

19. “It Partly Breaks Up the Class Environment” – Experiences with Flipped Classroom as a Teaching Model in Higher Education

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SAMANDRAG Artikkelen rettar søkelyset mot bruken av omvendt undervisning som undervisningsmodell i høgare utdanning. Føremålet med artikkelen er å utvikle kunnskap om korleis omvendt undervisning kan bidra til å støtte opp om studentane si læring. For å utvikle ei djupare forståing for korleis studentar opplever omvendt undervisning som støtte for eiga læring har vi valt ei kvalitativ tilnærming. Artikkelen byggjer på eit utviklingsarbeid med ein undervisningsmodell bygd på videoførelingar, studentars arbeid med oppgåver og klasseromsundervisning. Undervisningsmodellen har vore prøvd ut i tre ulike studentgrupper i faget juss. Empiri er henta inn gjennom tre fokusgruppeintervju med tre ulike studentgrupper. Fire kategoriar peikar seg ut som sentrale: fleksibilitet, struktur, relevans og samhandling. Hovudfunnet vårt er at undervisningsmodellen er individorientert, og at modellen i mindre grad utnyttar læringspotensiale som ligg i det å vere deltakande i eit læringsfellesskap. Som implikasjon av studien foreslår artikkelforfattarane at undervisarar som nyttar omvendt undervisning må gi meir merksemd til korleis ein legg til rette for læringsfremjande samhandling i studentgruppa.

NØKKEWORD læring | undervisning | videoførelingar | studentaktive læringsformer | samhandling | omvendt undervisning

ABSTRACT The purpose of this article is to contribute to knowledge about how students in higher education experience and make use of flipped classroom to support lear-

ning. We have chosen a qualitative approach in order to gain deeper understanding of the students' experiences with flipped classroom. Our starting-point is a teaching model linked to flipped classroom carried out with students at a university college in Norway. The teaching model contained video lectures, students' work with sets of tasks, and class attendance. We investigated the students' experiences with the teaching model through three focus group interviews, and identified four central categories: flexibility, structure, relevance and interaction. Our main finding indicates that the teaching model is individual-oriented. Less attention is paid to active and social learning opportunities. If digitalization in higher education is to promote learning, lecturers have to recognize interaction in order to support the students' learning in flipped classrooms.

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19.1 INTRODUCTION

Digitalization has received much attention by European education authorities and leaders. One case in point is the European University Association (EUA), which highlighted digitalization as one of the most important trends in European higher education (Sursock, 2015). Digitalization is also a key element in the OECD policy on education (OECD, 2016). In Norway, the Ministry of Education and Research has developed a document that provides guidelines for digitalization in higher education (2017–2021). The White Paper report to the Storting 16, *Quality Culture in Higher Education (2016–2017)*, points out that the use of digital technology creates new preconditions and possibilities for teaching and learning. Several learning resources are mentioned, such as video recordings and the use of flipped classrooms.

Most students are positive to technology, emphasizing in particular easier access to course literature and video recordings (Mitchell & Forer, 2010; Norgesuniversitetet, 2015). In Norway, nine out of ten students report that digital means are used in their daily studies, but among these only half think that such means contribute to promoting learning (Norgesuniversitetet, 2015). Use of digital tools is to a very small extent included in the course plans, course content or work requirements. This may indicate that digital tools are mainly used as aids to organize rather than to promote learning (Norgesuniversitetet, 2015). The same tendency is also reported internationally. Driscoll (2002) and Hofmann (2006) argue

that the flipped classroom has been implemented with the aim of increasing the efficiency of – and supplementing – teaching.

The flipped classroom is an alternative to a traditional teaching format. Inverting the classroom means that events that have traditionally taken place *inside* the classroom now take place *outside* the classroom and vice versa (Lage, Platt & Treglia, 2000; Higgitt, 2014). Instead of students learning by attending lectures, video lectures may take care of transmitting information elements. Afterwards, elements related to processing the subject matter can take place on campus with fellow students and lecturers (Abeysekera & Dawson, 2015). Flipped classrooms can thus be an important means to create space for student-active and cooperative learning (Solberg & Breivik, 2016). Torrisi-Steele & Drew (2013) point out that the terms “flipped classroom”, or “blended learning”, have not been satisfactorily defined. They themselves operate with a wide definition of “blended learning” when they use it in the following sense: “use of the technology with face-to-face teaching” (Torrisi-Steel & Drew, 2013, p. 372). Although the discussion in the literature regarding the development of an authoritative definition is still open, there are identifiable commonalities in the many attempts to define “blended learning”. In all definitions “blended learning” is considered to be a combination of traditional face-to-face modes of instruction and online modes of learning, drawing on technology-mediated instruction, where all participants in the learning process are separated by distance some of the time (Skrypnik et al., 2015).

The purpose of this article is to highlight the students’ perspective on how a flipped classroom contributes to supporting their learning. The teaching format that was the basis for this article has three main elements: online video lectures, students’ preparation for in-class work through work with sets of tasks, and class attendance. It is of great interest to generate knowledge that may enable higher education institutions to be active drivers of implementing flipped classrooms, rather than allowing technology dictate to them. Students’ in-depth knowledge and experiences can contribute to creating a wider basis for improving digital teaching quality in higher education. With this background, we have formulated the following research question:

What kinds of experiences do students have when using the teaching model, flipped classroom, to support their own learning?

We chose to focus on the main elements in the teaching model: video lectures, students’ working with sets of tasks, and class attendance. In order to answer the research question we formulated the following two sub-questions:

1. How do students work with video lectures and task sets, and what do they experience as strengths and weaknesses associated with using these?
2. What experiences do students have with class attendance, and what do they experience as strengths and weaknesses associated with attending classes?

19.2 THEORETICAL FRAMEWORK

In the following section we present some central studies on topics related to flipped classrooms in higher education, and two metaphors for learning: “acquisition” and “participation”.

19.2.1 STATEMENT OF FLIPPED CLASSROOM

As various definitions and education formats have been used in different studies, it may be hard to assess and compare the results. We will, however, introduce some of these studies. There are several review articles related to flipped classrooms in higher education. The meta-study by Means, Toyama, Murphy, Balkia & Jones (2009), based on more than 1000 empirical studies, shows that net-based learning seems to function well. Students who benefited from a net-based education achieved better results than students who followed a traditional teaching format. They conclude that the greatest effect seems to be obtained when net-based education is combined with face-to-face teaching. Reports of students’ perceptions of the flipped classroom are mixed but overall, generally positive (Gough, DeJong, Grundmeyer & Baron, 2017; Helgevold & Moen, 2015). The review study by Estes, Ingram & Liu (2014) concludes that the flipped classroom is a good method if one wants to use the time in the classroom effectively, contribute to developing students’ ability to think on a higher cognitive level, and increase the interaction between lecturer and student. They emphasize in particular the interaction between lecturer and students as a decisive factor for the success of the flipped classroom. In addition, it is important to keep the motivation of the students up before, during and after a classroom session.

The reviews by Torrisi-Steele & Drew (2013) and Skrypnik et al. (2015) both highlight significant gaps in current research. Torrisi-Steele & Drew (2013) report that the literature they surveyed was dominated by “how-to” studies (65.9%). Studies with a student focus formed 25.63%, with the majority of articles in this category being concerned with the student experience (17.65%) and the rest (7.98%) dealing with effectiveness, in which case the studies referred largely to learning performance as assessed by test scores. Bishop and Verleger (2013) also

reference several studies that measure the learning effect of flipped classrooms through test scores and grades. Nevertheless, Torrisi-Steele & Drew (2013) conclude that there is a need for more research on academic practice and relevant academic development in order to be able to realize the potential of the flipped classroom. Skrypnyk et al. (2015) address future directions for research investigating blended instructional practices, specifically the relationship between such practices and student motivation and engagement, with a particular focus on the student characteristics that benefit most from a flipped classroom teaching model.

As noted above we have identified some studies that concern students' experiences. These studies focus on different features to our study. Yilmaz (2017) reports students' e-learning readiness as a significant predictor of their satisfaction and motivation in a flipped classroom model. A study performed by Sajid et al. (2016) states that a flipped classroom replaces passive lecturing with student-active learning, something that enhances critical thinking and application, including information retention. In Mitchell & Forer's (2010) study, students' satisfaction with blended learning was similarly affected by the students' preferred learning styles, and their responses were coloured by their perception of the overall university experience. Lust, Vandewaetere, Ceulemans, Elen & Clarebout (2011) reveal the need for students to be coached in metacognitive skills to be able to make best use of the learning tools available in blended learning environments.

In a Norwegian context, Foldnes (2016) carried out a study on flipped classrooms in mathematics and statistics in higher education. The main finding was that students who were encouraged to cooperate achieved better exam results than students who followed traditional lectures. On the other hand, students who took part in a flipped classroom where the focus was on individual work did not get better results than students who followed traditional lectures. Another study by Foldnes (2017) emphasized that a flipped classroom containing active and social learning opportunities leads to increased student learning, over and above interacting with the online videos.

However, Jensen, Kummer & Godoy (2015) compare a teaching format characterized by high student activity with one based on a flipped classroom. The results from this study indicate that there is no difference between these two formats in terms of learning benefits. In both cases the students considered contact with the lecturer to be a more decisive factor than the work they carried out at home. Flipped classrooms do not lead to greater learning benefits compared to other instruction methods based on student activity. While the flipped classroom is in vogue in academic circles just now (Bishop & Verleger, 2013), it is not necessarily the answer to the question of how to stimulate students' participation and engage-

ment in academic courses. The flipped classroom has potential, but there is a need for more research on how this teaching model stimulates student learning (Bishop & Verleger, 2013; Helgevold & Moen, 2015).

The majority of studies we have identified are conducted abroad and have a quantitative or mixed-method orientation. Much of the literature to date about the effectiveness of flipped learning is drawn from disciplines other than law education. The amount of academic research is, however, increasing, as flipped classrooms are becoming more popular (Gough, DeJong, Grundmeyer & Baron (2017). Studies on the flipped classroom tend to concern the STEM disciplines: science, technology, engineering and mathematics (Gough et al., 2017; Yarbrow, Arfstrom, McKnight & McKnight, 2014). So far, we have not been able to identify any Norwegian studies on flipped classrooms in law education.

19.2.2 THE ACQUISITION METAPHOR FOR LEARNING

“Acquisition” is the metaphor for a behaviouristic and cognitive view of learning where knowledge and learning are linked to students’ individual processes. The lecturer’s primary concern is to impart knowledge to the student, who receives and recreates the knowledge. In our study we find that it is relevant to look at the cognitive perspective, as well as how the use of digital artefacts as information transfer elements can be useful to understanding the students’ learning processes.

In his cognitive theory of learning Mayer (2014a) emphasizes that learning and construction of knowledge are linked to processes that initially involve handling sensory impressions in the short-term memory, but later integrate these in new mental models in the long-term memory. “Learning” is defined as change in knowledge as a result of experience (Mayer, 2011, p. 14). “Teaching” is understood as manipulation of the student’s experiences in order to pave the way for the change in knowledge (Mayer, 2011, p. 52).

Sweller (1994) uses the term “cognitive load”, which refers to the resources available to the learner in the short-term memory for handling new information for storage in the long-term memory. The issue here is to find the right balance between load and burden. If the load is too easy, for example if the student is already familiar with the course material, it may lead to a low level of commitment. Overload, for example when the course material is not easily available, is far from optimal either; the student may in the case of overload feel confused and spend all available resources in the working memory and thereby experience problems with acquiring new knowledge. Pass & Sweller (2014) argue in favour of a teaching model that takes these cognitive processes as a starting point. Mayer (2009) introduces teaching prin-

principles for regulating the intrinsic cognitive load, reducing the extraneous cognitive load, and producing a cognitively relevant load that helps prepare for learning in the best possible way. *Intrinsic load* is linked to the course material, which contains a certain number of elements or information pieces forming a larger whole.

The intrinsic load linked to the course material cannot be changed, but it is possible to break up such material into pieces adapted to the students' cognitive level and prior knowledge. *Extraneous load* is linked to the teaching model, and can be related to elements and pieces of information in the course material that do not contribute to learning. As such, removing extraneous information and material to make the format less confusing may be important. *Germane load* is linked to the learner, and concerns the resources used by the student to acquire knowledge. It is linked to the student's knowledge and the support given during teaching. Motivation and a sense of mastery are key regulatory factors, though the experience of a safe learning environment also plays an important role. In the learning process, intrinsic load and extraneous load will constitute the total burden that the student's working memory must cope with. If the burden is greater than the capacity of the working memory, it will have a negative effect on learning.

In order to regulate intrinsic load there are three principles: The Modality Principle, The Segmenting Principle, and The Pre-training Principle (Mayer, 2014b; Mayer & Pilegard, 2014). *The Modality Principle* refers to the fact that students learn better when verbal information is presented orally rather than as written text. The Segmenting Principle refers to the fact that students learn better when the course material is split into sequences adapted to their prior knowledge. *The Pre-training Principle* refers to the fact that students learn better by using multimedia when they get the opportunity to learn relevant expressions and terms prior to focusing on connections (Mayer, 2014b; Mayer & Pilegard, 2014).

When it comes to principles for reduction of extraneous load, we introduce The Coherence Principle, The Signalling Principle and The Redundancy Principle (Mayer, 2014b; Mayer & Pilegard, 2014). *The Coherence Principle* is linked to the fact that students learn better when extraneous information is removed from the presentation. This is particularly the case when the course material is complex. *The Signalling Principle* refers to the fact that students learn better when signals are included to mark what information is important in the presentation. *The Redundancy Principle* refers to the fact that learning from multimedia is improved if the multimedia only contains pictures and oral speech, and not written text. Consequently, it is important to avoid long text presentations (Mayer 2014b; Mayer & Pilegard, 2014). The principles for multimedia learning that we have referred to can be linked to cognitive theory and the acquisition metaphor.

19.2.3 THE PARTICIPATION METAPHOR FOR LEARNING

“Participation” is the metaphor for a socio-cultural view of learning (Sfård, 1998). Participation processes move the focus from the student as an individual to the learning community. Through participation in a learning community the student will acquire experiences and knowledge (Lave & Wenger, 1991). Flipped learning is based on a socio-cultural perspective on learning that emphasizes our construction of knowledge in interaction with others and by means of mediating tools (Krumsvik, 2016). Learning and knowledge are situated by being rooted and woven into the concrete cultural and social context of which we are a part. We tend to say that knowledge is distributed among the participants in the community. The actors have different skills and knowledge that, when combined, constitute a common knowledge base. We also say that knowledge is mediated when it comprises material and cultural tools. Language as a mediating tool is brought up as a central factor (Vygotsky, 1978). It is through dialogue and language in a wide sense that knowledge develops. Vygotsky (1978) underlines the importance of learning being facilitated at the student’s nearest development zone. In his theory of scaffolding, Bruner (1996) builds on Vygotsky’s ideas, showing how learners can master tasks outside of their competence areas thanks to help from others with more competence. The lecturer has a central role when it comes to supporting the students in their learning process. Students may also function as scaffold builders for one another. Based on this view of learning the lecturer’s primary concern should be to pave the way for interaction processes and participate with his broader knowledge in the learning community. “Authentic questions and situations”, “appreciation”, “response” and “initiatives” are all central terms in socio-cultural learning theory (Dysthe, 2013).

19.3 METHODOLOGICAL APPROACH

19.3.1 CONTEXT AND SELECTIONS

The purpose of this article is to contribute to in-depth knowledge about how students in higher education experience and make use of the flipped classroom to support their learning. To answer our research question we chose a qualitative approach. A qualitative approach seeks to understand people’s experienced life-world through words, and originated as a blend of phenomenological and hermeneutical traditions (Borer & Fontana, 2012).

The recruitment of university college, lecturer and groups of students was based on a strategic and pragmatic perspective (Kvale & Brinkmann, 2015). The choice

of university college and lecturer was based on our knowledge that this very institution had implemented a teaching model linked to a flipped classroom in law education. The teaching was carried out in three different student groups, and we chose to include all three groups in our study. The first group consisted of 42 law students. The second group consisted of 50 social work students, taking a course in Social Security Law. Both groups consisted of first-year students. The third group consisted of 76 third-year students studying social work and childcare. The third group students also participated in a course related to Social Security Law.

The main elements in the teaching model are: video lectures, students' work with sets of tasks, and class attendance. The lecturer recorded video lectures with presentations of the course material. The videos lasted from six to 33 minutes. For each video a PowerPoint presentation was made, in addition to a set of tasks. After watching the video lectures and working with the tasks, students attended a class. Here the lecturer and the students discussed various answers and perspectives. The students were encouraged to work with the sets of tasks, first individually and then in groups organized by the lecturer. The students were also supposed to hand in assignments individually.

19.3.2 METHOD

The study is based on three focus group interviews (21 students in total). The participants were recruited in the following way: the lecturer posted a message in the class's Facebook group with information about the purpose of the study and the focus group interview. Our preference was to have six to eight students of both genders and from different age groups, if possible. The age of the students varied from 19 to 26, and they were all volunteers. The participants were anonymized in accordance with ethical research guidelines. The notification test to the Norwegian Centre for Research Data shows that the study is not subject to such.

Focus group interviews elicit a diversity of viewpoints (Halkier, 2010). One can access richer data material (Krueger & Casey, 2009), which can contribute to a better understanding of what the participants experience and think. Through the exchange of ideas and perspectives the participants can challenge each other, which may contribute to elaborating opinions (Halkier, 2010). One challenge when using focus group interviews is that some participants may dominate the discussion, which could in turn make the data less robust. We ensured that all participants had the opportunity to contribute. We noted that the participants listened to and elaborated on each other's experiences, and there was an openness in the exchange of opinions. On the other hand, we noted that the students challenged

one another to a lesser degree or made few critical comments on each other's statements.

The focus group interview had a non-structured form (Kvale & Brinkmann, 2015). We also prepared a protocol of key questions addressing the essence of the research questions: 1) Your experiences with the video lectures; 2) your experiences with the student work with sets of tasks accompanying the video lectures; 3) your experiences with the class attendance; and 4) any other experience you want to comment upon. In addition to each of these questions, we asked the students to report what they experienced to be advantages or challenges with regard to learning. The key questions were based on a preliminary study that was part of the students' evaluation of the teaching model. Each focus group interview lasted from 60 to 75 minutes. They were all recorded and transcribed.

The overall analysis is grounded in a hermeneutic perspective inspired by Gadamer (2007). From a hermeneutic point of view, the researcher is engaging in a dialogic process towards a new understanding. We carried out a theme-centred analysis (Kvale & Brinkmann, 2015). The coding process can be illustrated as follows: First we collected *basic themes* grounded in the whole empirical material. The basic themes were then categorized into four *organizing themes*; flexibility, structure, relevance and interaction based on near-experience terms (Geertz, 1983). These organizing themes were then discussed in light of theory or *global themes*.

The analysis was first undertaken separately by both researchers and then compared. This was done to verify the analysis. Both researchers attended the focus groups interviews, where we partly assumed the role of moderators. Neither researcher has taught the subject or taken part in the development of the teaching model. This may have had a positive effect on the research, as the students became more open in terms of bringing up negative experiences. We noted that the participants gave supplementary and explanatory answers. The students participated voluntarily in the focus groups. This may have led to an overrepresentation of participants who had positive experiences with the teaching model. For all three groups this was their first meeting with the flipped classroom teaching model, which may have had an impact on our findings.

19.4 RESULTS

The students reported overall positive attitudes towards and experiences with the flipped classroom teaching model. None of them highlighted challenges or problems related to digital resources in their daily studies.

The theme-centred analysis resulted in four organizing themes: flexibility, structure, relevance and interaction. These form the structure for the presentation of the empirical data. It must be noted that the organizing themes are partly overlapping.

19.4.1 FLEXIBILITY

The students chose various ways of working with the video lectures. Some read relevant texts before watching the video, whereas others read after watching. Others made it clear that they did not read curriculum literature in connection with the video lectures. Some students watched all the videos, between five and seven in number, in connection with a seminar before solving the tasks. Others watched one video at a time and then went on to solve the relevant tasks. A recurrent feature for everybody was that using video lectures gave room for flexibility. The participants reported a number of advantages concerning the video lectures. The following statement sums up what most students pointed out: “It was wonderful to be able to decide for ourselves when we wanted to watch/listen to the lecture (...). And not having to show up at a fixed time.”

In addition to being able to decide when to watch the videos, the students also noted the flexibility linked to where to watch them. Many students emphasized the value of “having a home office.” One student said: “For me as a commuter it has been fantastic to be able to spend more time at home.” In this way they could watch the videos whenever they wanted and whenever it was convenient for them. Furthermore, they avoided missing lectures at school if they were unable to attend. In addition to time and workplace flexibility, the students also mentioned that the ability to control the sound of a recording was a positive factor. The following statement sums up the experiences of many:

It is a big advantage that we can stop the video whenever we like to get more time to take notes and mark, for example in the law books. It was convenient to push the pause button, rewind if there was something you missed or did not understand, to listen several times, to repeat. In an ordinary lecture there is no time for that.

A number of students also say that they have a hard copy of the PowerPoint presentations and accessible law books in order to take notes during the lecture.

The use of video lectures also raises challenges. It may for instance be challenging to maintain concentration during the lectures since the lectures may be experienced as boring and one-sided. Besides, the students also point out that they can

watch the video again. This makes them less focused, and they may as a result have to spend more time getting acquainted with the subject material.

19.4.2 STRUCTURE

The students found that the course material was presented in an accessible way in the video lectures. One student put it in the following terms: "We were spoon-fed." When we asked the students to elaborate on this, they answered that it became obvious which video they were supposed to watch at what time. The students had chosen to watch the videos in the order suggested. Furthermore, the course material was presented in a structured way in every single video, where the lecturer, in addition to speaking, used PowerPoint presentations and law books. When the participants were asked to elaborate on what they meant by "being structured", their answers may be illustrated by the following quote:

He was good at repeating things – saying things again and pointing out what we were supposed to underline (...). He was very to the point. "These words are important," he said. And then he showed us where to underline in the law texts. He repeated two or three times that this is very important. I wrote it down.

The participants experienced getting more detailed professional tips in the video lectures than they would get in ordinary lectures. They found that the lecturer paid more attention to what content he or she chose and how it was presented when doing a video lecture compared to an ordinary lecture.

A good structure contributed to the students experiencing that they had "full control." According to one student "It was better to watch the videos twice than reading the book," while another student said that "we are actually doing fine without books." The students agreed that they could have managed well without the curriculum books. When we asked whether there was anything that could have been done differently in the use of videos, the students suggested that it would have been a good idea to have some repetition questions at the end of the videos, "just to make sure that we have fully understood what we had seen."

The students worked with the tasks while watching the videos or just afterwards. They remarked that it was best to do the tasks while they clearly remembered the contents of the videos. Having concrete tasks to solve each week helped the students work at a steady pace. The students reported being well prepared for the class because they were required to hand in outlines of the tasks on the electronic learning platform. One student said that it was a "very good idea to have tasks for every Thursday so that you are pushed to work with the subject." By

working with the tasks, the students were able to revisit the course material, which makes them understand better. They also had some practice in expressing themselves concisely, and they learned to work independently. In this respect the students pointed out that a good structure in the teaching model was a decisive factor: first, video lecture; then, work with the tasks; and, finally, the class, which marked the transition to the next theme. “Everything was put into our hands,” one student said referring to the structure.

Going through the tasks during class functioned as a control for whether the students had understood the subject. One student said: “It was quite obvious what the correct answer was and what was wrong. It was good to get a quick response.” Some claimed that they learned a lot about task structure by being presented with the lecturer’s answers and suggestions for solutions on the electronic learning platform after the class.

Another positive aspect of the class was that the students had a chance to revise the course material. They underlined that there was a clear link between the video lectures and the contents of the class they attended. In this way, they could use the course material they had been working on during the week. They reported learning better when being prepared for the class. One objection to the structure of the teaching model was that there were too many demanding tasks. The students had also been unsure how comprehensively they were supposed to answer questions handed out prior to the class.

19.4.3 RELEVANCE

Law is a quite complicated subject. The textbook is written in an academic language. It takes several pages to cover a special point. When I have finished reading the first five pages, I feel quite relieved. Fortunately, we have the videos. Here the lecturer points out central themes in a language that we understand. He also repeats central sentences and terms and encourages us to write these down. In addition, he selects cases from the Internet, or from real life. This helps us understand and use the literature, especially the law book, more effectively.

This is an example of how the lecturer organizes and transforms the content in ways that students experience as meaningful and relevant. Students emphasize that it is a motivating factor that the sets of tasks are practice-oriented and challenge their reflections. “Previously we only learned law in theory, but now we have actually got a practical understanding and feeling of how things function. I think this is very important.” It is also important to have some training in using law-related material when dealing with relevant topics.

The students in group one all agreed that using earlier exam papers is positive. "In this way the standard is raised," they said, underlining how this was a motivating factor in their work. Quite a few mentioned that intensive training with exam papers made them feel well prepared for their own exam. This training gave them a feeling of security and confidence. When asked whether there was any connection between the exam and their motivation for solving tasks, the students answered: "We pretend that we do them to learn the material, but marks really matter."

19.4.4 INTERACTION

The lecturer divided the students into discussion groups. According to the students, the discussion groups had never been used. One student remarked that "if you want to have the full benefit of watching the videos, you simply have to watch them alone." Some pointed out that they needed to watch the videos at their own pace to gain a full understanding of the course material. "It is not efficient when a group of students sit together and they need to stop the video at different places," one student said. Some chose to meet in groups at campus to watch the videos, but in these cases the students had also watched the videos individually using headphones.

We identified the same pattern in how students worked individually with the tasks. However, some said that from time to time they met in groups on campus to share their solutions to the various tasks. The students chose to organize these groups themselves. In our material we also came across nuances with regard to cooperating in groups. Third-year students would, to a larger extent, solve tasks together and recognize the value of working together to support their learning. They underlined the importance of discussions. A recurrent trait is that they did not use the discussion groups organized by the lecturer. The first-year students reported that they did not know each other so well. Another factor they mentioned was the structure of the teaching model: "It was highly individually-oriented, so there was really no point in working in groups."

The fact that the discussion groups were not used turned out to be a challenge: "As the groups were not used, I frequently sat by myself with many tasks, feeling at times that I was completely stuck," one student said. The students had to solve the tasks on their own. If the tasks had been formulated as group tasks, the students believed that the organized discussion groups would have been used.

Some students prefer ordinary lectures to video lectures. With a lecturer physically present in the classroom one can ask for help during the lecture. The most

important objection to video lectures is that the students have less social contact with their fellow students. “The problem with the course is that it partly breaks up the class environment because you do not meet the class on campus. You sit at home and watch the lectures.”

Going through the tasks was the main activity during the class the students attended. The students were expected to be well-prepared for this part. Nevertheless, few students took an active part in these classes. “I think there was little activity in the lessons. Only a few raised their hands to say something, even though we had solved the tasks beforehand.” The students claimed that the class in general was far from active. Some were too nervous to say anything, whereas others were afraid of standing out by participating actively. After a while the lecturer chose to call on some students and encouraged them to present their solutions. The dialogue in the classroom happened mainly between the lecturer and the individual students who had been asked to answer, which the other participants saw as unfortunate. Concerning the lecturer’s role, the students pointed out that “his role was to elicit information from us. And then he gave us more tasks, got more students to answer.” The participants emphasized that it would have been better if the students had been organized in smaller groups. These, rather than individual students, could then have been asked to contribute. This would most likely have resulted in more activity. A smaller number of tasks would also have been an advantage. This could have led to more time for interaction. Some students even suggested that they could have benefited from more time in the classroom.

19.5 DISCUSSION

The purpose of this article has been to contribute to knowledge about how students in higher education experience and use flipped classrooms as support for their learning. We have examined the students’ experiences with a teaching model built around three central parts: video lectures, students working with sets of task, and class attendance.

19.5.1 FLEXIBILITY

The findings in the study indicate that the video lectures, students’ work with the tasks and class attendance all seem to be important for the students’ learning. Students pointed out how the teaching model has helped them with knowledge acquisition and learning. The students worked individually with the course material at their own pace and when they were most motivated. This is linked to what the stu-

dents experience as flexibility in the teaching model and might indicate that students' satisfaction with this kind of flexibility is affected by their preferred learning styles and their perception of the overall university experience (Mitchell & Forer, 2010). The flexibility may replace passive lecturing with more active student-centred learning (Sajid et al., 2016). In our case this can be illustrated, for instance, by the students taking notes and underlining core content when watching the videos. The use of video lectures provides opportunities for finding the right balance between load and burden (Sweller, 1994), and may thereby help students acquire new knowledge in a way that is linked to their individual cognitive processes. The flexibility that results from the use of videos might also be linked to the participation metaphor for learning, something that would illustrate the importance of learning being adapted to the student's nearest development zone (Vygotsky, 1978).

19.5.2 STRUCTURE

The students mentioned the importance of the built-in structure of the teaching model. The structure was also emphasized in relation to the presentations in the videos, the choice of tasks, as well as how the classes were arranged. The structure has much to do with how the lecturer brings the intrinsic load into the course material and breaks this into parts that are adapted to the students' previously acquired knowledge (Mayer, 2009). This makes it possible for the students to handle impressions and information, thus enabling them to integrate these into new mental models (Mayer, 2014a). When the students highlighted that watching the video lectures was sufficient, and that there was no need to read the curriculum literature, it was because the lecturer had removed all superfluous information, or extraneous load, when constructing the teaching model (Sweller, 2010). The structure can be one way of understanding why the students' experienced the video lectures as being more accessible than the curriculum literature, and that the videos contributed to supporting them in their learning process to a larger extent than did the curriculum literature.

In this study we have not interviewed the lecturer, so we have no empirical data referring to the preconditions and principles (Mayer & Pilegard, 2014) that form the basis for the choice of content for the video lectures. However, based on the response from the students, it may be relevant to mention The Coherence Principle (Mayer, 2014; Mayer & Pilegard, 2014), which says that the students learn best when superfluous information is removed. This is particularly true when the course material is complex. The students also considered it to be supportive that the lecturer included signals in the lectures concerning what was particularly

important in the course material, for example what they should note down or underline. This can be related to The Signalling Principle (Mayer & Pilegard, 2014). On the basis of what we have written so far, it may appear that principles for multimedia learning and the cognitive theory of learning can give us a relevant approach to understanding the central findings or what we, based on Sfärd (1998), refer to as the acquisition metaphor.

19.5.3 RELEVANCE

The students refer to relevance in different ways: the course material being adapted to the students' previous knowledge, relevance to future professional careers and relevance to the exams. The Segmenting Principle (Mayer, 2014b), which says that students learn better if the course material is split into sequences adapted to the students' prior knowledge, may function as an entry point to understanding why students experienced the content as meaningful. The students emphasized that the sets of tasks are practice-oriented and challenge their reflections. They consider this to be a highly motivating factor. The sets of tasks originated in authentic contexts. This may be linked to a socio-cultural perspective on learning focusing on knowledge being mediated when it comprises material and cultural tools. Authentic questions and cases are central to socio-cultural learning theory (Dysthe, 2013). When students highlight the importance of the tasks being earlier exam questions, it is because it makes them feel well prepared for their own exam, and may as such contribute to supporting the students' motivation before, during and after a classroom session. Remaining motivated is also underlined in the review study by Estes, Ingram and Liu (2014).

19.5.4 INTERACTION

The participant metaphor (Sfärd, 1998), representing a socio-cultural view of learning, seems to have been less prominent in the development of the teaching model. The students have mainly been working individually. Attending the class or group as a learning community seems to have been given less attention, the exception being a few students who chose to co-operate on the tasks. These were by and large third-year students, which may be explained by the fact that third-year students are more familiar with the student role than first-year students. For both groups, however, there were adjustment periods. There is reason to believe that third-year students have more experience as learners in a learning community and that they feel safer and more confident in the group.

The students claimed that they missed the learning community. They consider this community to provide strong support for their learning. The socio-cultural perspective on learning emphasizes that knowledge is constructed in interaction. For this reason, we ask whether the organization of the teaching model exploits the potential inherent in the flipped classroom. A number of students pointed out that the lecturer could have organized the classes in a way that would allow for more interaction in the group by splitting the students into smaller units. Another suggestion was giving the class tasks to be solved and presented in groups, rather than individual work. These findings are interesting in relation to the study by Foldnes (2016), where he points out that it is of great importance for students' learning that the lecturer organizes group work. Students could have used the flipped classroom as support for their learning to a larger extent if the lecturer had demanded interaction in the student group. In this way the students could have functioned as mediating tools and scaffolding for each other (Bruner, 1996). Here we refer to the study by Jensen et al. (2015), which underlines student-active learning as a decisive factor for students' learning benefits. Jensen et al. (2015) also conclude that a flipped classroom does not lead to greater learning benefits than other instruction methods based on student activity.

The study by Estes, Ingram & Liu (2014) indicates that interaction in the classroom is important. This is particularly true for interaction between lecturer and student, something that is also clearly seen in our study. There is reason to believe that the expertise and professional knowledge of the lecturer play important roles in the interaction between lecturer and students. It may seem like the lecturer, by virtue of his or her planning and preparation, may function as a mediating tool (Vygotsky, 1978), scaffolding (Bruner, 1996) the students' learning. This applies to the whole of the teaching model. It might have been beneficial if the lecturer to a greater extent committed the students to interactive learning. Interactive learning could have been achieved by expanding class time. This is also underlined by Foldnes (2017), who concludes that the availability of online videos does not eliminate the need for carefully designed in class sessions. Driscoll (2002) and Hofmann (2006) argue that flipped classroom has been implemented with the aim of increasing the efficiency of and supplementing teaching, rather than with attention to learning. This is something we can recognize. The teaching described in our study was mainly carried out by means of video lectures; interaction in the classroom was limited. With this background it is also relevant to ask whether the teaching model we have studied ensures that the intention behind the flipped classroom is realized, in the sense that flipped classrooms are supposed to provide spaces for interaction and student-active learning (Abeysekera & Dawson, 2015; Solberg & Breivik, 2016).

The students pointed out the importance of the built-in-structure. The importance of structure was emphasized in relation both to the presentation of videos and the choice of tasks, as well as the way the classes were carried out. The lecturer had to be conscious about how to choose the relevant subject material and how to present this. Another important factor to consider in the construction of this teaching model is the correlation between the content of the videos and the tasks. In our study the tasks were practice-oriented, and this turned out to be a motivating factor. In order to implement a successful flipped classroom, the lecturer has to pay attention to how to use authentic material. Flexibility seems to be a central factor in supporting the students' individual cognitive capacities and for the students' ability to work at their own pace. It is relevant to ask whether the flexibility, which is part of the teaching model, can come at the expense of the value inherent in being team workers in a learning community. Our main finding indicates that the lecturer must pay much more attention to how to organize learning activities in class and higher-order learning during class time, for instance by giving the class tasks to be solved and presented in groups as an alternative to individual work. Subject competence alone seems not to be sufficient. In addition, the lecturer must have and activate his pedagogical and didactical competence to lead a learning community.

19.6 CONCLUSION

In this study we have taken as our starting point a teaching model built on video lectures, students working with sets of tasks, and class attendance that we have referred to as “a flipped classroom.” The purpose has been to examine the students' experience with the use of flipped classrooms to support their own learning. The students emphasized primarily three qualitative characteristics of the teaching model when it comes to support for their own learning: flexibility, structure and relevance. In addition, we identified a fourth characteristic, interaction, which is used to a lesser degree as support for the students' own learning. The results of the study indicate that the students take an individual approach to their learning. They watch the videos and solve the tasks individually. This can be understood in light of the fact that the teaching model was mostly individual-oriented, with students not seeing themselves as participants in an extended learning community. If flipped classrooms in higher education are to promote learning, the lecturers have to pay more attention to active and social learning opportunities as part of the teaching model.

To answer our research questions, we chose a qualitative approach, a type of approach that originates in a blend of phenomenological and hermeneutical traditions. We have studied a specific teaching model in a specific context. The findings in our study cannot be generalized to all students or all flipped classroom experiences. To the extent that the findings can give recognition they may be of value to others. More studies are needed to see if our findings are relevant in other contexts. The starting point for our study was the students' perspectives. It is of interest to gather more knowledge about what lecturers believe will be supportive of student learning in flipped classroom.

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