that I wanted to acquire more information about. In the right field, the informant and I can be seen conversing with the marked text as a reference point.

Excerpt from the ethnographic interview based on the marked reference point in the lesson plan

> **Marie**: ((reading aloud the marked text in the lesson plan)) The focus in this work will be on digital technology and pupils' documentation. Can you tell us a little bit more about what made you decide on digital technology and pupils' documentation?
>
> **VST**:   In part, it was the fact that the task was to be about digitalisation, and, well, what kind of digitalization should we use? Then it was, among other things, the documentation and the fact they can use a form of digital technology while they are documenting. Instead of them writing on a piece of paper or similar, the pupils can write on the computer. The pupils also get to choose for themselves then, to a point, in whatway. If they want to use images, or text, or make a recording.
>
> **Marie:** Yes, and then we get a little into the fact that you write a bit further down "2/3 of the pupils have reading and writing difficulties of some kind or a learning disorder and on top of this, several pupils have an ADHD diagnosis". Do you notice any difference in the pupils' choice of modality? To listen, or to make a film, take a photograph or choose to make a video, or to write a narrative text in relation.
>
> **VST**: Yes, absolutely. Yes, above all, I see what it says. ((laughter)) It is easier for them to write on the computer, you could say, if it is about text. Then they have assistance, and a few red lines and stuff appear so that they see that maybe this wasn't quite right. And then there is motivation – theirs is perhaps higher if they type on the computer compared to if they write by hand. Those who perhaps have the greatest difficulties may well find it easier if they are allowed to work with images. However, this presents quite the hurdle. If you tell them they are going to WRITE something, things right away become very, very difficult.
>
> **Marie:** What is it that motivates them most when they get to sit and write digitally?
>
> **VST**:   They find it easier compared to paper. And then it can also relate to the fact that they may be used to being allowed to use a computer from primary school. They may have written very little by hand. And that can certainly contribute. They quite simply feel that it is easier. They are less likely to fail. They're not proud that their spelling is all back to front. I usually say that when you read on the computer, you get to read very fast. It is fortunate when you yourself do not have reading difficulties. Because you kind of have to read very fast to see what they've written. Sometimes you don't understand what they've written.

The ethnographic interviews alongside the VSTs' lesson plans serve to complement what they are thinking about and to illustrate the legitimation. The interviews thus create consistent results during coding through the process of legitimation of digitalisation in lesson plans.

FINDINGS

This section looks at the two research questions, which form the structure of the presentation of the results. To begin with, I present the VSTs' legitimations that respond to these questions: How is digitalisation legitimised in the lesson plans? Next, legitimations that respond to the question: How

do digital tools in the lesson plans link to the development of pupils' learning? All the examples in this Findings section from the empirical data were selected to represent the pattern that is evident in the material.

How is digitalisation legitimised in lesson plans?

The major category *authorisation* (van Leeuwen, 2008) is identified in all lesson plans in relation to digitalisation. The VSTs explicitly legitimised digitalisation in the lesson plans to the assessment criteria. Legitimation authority justifies the function of the curriculum in language use, in the actions of VSTs in their official role, and in classroom power relations. The results indicate VSTs' awareness of the assignment by referencing digitalisation in the revised curriculum. The question is, how do the actions of VSTs legitimise digitalisation in their planned teaching?

In half of the lesson plans, moral evaluation legitimation is present in relation to assessment. In the VSTs' legitimation, this is about either offering pupils good knowledge so that they are employable or giving pupils knowledge that is good for them to have in society:

> From the pupil's documentation, it is possible to read what she has understood or not understood. If the pupil can show that she is able to meet the goal for the diploma project, she will pass. No grading scale exists. The pupil can only get an E or F. How the pupil handles her language in the text is of no importance. (Text 6)

Moral value links legitimation with reference to what the VST thinks is a good action on the part of the teacher. The VST above gives reference to pupils becoming useful future artisans in the future but does not show how the pupil should be able to document written language in their future professional roles. The position of the VST appeals to the viewpoint that language difficulties are not important for teaching and learning. The example is not unique. More or less all lesson plan talk about the difficulties pupils have with writing and how this affects their learning. An example of this is a lesson plan that requires thar pupils write a report. After they have completed this assignment, the VST then asks the pupils to evaluate it:

> They [pupils] will have use of this assignment in their future professions. I'll keep in mind the fact pupils said that they want to practice writing reports and how to structure a big assignment on the computer. I aim to improve on this. (Text 25)

The excerpt shows that the pupils make the VST aware of their need for new skills and assistance when it comes to writing. It also shows that the teacher legitimises moral value**,** where the teacher has a responsibility to educate pupils in a good way through their teaching and to ensure that the assignment they give to the pupils is beneficial to the pupils in their future professional lives.

VSTs refer to the knowledge requirements in the curriculum to legitimise demands placed on the teacher and the pupils in relation to assessment. An example is the pronoun "I", which signals a *personal authority* with an inherent authority that does not have to invoke support or reasons for justifications:

> The first thing I do is that I go through the assignment together with the pupils. This includes drawings, materials, machines, group divisions, and the work environment. At this stage, I also clarify to the pupils what will be assessed in this module – that they understand and are aware of what is expected of them is particularly important to me.

> The next step involves getting the pupils to think about and then decide on how they want to document their work. I approve and note their choices. The groups also get to know what I expect from the upcoming evaluation. (Text 4)

This example illustrates how VSTs describe teaching as a process with steps. The pupils are guided by VSTs to clarify what is to be assessed in the different steps with a focus on how and what pupils should document. The lesson plan justifies focusing on clarity, predictability, and measurable results. VSTs plan their teaching to deliver a product for evaluation.

How do digital tools in the lesson plans link to the development of pupils' learning?

VSTs legitimise the use of digital tools to the major category *rationalisation* (van Leeuwen, 2008) to justify the reason to achieve the academic development of pupils. Van Leeuwen divides rationalisation into two subcategories: *instrumental rationality* with reference to goals, uses, and effects and *theoretical rationality* with explicit reference to definition, explanation, and prediction.

The general results legitimise *instrumental rationalisation* in curricula, especially in relation to goal orientation. In 13 out of the 25 lesson plans, legitimation is of the rationalisation category. The results of the analysis of legitimation in the VST lesson plans show that in every lesson plan, there is a strong emphasis on the legitimation of digitalisation in relation to the assessment of the pupils' writing about the practical elements of teaching in, for example, a document, logbook or PowerPoint. When rationalisation takes place in the lesson plan, it is essentially by achieving effect orientation. VSTs mainly legitimise the effective benefits of using digital tools as a way to package and deliver materials for assessment.

In the data set of lesson plans, the perspective is that of the VSTs, and they view digital resources as a basis for step-by-step grade assessment. The pupils are presented as suppliers of grading material for the VSTs. Assessment is seen as a task, but VSTs do not legitimise how teaching should develop pupils' learning, knowledge, or digital competence. The use of digital platforms is linked to efficiency. VSTs receive texts from pupils and receive messages about texts pending in the platform. In the example below, legitimation takes place through both rationalisation by reference to "quick" and "easy" actions and moral evaluation by justification and reference to "quick" and "smoother" ways for VSTs to conduct formative assessments and to provide pupils with better means to recall the feedback:

> When a pupil has submitted a task [on a platform], we receive a note of this, and when we assess the task, the pupil receives a message. This provides quick feedback to the pupils. If I am quick to correct and post my messages, the pupil often remembers why I did the assessment. It is also easy to write when you can copy some assessments for use with the next student. It becomes easier and smoother to make formative assessments. (Text 17)

Digital tools are legitimised by reference to speed, agility, control, and overview. Quick handling is highlighted as a positive and contributing factor in the creation of meaning-making and is important for formative assessment. Quick actions and written texts are linked to pupils' need for feedback in a short space of time so that they remember what the response is based on. The use of a platform legitimises the digital resource. VSTs reuse feedback by copying and pasting text that they could use

with other pupils. How the feedback will serve to assist in the individual pupil's learning is not made apparent. It seems that the digital platform, with its fast and easy feedback, contributes to VSTs' ability to respond, if they want, in the same general way to pupils. VSTs also justify written formative feedback as being an easier form of dialogue, one similar to an oral conversation or a shorter, less developed comment. The platform does not contribute sufficiently for pupils to be able to read and understand what the VSTs assess or how they do so.

In the VSTs' lesson plans and interviews, pupils are described as having problems with concentration when it comes to reading and writing. These problems are frequently legitimised in the lesson plans and interviews. In the interviews, it became apparent that teacher training does not prepare VSTs how to address pupils' reading and writing difficulties since they lack knowledge from teacher training and in-school practice. Some schools have a special education teacher who VSTs can send pupils to; however, VSTs do not feel they are well equipped to deal with reading and writing difficulties in their regular teaching with regard to removing obstacles and providing pupils with literacy support. Concentration difficulties are often highlighted in relation to pupils with some form of reading and writing difficulty or an ADHD diagnosis. In the lesson plans, there are a few examples of rational legitimation oriented to digital tools as a potential tool to develop pupils' learning. Digital tools, therefore, are also used as tools for reading, but their usage is limited to pupils with a diagnosis. For example, VSTs legitimise digital technology as a compensatory aid that motivates pupils to study:

> The greatest benefit of digital tools is the assistance pupils who have diagnoses of various kinds can obtain. Pupils who have dyslexia can get help with reading material and/or reading material aloud. They [digital tools] also help the teacher to get the pupils to present their knowledge in different ways because the pupils have different strengths when it comes to learning and presenting knowledge. (Text 22)

VSTs view digital tools as a form of assistive technology that helps pupils who have reading difficulties. In this way, pupils find a way to learn by listening. In this respect, VSTs use digital technology as a pedagogical tool to help when pupils' dyslexia presents problems for them to decode and comprehend written text. In the lesson plans, several VSTs mention how pupils are allowed to listen to recorded texts. How teachers use digital resources to help pupils with writing difficulties is not apparent in the data.

CONCLUSIONS

A key finding in this study is that, in all lesson plans, VSTs legitimise digitalisation in teaching to the curriculum at upper-secondary school. Thus, the VSTs answer how is digitalisation legitimised in the lesson plans, research question 1, with long quotations from the assessment criteria in the curriculum. The VSTs justify their decisions in the lesson plans with authority legitimation to provide actions and reasoning.

How can we understand VSTs' legitimation of digitalisation? The analysis shows that the three different data sets are oriented towards authority legitimation. Course instructions state that digitalisation must be a living element of the lesson plan. Curricula indicate that digital tools should be used in teaching and list assessment criteria. Thus, the legitimation of digitalisation among VSTs is linked to authorisation. VSTs see themselves as expert authorities or role models, and they use the

course literature to justify what they agree with and can relate to it in the legitimation of their own teaching. The VSTs are not found to use the course literature to delegitimise and problematise the implementation of digitalisation, or to address the challenges in pedagogical preparation to employ digitalisation in a meaningful way (Björk Gudmundsdotter & Hatlevik, 2017; Nordmark, 2014, 2017). Perhaps the focus of VSTs on assessment criteria and the fact that pupils deliver the text for assessment make the use of technology similar in the lesson plans. The analysis shows that in the lesson plans and ethnographic interviews, the scientific arguments are neither developed nor problematised; therefore, it is sometimes unclear what the statements are based on. The findings show a gap between an understanding of teaching practice and the use of reflection and theory. There is an imbalance between development and insight in the lesson plans where VSTs' reflections and analytical depth do not appear clear. The findings in this study illustrate that VSTs' decisions to use digital tools in teaching take their point of departure in their position as teachers and on themselves in planning and teaching practice. This gap in understanding theory and practice and providing feedback or investigating role models is in line with previous research on reflection and theories in teaching practice (Tondeur et al., 2012; Valtonen et al., 2015).

VSTs' legitimation of digital tools to develop pupils' learning, research question 2, is linked to rationalisation by references to goals and effects. Like previous research, this study shows that the use of digital resources does not legitimise how these resources contribute to the development of pupils' learning in the subject. In this study, the VSTs plan for technical control of the delivery process of the pupils' written texts for assessment, but not the processes of content learning. Here, there is a gap that suggests that VSTs are inadequately prepared to integrate technology into their teaching practice. It may be the case that vocational VSTs do not have any studies in their vocational subject during teacher training. As such, they are not explicitly prepared for what digitalisation can mean in vocational education in their shift from working as experienced tradespeople to educating pupils so that they themselves can become trainee tradespeople. In this study of VSTs' lesson plans, a picture emerges of the ways in which they legitimise digital tools through reference to speed, agility, control, and overview. VSTs justify efficiency as being important in the creation of meaning with digital resources in the teaching situation and in the formative assessment. Attention is directed to quick, general actions of text assessment and notification of the delivery of texts submitted by pupils to the teacher and then their return. VSTs highlight quick copy-and-paste actions on platforms as a positive element of meaning-making and as effective when it comes to giving pupils feedback.

What, then, does the view of legitimation rationalisation tell us about digital tools and their link to the development of pupils' learning? Writing has an important place in VSTs' planning for pupils' use of digital tools; however, written language is itself not seen as a resource in teaching and learning. The lesson plans highlight the importance of writing in teaching and the fact that it is a problematic part of teaching practice. Writing is linked to assessment. VSTs indicate that the form of the text is often problematic, and as such, they choose not to address it. From their interviews, it appears that VSTs do not legitimise explicitly about language or about composing texts related to the subject. VSTs do not highlight writing as a thinking tool with which the pupils reinforce and process learning by writing about their created understanding of what is to be learned. However, a few of the VSTs highlight assisted technology as being a useful reading tool for pupils with a dyslexia diagnosis, and the special education teacher becomes involved in helping pupils outside of mainstream teaching. The study's findings clearly show how literacy, and in particular writing, is a part of pedagogical and didactic choices. Organization for Economic Cooperation and Development, OECD, (2021)

highlights the importance of deep literacy understanding for school success: "Digital technologies created another revolution of the written word in the 21st century" (OECD 2021, p. 140).

Teacher training is constantly being criticised for its failure to increase the digital competence of its students. Instead of there being a focus on technology and on the use of platforms for organisational and administrative purposes, attention is more on teaching and on the importance of addressing challenges that are presented by trying to incorporate digitalisation into teaching in a meaningful way. In future research, the teacher training has to prepare VSTs so that they can address the needs pupils have for more advanced literacy competences in the teaching.

Limitations

This is a case study, and the findings are therefore not generalisable. The study provides authentic insight into opportunities and challenges, when it comes to integrating digitalisation into learning and teaching. Lesson planning is important since it is an opportunity for teachers to reflect on learning and teaching, with context being an important factor. When VSTs plan their teaching, they need to make many decisions that are based on context; however, they may not always have written about all decisions concerning the lesson plans.

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