

4 Experiences with Lecture Capture: How is Learning Affected?

Lise Lillebrygfeld Halse

Abstract: Many institutions have considered recording lectures, often referred to as lecture capture, as a response to the call for increased digitalization in higher education. The literature review in this chapter shows mixed results regarding the effect of lecture capture on attendance and exam results and shows only to a limited extent how this technology affects the learning situation. To build knowledge in this field, this study presents experiences from the introduction of lecture capture at a Norwegian university. The findings shed light on the contested space between the attitudes of students, and lecturers, possible consequences of the implementation of lecture capture, and how the theoretical perspective on learning leads to different conclusions.

Introduction

Recently, the digitization of teaching in higher education has seen increased attention (Olofsson et al., 2015). There are several drivers of this development: general pressure related to the use of technology, increasing student numbers without a corresponding increase in educational institutions' resources, part-time students, and competition between institutions (Cilesiz, 2015; Freed et al., 2014; Kwok-Wing, 2011). These drivers put increased pressure on institutions to modernize and implement new technologies. Moreover, during the Coronavirus pandemic, schools and universities in many countries closed, leading students into home-schooling situations (Tam & El-Azar, 2020). This has accelerated the use of digital technologies in education, which some predict will change how students are educated in the future.

Digital learning is about the use of digital technology in education, where the purpose is to support the students' learning process. There are various ways that technologies may be applied in educational settings (Kwok-Wing, 2011), including the use of digital presentation technology, digital web-based learning platforms, webpages, smartphones, videos, and podcasts. However, the focus of the present study is on lecture capture, where lectures are recorded in their entirety and then posted online afterward (Edwards & Clinton, 2018). This technology appears to have many advantages, including flexibility, the opportunity for students to review and repeat lecture content, and the ability to manage increasing class sizes without a significant increase in physical infrastructure (Johnston et al., 2013). While there are several advantages associated with lecture capture, there are some concerns regarding the effect of lecture capture on student's learning. In this chapter, this issue is addressed by reviewing the literature on lecture capture technology and presenting experiences from a Norwegian institution in higher education where lecture capture was introduced on a large

scale in 2013. Before presenting this case study, theoretical perspectives on learning and findings from previous studies are presented.

Literature Review

Theoretical Perspectives on Learning

An important distinction in the theoretical understanding of learning lies within the cognitive perspective and the sociocultural perspective on learning. From the cognitive perspective, learning is analyzed by studying the development of individual actors through their thoughts and understanding (Säljö, 2001). From the sociocultural perspective, the emphasis is on the learning that takes place in a context where actors participate and interact in a community, and where learning is viewed as resulting from a dynamic interaction between the individual and the culture (society) the individual is part of. Thus, cognitive and sociocultural perspectives represent fundamentally different perspectives on learning. The cognitive perspective views learning as mainly an individual process, while the sociocultural perspective focuses on the social and contextual process.

Wenger (2018) claimed that most educational institutions consider their methods of learning an individual process with a beginning and an end, preferably separated from other activities. According to Wenger, learning that involves membership in the communities of practice within the classrooms and other student arenas, official or disorganized, are the most transformative. In this perspective, an important task for educational institutions is to build interconnected professional communities with students, which are a part of their daily lives. A learning environment where students are present, engaged, and involved is fundamental to achieving this (Vygotsky, 1978).

Lecture Capture

O'Callaghan, Neumann, Jones, and Creed (2017) studied the use of recorded lectures in higher education using the concept of web-based teaching technologies, which includes lecture recordings that have only audio, video, or other media such as a PowerPoint presentation or images. These technologies also cover publishing files that provide video presentations with audio, where students can see and hear the lecturer and other visual information (lecture notes). The files can be distributed in digital format via the internet or by downloading to a computer or handheld device such as a mobile phone. Recording lectures can be done through a video recording of the lecturer, blackboard/whiteboard, or PowerPoint in the lecture situation. Another approach is for the lecturer to record the lecture without students present, either in a studio or in the lecturer's office. Variations include recording the lecturer without illustrations or text, the lecturer embedding text in the recording, or a pure PowerPoint presentation where the voice of the lecturer is placed in the background.

This chapter focuses on recording lectures in an auditorium or lecture room with a lecturer and students, and with subsequent online publishing. Typically, two or three 45-minute lectures are recorded and published online. The term lecture capture is used below to describe this (Edwards & Clinton, 2018).

The Attitudes of Students and Lecturers

Many studies indicate that students are generally positive about having access to lecture capture and want more of it (Al-Nashash & Gunn, 2013; Bassili & Joordens, 2008; Copley, 2007; Danielson et al., 2014; Heilesen, 2010; Morris et al., 2019; Simcock et al., 2017). This positive attitude can be found irrespective of age, gender, enrolment mode, or attendance pattern (Al-Nashash & Gunn, 2013). An important argument from the students' perspective is that access to lecture capture makes it possible to view the lectures again; it can also serve as a substitute when students are unable to attend lectures, which gives students increased flexibility (Franklin et al., 2011). It has also been reported that students use lecture capture for revision and to review difficult concepts (Davis et al., 2009), specifically before exams (von Konsky et al., 2009). The positive attitudes toward technology improve student satisfaction and affect their course choice (Watt et al., 2013).

Interestingly, little research has been conducted on lecturers' views of lecture capture (Al-Nashash & Gunn, 2013). Contrary to the students' positive attitudes, Maynor, Barrickman, Stamatakis, and Elliott (2013) found that academic staff had several concerns about the concept of it, including concerns about reduced attendance at lectures, reduced academic socialization among students, poorer results from students who are already struggling, and an overall deterioration in results. Only three percent of professionals indicated they had no concerns about the use of lecture capture. Morris et al. (2019) and Dona, Gregory, and Pechenkina (2017) found that lecturers were uncertain about the value of lecture capture and were particularly concerned about reduced attendance at lectures.

Lecture Attendance

Lecture capture might reduce lecture attendance, given that some students choose to view the recordings instead of attending the lecture. There may be many reasons for this. The students may have conflicting time schedules or other valid reasons for absence. Students may also think that watching lectures online later will be the same as attending, and therefore choose to view the lecture when it is most suitable for them. As Edwards and Clinton (2018) pointed out, "lecture capture availability removes the perceived penalty for missing live lectures as there is a 'second chance' to experience it," and may therefore give students the belief that they can catch up later. While this may seem like a probable consequence of the introduction of lecture capture, the findings from previous studies are mixed.

Paulo Kushnir, Berry, Wyman, and Salajan (2011), Davis et al. (2009), and Lonn and Teasley (2009) all found that students do not drop lectures as a result of recordings of the lectures being made available. Similarly, Walls et al. (2010) found that 89 percent of students reported that they were less likely to drop a lecture when they had a video or audio recordings of the lecture were available.

In contrast, other studies have found that recording and publishing lectures can reduce attendance (Bos et al., 2016; Brotherton & Abowd, 2004; Edwards & Clinton, 2018; Harley et al., 2003; Holbrook & Dupont, 2009; Morris et al., 2019; Traphagan et al., 2010). For example, Gorissen, van Bruggen, and Jochems (2012) found that students use video recordings of the lectures as a substitute for attending lectures. In Franklin et al.'s (2011) study, 14.3 percent of the students reported that the availability of lecture capture would lead to a reduction in attendance.

Edwards and Clinton (2018) based their study on a matched cohort ($N = 161$) before and after the introduction of lecture recordings; they found that attendance dropped significantly after lecture recordings were made available. They concluded that viewing lecture capture does not compensate for the effect of the low attendance on goal achievement. Studies also indicate that the quality of the lecture and the students' competence may have something to do with the connection between lecture capture and attendance and the way video recording is used. Here, however, there are different and contradictory findings (O'Callaghan et al., 2017).

In the Norwegian context, several surveys have shown that students do not substitute lectures with lecture captures (Fosslund, 2015). A Norwegian survey called "Digital tilstand 2011" identified the use of digital tools and media by Norwegian universities and colleges. The survey found that one in five teachers believes that lecture capture leads to lower attendance, but only ten percent of the students reported that access to lecture captures led to reduced attendance (Ørnes, Wilhelmsen, Breivik, & Solstad, 2011). Ørnes et al. (2011) also pointed out that the material in the survey appears to be characterized by a limited amount of experience of accessing video lectures, as there was a relatively large proportion of "do not know" and neutral answers. Another study at the University of Oslo showed that 77 percent of students claimed to have never dropped lectures even though they had them available as podcasts (Fosslund, 2015).

The Effect of Video Lecture

Previous studies have shown varying and contradictory findings regarding the effect of lecture capture on grades (O'Callaghan et al., 2017). In several studies, students report that video lectures helped them increase their learning and receive higher marks (Bassili & Joordens, 2008; Chester et al., 2011; Danielson et al., 2014; Gosper et al., 2008; Paulo Kushnir et al., 2011). Bos et al. (2016) found that students who used recorded lectures to supplement lecture attendance to build their basic knowledge base had better results in assessments. However, when assessing more advanced learning (i.e., higher-order thinking skills), there was no significant difference among students in terms of using recordings or attending lectures.

Franklin et al. (2011) found that although students had the impression that video lectures led to better grades, it actually had no such effect. Several other studies have been unable to find a connection between the use of lecture capture and an improvement in grades (Bassili & Joordens, 2008; Leadbeater et al., 2012). However, Le et al. (2010) found that students who supplemented lectures with lecture captures, and those who used playback functions (such as pause and search), performed poorly on exams. The authors interpret this result as meaning that students who use playback features have a superficial approach to learning.

Paulo Kushnir et al. (2011) found that students perceived that podcasts helped them learn, while in the survey, the researchers found that this did not have such an effect (comparing those who had used podcasts with those who had not). This indicates that students' self-reported experiences may not always match what is measured in terms of grades. For instance, Groen, Quigley, and Herry (2016) investigated the relationship between students' attitudes to lecture capture, self-report of attendance, and exam grades. They found that students with lower grades used lecture capture more than those with higher grades. Simcock et al. (2017) found that the grades were positively correlated with the number of lectures they attended and negatively correlated with the number of lecture captures the students had seen. Similarly, Owston, Lupshenyuk, and Wideman (2011) and Johnston et al. (2013) found a negative correlation between the use of lecture capture and performance.

In a review article, O'Callaghan et al. (2017) claimed that even though existing research suggests a number of benefits of lecture capture, there is not yet clear support from empirical research. They claimed that since students perceive lecture capture positively and no clear negative effects of lecture capture have been found, the use of this technology is overall positive. However, this view is not supported by Edwards and Clinton (2018); they argue that the net effect of video lecture is generally negative and that it is a pitfall to rely too heavily on lecture capture as a substitute for lecture attendance.

Comments to Previous Research

While previous research agrees that students are overall positive about having access to lecture capture, there are contradictory findings regarding the effect of lecture capture on attendance and grades. An important reason for this may be the different methodological approaches to measuring the effect of lecture capture. Many of these studies base their conclusions on surveys where students report their attitudes toward lecture capture. The findings from previous studies generally show that students want access to lecture recordings. When the surveys also ask whether lecture capture affects their physical attendance in lectures, there may be a reason to believe that the answers provided by the students are influenced by a desire to focus on the positive effects on lecture capture and downplay the negative effects. This may also explain why students and lecturers have different views on this, and that students' self-report of attendance must be viewed from a critical point of view (Chester et al., 2011; Karnad, 2013). Sim-

ilarly, the same bias may apply to students' reporting that lecture capture strengthens their chances of getting good grades, for which there are no clear findings when real grades are measured. Consequently, to draw conclusions regarding attendance and exam results, the research design must account for the bias of self-reporting.

Although the existing research is extensive, the mixed results indicate a need for more knowledge regarding how lecture capture affects teaching and learning. Furthermore, previous studies are mainly based on quantitative studies with surveys that measure attitudes, attendance, and grades, which may indicate a cognitive perspective. Consequently, there is a need for more research that applies different theoretical and methodological approaches to gain deeper insights into this topic.

Method

To gain knowledge about how the introduction of lecture capture technology affects learning, the authors took a closer look at a specific case where experiences of lecture capture were made over a number of years. The case in study is Molde University College (MUC), which is a small university in Norway. Following a wave of mergers in Norwegian higher education, this institution is one of very few small university colleges left. MUC has programs at bachelor's, master's, and doctoral levels within logistics, health care, economics, social science, administration, sport management, and IT. MUC has approximately 2500 students and 200 employees. The digitalization of education has been viewed as an important measure to compete in a market with many large institutions. The case study uses mixed methods based on primary and secondary data.

The secondary data encompasses previous studies and surveys carried out among students and employees. These studies include two surveys conducted in 2016 (unpublished note, Gutterberg & Straume, 2016), as well as two student assignments at the bachelor's and master's levels (Vågen, 2015; Midtbø, 2018). The studies address attitude toward lecture capture among students and staff by using both quantitative and qualitative approaches. The student survey covered two bachelor courses in economics and administration and had 198 respondents. The survey among lecturers covered 61 lecturers.

The primary data were collected using a qualitative methodology, and consist of a document study, conversation with lecturers, students and staff, lecture captures in four courses, and a video recording of a meeting with employees and some students where the introduction of lecture capture at MUC was discussed (Waagbø, 2016a). The document study consists of internal documents and newspaper articles concerning lecture capture at the institution. The documents, interviews, and recordings of meetings were investigated to find the reasons for implementing lecture capture technology at this institution, how it was implemented, and the attitudes of management, teachers, and students.

Lecture capture in four courses, selected from the bachelor's and master's programs in logistics, was investigated. The purpose of studying these lectures was to investigate what students who watch lectures online observe and to investigate how recording lectures affected the learning situation of those present in the lecture room. This research design does not allow for any causality to be established between the use of video and educational methods (i.e., the lecturers may have acted in the same way without video recording). The aim, however, is to investigate the possibilities and limitations that lecture capture provides given the way MUC has chosen to implement the technology. To do this, the authors first examined the teaching context, or the physical environment (i.e., layout) and the use of physical aids. To examine the social learning dimension, the authors emphasized studying the communication between lecturers and students who were present in the lectures. The authors primarily studied speech but also examined eye contact, movement, and the extent of each aspect. Finally, while watching the videos, the authors noted how engaged the students were in class.

Findings

The Introduction of Lecture Capture at MUC

MUC's open course platform, HiMoldeX, was established in January 2013 and was inspired by massive open online courses (MOOCs). The platform was primarily designed to post lecture recordings online to increase access to lectures (Skuseth, 2013). This was initially an initiative from an entrepreneurial teacher at the university. He started recording his lectures and recruited other lecturers to have as many courses as possible available on the platform. However, not all teachers accepted this invitation for various (individual) reasons. The implementation took place without any discussion among the lecturers or prior reflections on how this could potentially change the premises for learning, knowledge, and teaching.

Later, HiMoldeX was embraced by management and seen as an important strategic measure to meet national expectations in the higher education sector regarding increased digitalization (Kristoffersen, 2018a), and the board of the college adopted a goal of increasing the proportion of courses recorded on video (Waagbø, 2015b). This can also be seen in the light of a strategy to increase the number of students at MUC (Waagbø, 2018) in the wake of the development toward larger units in higher education. According to the college's management, the use of lecture recordings represents a very good opportunity for a small institution to increase the number of students without any expense to learning (Waagbø, 2016c).

HiMoldeX established its own website, which had a maximum of approximately 100 courses available. However, for the 2018–19 academic year, there were 22 active courses for autumn of 2018 and 19 for the spring of 2019 (a total of 41). In the first years of HiMoldeX, most courses were open to everyone, but today most courses are only available to students who registered for the courses. One of the reasons for this

is the new privacy regulations (GDPR). Most of the videos posted are recordings of campus-based lectures where viewers can see the lecturer in the lecture room, while presentations from programs such as PowerPoint are displayed in a separate window. All lecture recordings are automatically posted on HiMoldeX a few hours after the lecture has ended. MUC's IT department set up a large screen that shows ongoing recordings in all lecture rooms. Here, employees in the IT department can detect any technical issues and alert the lecturer if there are any problems. However, there is no continuous monitoring, which means that much of the responsibility rests on the lecturers. The lecture captures were primarily intended to be offered to students who do not have the opportunity to physically attend lectures or as an aid in self-study.

Student Attitudes

The student survey found that 84 percent of the students believed their learning outcomes were greatly improved by watching lecture captures published on HiMoldeX (Waagbø, 2016b). Only one percent strongly agreed that there was less academic benefit from lectures recorded on video. Seventy-nine percent agreed with the statement, "I wish lecture capture was offered in all courses at HiMolde." The wish was even sometimes expressed as a request from the students (Waagbø, 2016b). This became apparent in a staff meeting where some students were present; one student claimed: "That is what the discussion should be about: Not how to improve learning, but whether we should use more video, and the students want more videos. The arguments against video are, in my opinion, completely irrelevant." This requirement from the students created pressure toward the institution and the lecturers. This was an important reason for the board's decision to increase lecture captures (Waagbø, 2015b).

The interviews conducted in a master's thesis (Midtbø, 2018) supported the positive attitudes toward lecture capture found. The students interviewed believed that recording and publishing the lectures (video) was positive for their learning. In particular, the students highlighted the opportunity to repeat the curriculum, the possibility to adjust the speed of the lecture, and that they could follow the teaching in the way that best suited them, regardless of time and place.

Lecturer Attitudes

Based on the lecturers' survey and interviews, there seemed to be two camps, one of which was positive/indifferent about the extensive use of lecture capture and the other that was skeptical. The positive lecturers considered it an advantage that students had the ability to watch the lectures when they were not able to be present in class. Moreover, these lecturers acknowledged the value of using the recordings for repetition and preparing for exams. The reluctant lecturers were mainly concerned about reduced attendance and that this technology led to less activity among the students who were present in class. In general, the lecturers seemed uncertain about the learning effect of lecture capture. Many lecturers were afraid that student contact would be reduced

if lecture capture was used as an alternative to lectures (Midtbø, 2018). In the lecturer survey, 95 percent of the lecturers thought that students watching lectures online could not replace the experience of being physically present in class (Gutterberg & Straume, 2016). Half of those using lecture captures expressed that it had negatively affected student participation (called the HiMoldeX effect). All teachers (both those who use lecture capture and those who do not) were uncertain about the educational benefits that the technology provided. Nineteen of those who did not use lecture capture in their teaching believed that their courses did not fit in the lecture capture format.

In the above-mentioned staff meeting (2016), the founder of HiMoldeX did not see many drawbacks with lecture capture, except for the fact that the students using the recordings were not able to ask questions, which he argued was accommodated for by using Facebook groups and other communication channels. In the meeting, one of the professors expressed concern:

I wonder that one discusses a specific method used in teaching without talking about learning and learning goals, and the views and thoughts one has about how students learn. It is completely absurd to only come up with a teaching method.

However, the basic attitude at that time was positive, and considered the technology an opportunity to attract new students: “There are two markets: On-campus and off-campus students. I believe that one does not come at the expense of the other”. In two later chronicles, the rector emphasized the need for a digital strategy to create more competent students and teachers (Kristoffersen, 2018b) and claimed that the effect of lecture capture was more positive than negative (Kristoffersen, 2018a).

In the last couple of years, the attitude toward lecture capture from the teachers’ side has become increasingly negative, especially after a large Norwegian university decided to, by default, not use video lectures. This created an informal discussion where several complained about reduced attendance and student engagement. Even the initiator of lecture capture had to admit that there were challenges associated with the technology, especially when it came to reduced attendance.

Attendance

In the student survey, 18 percent of students in one course reported that they did not attend lectures and only watched lecture captures later. In the same course, however, 79 percent disagreed with the claim that they had less contact with other students when using lecture captures. In the bachelor’s thesis, four lecturers and five students were interviewed, and students were observed in lectures in two different subjects over a period of three weeks (Vågen, 2015). The findings in the study indicated a drop in lecture attendance, which can be illustrated with the quote: “HiMoldeX has made it easier for students to sit at home” (Vågen, 2015, p. 18). Students further stated that

the disadvantage of HiMoldeX was that “one does not get the same contact with the lecturer as if one had been in class” (Vågen, 2015, p. 20).

These findings were confirmed later by a master’s thesis at MUC (Midtbø, 2018). All respondents expressed that attendance in lectures with lecture capture was lower than in courses without video recordings, “After all, it’s the first question that comes up in the first class, ‘Is this recorded?’ Many students just get up and leave after the first hour, because they want to watch the recording” (Midtbø, 2018, p. 44). The same study interviewed five lecturers, all of whom used lecture capture in their teaching. Three had used lecture capture, and two of them believed that this has led to reduced attendance. One lecturer suggested a reduction in attendance from 50 to 30 percent. Some lecturers reported that reduced attendance affected their motivation.

What is Captured?

To address the effect lecture capture has on learning, the authors investigated how the technology is used. What is it that the students behind the computer observe, and how does the recording affect the situation in the auditorium or lecture room? To investigate this, three (out of 13) courses at HiMoldeX that were taught at the bachelor’s and master’s programs in logistics in 2018 were selected. The courses had lecturers with varying experiences (e.g., professors and Ph.D. students). All courses used Canvas as a learning platform, where information, lecture notes, and other resources were published. In total, 18 hours were observed from the lecture captures (4.5 hours per course).

Three of the courses were taught in relatively small rooms with similar size and layout, while one course took place in a large auditorium with room for up to 152 students. In all lecture rooms, the cameras had a limited view angle, which meant that students were out of the camera’s field of view, and the lecturer disappeared out of the picture if they moved too far away from the blackboard. This was especially the case in the large auditorium. The lecturer had very limited space to move as the camera was placed very close to the lecturer. The viewer of the recording could see the lecturer, the blackboard, and a canvas for a PowerPoint presentation; the presentation was shown in a window on the computer screen. Viewers could switch between having the PowerPoint presentation and the video recording as a large or small screen. In one of the courses, it was difficult to see one part of the blackboard.

The lecturers had different styles when it came to having contact with the students, but it was apparent that recording lectures created some limitations regarding student interaction. One limitation was physical movement, where the camera’s field of view limited the space in which the lecturer could move. One of the lecturers seemed not to care so much about this, with the result that he quite often disappeared out of the camera’s field of view. Another important limitation concerned communication between the lecturer and the students. Dialogue with the students worked poorly for the viewers of the recordings, as the lecturers needed to repeat the question from the student as the lecturer was the only person who had a microphone. As soon as

there was dialogue, it was difficult for the viewer to understand what was going on. One respondent (IT department) said that the teachers were told to stay within the view angle of the camera and to repeat questions from students before answering. It is worth mentioning that two of the lecturers had no communication nor eye contact with students in these lectures.

How is Learning Affected?

In the studies presented in the theory chapter, learning was mainly operationalized as an improvement in grades (perceived and actual) as a result of the introduction of lecture capture. In this study, no controlled experiments have been conducted on the change in grades before and after the introduction of lecture capture. However, in the student survey, 75 percent of respondents believed that the availability of lecture capture had a positive effect on their grades (42 percent believed it had a very positive effect). However, there is not necessarily a relationship between student perceptions and their actual grades.

Learning is a complex phenomenon that can be studied from different theoretical perspectives. The two main perspectives presented (i.e., the cognitive and the socio-cultural perspectives of learning) need to be introduced into the analysis to understand the implications of the findings in this case study.

The findings from previous studies and from this case study show that students are generally very positive about having access to lecture captures. The arguments made by the students seem to be associated with a cognitive perspective on learning, where individual self-studies are considered the most important for learning. The emphasis was on watching the lectures whenever, wherever, and however it suits students; using the recordings for repetition and exam preparation illustrates this perspective. Here, learning is mainly disconnected from the context and from participation in a community. Yet, students' attitudes could have a positive effect on learning, which should not be undervalued. Institutions in higher education are competing for students, which means that these positive attitudes also become an argument for the strategic decisions made by these institutions for introducing this technology, which was also illustrated in this case study.

The case study indicates that lecture capture leads to increased absences. From a cognitive perspective on learning, this may not represent a problem as long as the lecture capture is of high quality and gives a good representation of the teaching in the auditorium. However, as the analyzed recordings show, this was not the case, especially when the lecturer moved outside the camera's screen and was talking to the students present in the classroom (which the viewer of the recording could not follow). In light of the rather low quality of the recordings, it is a paradox that the students still want more of these.

From a sociocultural perspective on learning, the reduced attendance represents a problem, even if measures are taken to improve the quality. Primarily for the students who are not present in the class, becoming a part of a community of practice, or have

the opportunity to share knowledge with fellow students and the lecturer. However, even for students who are present in the lecture room, the reduction in attendance has implications for the conditions for sociocultural learning. This is illustrated by a quote from one of the lecturers: “In my courses, lecture capture has resulted in the disappearance of social learning.” Likewise, the reaction from one of the lecturers at the staff meeting illustrates a different understanding of learning from that of the students and management. This lecturer wanted to discuss learning and learning goals, while the students in this meeting did not find this relevant and were mainly interested in having more lecture capture. The students claimed that they were “experts on their own learning,” indicating an individual view on learning.

The survey among the lecturers also reflected challenges associated with social learning, where half of the lecturers believed that lecture capture affected student participation. There may be several reasons for this belief. One is that the students are afraid of being recorded, and another is that students and the lecturer change their behavior when the lectures are recorded. The analysis of the lecture recordings may indicate that lecture capture may affect the contact between the lecturer and the students since the system limits physical movement as well as discussions with the students.

Consequently, the reduced attendance may lead to a different lecture dynamic for those left in the lecture room and reduced opportunity for interaction. Findings from the interview also indicate that reduced attendance affects the lecturer’s self-esteem and motivation, which may further impair the quality of teaching. Hence, and from a social perspective on learning, lecture capture may also have a negative impact on the learning conditions for the students present in the lecture room.

Conclusion

The aim of this study was to increase knowledge about how the introduction and use of lecture capture affect student learning. The literature shows that students welcome this, while lecturers are more reluctant. Furthermore, previous research shows mixed results regarding attendance and learning outcomes when operationalized as students’ perceptions of learning outcomes or exam results. However, previous studies have primarily been surveys measuring students’ perceptions and when and how they use this technology in practice. Less emphasis has been on how lecture capture affects the learning situation and the sociocultural aspects of learning. The findings from the MUC case shed light on the contested space between the attitudes of students and lecturers and the possible consequences of implementing lecture capture.

Students’ positive attitudes toward lecture capture are dominated by arguments such as having the opportunity to see the lecture when and where it suits them and that they can rehearse and play at their own pace. This indicates a primarily cognitive perspective on learning. The arguments from management are rooted in the same perspective, combined with economic and market logic.

The findings of the present study show that introducing video lectures can lead to reduced attendance and that the video format can work toward active learning, even for those who attended lectures. This means that lecture capture conflicts with a socio-cultural and situational perspective on learning, where the development of learning communities for learning is key (Lave & Wenger, 1991). Instead, an individual-based perspective seems to be the basis for introducing video lectures, where the student is regarded as an individual consumer that the institutions must adapt to in order to be competitive in an increasingly market-based sector. An alternative approach could be to focus on the societal goals of education and then shape the curriculum, student activities, and facilitation of students' social lives based on that. Technology will undoubtedly play a key role in achieving these goals, but more knowledge is needed on how to combine digital technologies with social learning.

Since this case study was conducted, MUC, like other institutions around the world, has experienced dramatic changes due to the COVID-19 outbreak in 2020. The university in this study was closed, and all teaching had to be done using digital solutions like lecture capture or digital video conference programs like Zoom, Adobe Connect, or Teams. While it is too early to conclude how this affected students' learning, early findings from other institutions show that students want to return to learning with a physical presence. In a study carried out at Agder University in Norway, the students expressed that the conditions for learning have been somewhat worse during this period (Christiansen & Eskedal, 2020). This concerns the opportunities to make relevant experiences and seeing the structure and coherence of the studies. Furthermore, they experienced fewer opportunities to get the attention of lecturers, participation, professional interaction, and social contact. This illustrates the value of creating a social arena of learning, supporting the findings in this study.

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