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FlexiDig – Flexible Digital Classroom

Master students' experiences with simple and flexible blended education

ABSTRACT

This article presents an ongoing research project regarding blended education; Flexible Digital Classroom (FlexiDig), and a survey on full-time and part-time students' experiences with blended education in a master's degree programme in Art and Design Education. To optimise educational resources, the lectures for the full-time students were recorded, including the dialogue between the students and the lecturers, and made digitally available for all students. Generally, both the part- and full-time students participating in the questionnaire expressed their experience as "satisfactory" for the availability of the recorded lectures. Moreover, the capture of dialogues in the recording was found to be extremely useful for better understanding and learning, according to the students. This idea forms a basis to develop FlexiDig as simple as possible with a transfer value to other educational situations based on the approach of Student-Centered Learning and Teaching in Higher Education (SCLT).

Keywords:

lecture recording, blended education, student-centred learning and teaching (SCLT), part-time master's degree programme, Art and design education.

INTRODUCTION

For many years, teachers in design, art and crafts in schools in Norway have asked for a part-time master's programme centrally located in Oslo at the Department of Art, Design, and Drama¹ at Oslo Metropolitan University (OsloMet). The sister institution within specialised teacher education in design, art, and crafts in Norway, at the University of South-Eastern Norway (USN) – situated more rural at the Notodden campus – has offered a part-time master programme for many years (Universitetet i Sørøst-Norge, 2020). However, the digital lectures at the part-time programme at USN are live streamed and not recorded, which means that the part-time students must watch the lectures at fixed times and

therefore leaving no flexibility for everyday work. In contrast, the academicians at Art and Design Education at OsloMet wanted to develop a different and more flexible part-time programme, where the students could watch the lectures whenever suitable for them and offer gatherings at the campus located central in Oslo city, as required.

The two-year master's programme for full-time students at OsloMet is equivalent to four years of 50% of the workload for the part-time students. The students at the full-time programme are satisfied with the way the programme had been organised and taught, and the exam results have been excellent. The programme developers wanted to maintain these positive results with the part-time master's programme. The primary idea behind the FlexiDig project is to make the adjustments to the part-time programme as simple as possible so that it requires as little extra effort as possible compared with ordinary teaching in the classroom at campus with the presence of the students, while still maintaining the high-quality of the full-time programme.

The challenge was to develop a flexible part-time programme as similar as possible to the full-time programme, suitable for teachers working full-time in schools. How could the part-time students get access to the same lectures as the full-time students? Reuse of lectures appeared to be the best solution, so the team decided to record the lectures. However, one thing about the programme that the students appreciated was the open dialogue between lecturers and students. The question was how to include the dialogues in the recordings? The technical staff at OsloMet recommended equipping the classrooms with throwable microphones that can be exchanged between the students because fixed microphones hanging from the ceiling are quite expensive. Additionally, the poor financial situation of the department was a serious issue when deciding to start the part-time programme. For the above reasons, the challenge was to develop a part-time programme reusing the full-time programme as much as possible.

Educational institutions often encounter a demand to make the lectures available as recorded audio-visual material, especially for part-time students. In other cases, the demand may come from the lecturers to make the part-time programme possible. To achieve these requirements while engaging a diverse set of students, both full-time and part-time, and ensuring the fulfilment of the learning outcomes is challenging. The present work is based on a student-centred learning (SCL) approach. Note that the SCL is a constructivist approach (Hannafin & Land, 1997) in which the students generally are encouraged to use active techniques, and the teachers play a role of 'facilitator' to engage the students as active participants connecting their prior knowledge and the new knowledge (Bada, 2015). In Bada (2015), it is also mentioned that the teachers are responsible for guiding the students "to create and maintain a collaborative problem-solving environment" (p. 69). Lee and Hannafin (2016) proposed an SCL design framework to enhance student engagement with the principles as *Own it, Learn it, and Share it (OLSit)*. Hoidn and Klemenčič (2020) added *teaching* to SCL towards *student-centred learning and teaching (SCLT)*. In the *Conclusion* chapter in their book entitled *The Routledge International Handbook of Student-Centered Learning and Teaching in Higher Education (SCLT)*, Klemenčič and Hoidn (2020) developed the student-centered ecosystems (SCEs) framework, which is "... culturally sensitive, flexible and interactive systems of SCLT in higher education" (p. 627). Klemenčič and Hoidn (2020):

...define SCLT as an umbrella term of a variety of pedagogical concepts, approaches and techniques wherein students and their learning are placed at the heart of the educational process with the aim to foster deeper learning processes and outcomes for students to become self-directed, lifelong learners. (p. 3)

This is consistent with the master's field of study in Art and Design Education at OsloMet. Therefore, before we present and discuss the students' response to the questionnaire, we first present the masters programme in focus.

Master's Programme in Visual and Performing Arts at OsloMet

The Master's degree program *Visual and Performing Arts*² at OsloMet consists of four different fields of study, and *Art and Design Education*³ is the focus in the present work (Oslo Metropolitan University,

2020a). The educational principles at the current master's programme are consistent with the work of Klemenčič and Hoidn (2020), in which they state, "...making disciplinary thinking visible, modeling disciplinary practices and designing scaffolding depending on whether new knowledge is to be transmitted to the students, developed in dialogue with the students or constructed independently by the students" (p. 630). The master's programme description on the students' knowledge, skills, and competence learning outcomes after completing education (Oslo Metropolitan University, 2020a), is also consistent with Klemenčič and Hoidn (2020) "...focus on what the student will know, understand, and be able to do on completion of the learning process rather than on what course content the instructor teaches" (p. 630). A crucial premise in this master's program is that the master's students choose the theme for their master's thesis based on the programme description of their field of study and personal preferences within the field that the student wants to focus on. Throughout the study, students are encouraged to relate the teaching, lectures, assignments, seminars, and discussions in all courses to their upcoming master's project.

The assessment for most of the courses is built around an assignment where the students should relate their up-coming master's project to the topics of the course. First, the students submit an essay as a course requirement discussed in a research and development (R&D) seminar. All the students access each other's essays in the learning management system (LMS) known as Canvas. In the R&D seminar, each essay is presented shortly by the current student, then another student and a lecturer are assigned as opponents on that essay. A third student is appointed to write the minutes from the discussion and afterwards hand it over to the student who has presented the essay. This allows the presenting student to focus on the work and the discussion instead of making notes. All the students switch these roles during the R&D seminars, which often last for several days to cover all the students. The students work several more weeks to develop their idea according to the comments from the lecturers and peer students and submit their essays as an exam for the course. The purpose of this is to help each student to develop their essay for the exam submission. In this process, the students learn from peers and lecturers and develop their skills. All the exam assignments for the different courses are based on the students' individual choice of themes for their coming master's project, which will develop and change over time during the first 60 credits in the first year for the full-time students. This means that exams on all courses build-up to the coming master's project in an SCLT approach. The part-time students use more time (twice) but essentially follow the same process as the full-time students.

Part-time master's in Art and Design Education field of study

This part-time programme is organised as blended learning (See e.g., Bull, 2016; Hrastinski, 2019; Rasheed et al., 2020) based on a blend of recorded lectures and two-day seminars at campus approximately once a month. In a way, one can regard this as a flipped classroom approach because the part-time students watch the recorded lectures before they attend the two-day seminars at the campus for assignments and discussions. The recordings of lectures have followed a plan for the part-time programme, where the part-time students in their first year of study follow every other course of the full-time students, and the remaining courses are followed in their second year of study.

In this master's programme, SCLT is crucial, including the *dialogue* between the lecturers and the students during the lectures. This is the primary reason why the classrooms were equipped with CatchBox microphones (Fig. 1b). The students can throw and catch microphones (see Fig. 2) to record dialogues, consisting of the students' questions or comments, in dialogue with the lecturers (Fig. 1a, 3). Only the sound and the screen were recorded; neither the lecturers nor the full-time students were filmed. An crucial reason for this decision was the experiences several of the members of the masters team had with filming lectures live in the middle of the 1990s. The project was for further education for upper secondary teachers in Art and Design all over Norway for large curriculum reform (Reform 94). In this curricula reform, different crafts, like hairdressers, gained teaching competence in the subject of drawing, shape, and colour (Nielsen, 2011) but needed further education to achieve teaching competence in this subject. Because the lecturers were recorded live, they needed a professional TV-studio with much expensive equipment, and the lecturers performing were powdered. Therefore, in the current project, the desire is to make recording what is ordinarily going on in the classrooms as simple

as possible. According to previous evaluations by students, both the previous students and the lectures were mainly happy with the SCLT and wanted to keep this when recording lectures for the sake of the part-time version of the programme.



FIGURE 1. a Microphone for lecturer b CatchBox microphone for students c Panel for TechSmith.



FIGURE 2. Students throwing CatchBox microphone to each other for dialog with lecturer and each other.

All students gained digital access via Canvas of the recordings of lectures completed with the full-time students. The recordings were only of the sound of the lecturer, including the dialogue with the students and the PowerPoint presentation or any other teaching materials displayed on the screen by the software *TechSmith Relay* (2020) (Fig. 1c). The lecturers carried a headset microphone (Fig. 3a) during the lectures. A student assistant was employed to manage the recordings to minimise the disadvantages of the recordings for the lecturers. The recordings were automatically sent to the project leader or the lecturer through the software and made available for the students via Canvas. In this project, the above-mentioned recording scheme was regarded as of great importance to individuals listening to the recordings. The part-time students could listen to the lectures flexibly when appropriate for them concerning their working situation because most of them were in full-time employment as teachers in different kinds of education from primary school to adult education.



FIGURE 3. Professor Liv Merete Nielsen lecturing with microphone.

In addition to access to the recorded lectures, the part-time students attended gatherings on campus with seminars and discussions on a full Friday and Saturday approximately once a month, led by the lectures. On these Fridays, the part-time students usually participated together with the full-time students at the lectures and continued with seminars and discussions afterwards. On these seminars, the part-time students mainly worked on the same SCLT activities as the full-time students did at the campus, including peer-reviewing, discussions, and assignments in-between the lectures. The trajectory of formal evaluation typically follows the process of the full-time students by first giving the assignment as a course requirement that all the students hand in and share in Canvas, discussing all the essays in R&D seminars, and submitting them as an exam several weeks later, as described for the full-time students.

MATERIALS AND METHODS

The research question in this article is *How part-time and full-time students experienced the recordings of the lectures in this master's programme?* To address this, we developed a questionnaire and surveyed each of the two groups of students. Feedback with questionnaires is quintessential for augmentation and overall improvement of teaching-learning mechanisms. In this regard, a revised simple study process questionnaire called the two-factor version of the Study Process Questionnaire (R-SPQ-2F) is reported by Biggs et al. (2001) for the evaluation of teaching for teachers and the learning approaches of the students. In this study, we formulated a simple set of questions in such a way so that the outcome should address the primary research question and gain knowledge and experience regarding the implementation of the methodology.

The present study was conducted during the spring of 2020 on the master's programme in Art and Design Education at the Department of Art, Design, and Drama at the Faculty of Technology, Art, and Design at OsloMet. In the survey, the part-time students of the cohort year 2018-2022 were asked to answer a questionnaire alongside the full-time students of the cohort year 2018-2020 regarding their experiences of the recorded lectures for their common first year of the master. In this work, we will focus on the students' experiences of recording the dialog between the lectures and the students in the lectures as a kind of active learning and collaborative learning to contribute to SCLT theories. Twelve full-time students in the survey started their master's programme in August 2018 and graduated in June

2020. Eighteen part-time students, who had a 50% study load compared to the full-time programme, also started in August 2018, but they completed the first year of full-time study over two years and will graduate in June 2022. The full-time students who participated in this survey experienced the lecture recordings during the academic year 2018-19. In contrast, the part-time students experienced half of the recorded lectures the academic year 2018-19 and the other half the following academic year 2019-20. The full-time students that started in August 2019 and graduate in June 2021 will be asked to participate in a later survey. The lectures for the full-time students were primarily recorded to make them available for the part-time students on the learning platform Canvas. The recordings were simultaneously made available for the full-time students as well, so they could benefit from being recorded, although they had been present at the live lectures. The online survey was conducted by the software Nettskjema and developed and operated by the University Information Technology Center at the University of Oslo (2020a). The survey was anonymous, and the person cannot be linked to the submitted form, not even the IP address (University of Oslo, 2020b). The survey was conducted in Norwegian, and all the quotations in this article were translated to English by the authors.

Participants

Initially, all full-time students in all fields of study of the master’s degree programme in Art, Design and Drama 2018-2020 were asked to participate in the survey, but since only one student from another field of study responded, we have chosen to omit this in our work. The reason why so few from the other fields of study responded may be because they had only experienced access to lectures in one of the joint courses, Research Theory and Method and Aesthetics, while the students in the field of study Art and Design Education had experienced access to lectures in most of their courses in their first academic year. The response rate among part-time and full-time students in the Art and Design Education field of study was roughly the same, approximately 60%. Eleven of eighteen (61.0 %) of the part-time students in 2018-20 answered the questionnaire, while seven of twelve (58.3 %) of the full-time students in 2018-20 answered the questionnaire.

The part-time students are, on average older than the full-time students as they are teaching professionals, while most full-time students come straight from the bachelor programme. Figure 3.a shows that an equal proportion (36.4%) of the students are in the age group of 30-39 and 40-49 for part-time students. These proportions are greater compared to the full-time students. Note that about 18.2% of the part-time students are between 50-59 years of age. On the other hand, for full-time students, a larger proportion (71.4%) of the students belongs to a younger age between 20-29 years (Fig. 3b).

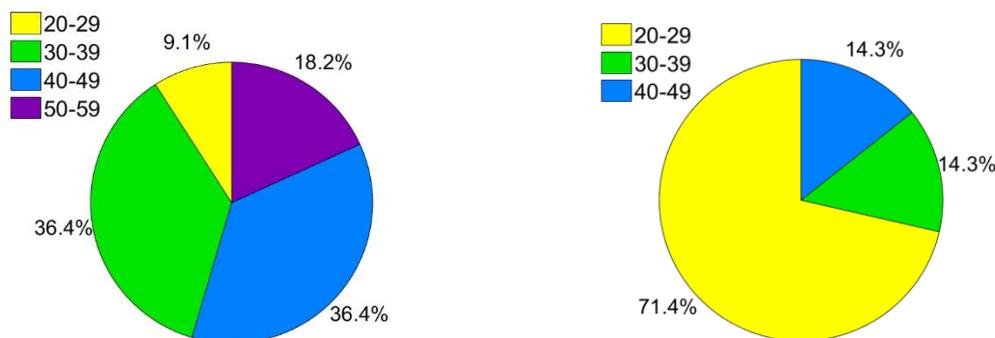


FIGURE 3. a Age of part-time students b. Age of full-time students.

In addition to being a part-time student, four of them work (36.4%) in primary school, two (18.2%) in secondary school, two (18.2%) in high school, and three (27.3%) work in another place, such as adult

education and training in the private sector. All of them are working alongside the part-time programme.

PRESENTATION OF THE RESULTS

Availability of recordings and impact

The primary reason for conducting this FlexiDig project of recording lectures was, as mentioned, to make lectures available for part-time students to watch them when suitable according to their schoolwork, family life, and personal preferences. When the part-time students were asked, ‘How crucial has it been in an opportunity to be a master’s student that the university has an offer where you can follow the recorded lectures when it suits you?’, eight of them (72.7%) answered *very crucial* (VC), two (18.2%) answered *crucial* (C), and the last answered (9.1%) *neither – nor* (N) (Fig. 4). None of the part-time students answered *little crucial* or *not crucial*.

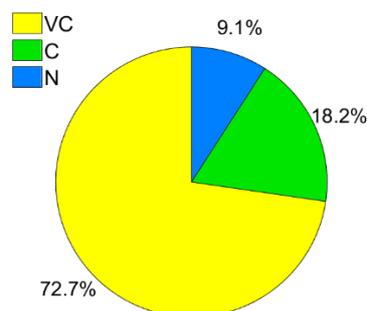


FIGURE 4. Response from part-time students to question: *How crucial has it been in an opportunity to be a master’s student that the university has an offer where you can follow the recorded lectures when it suits you?* (VC: very crucial, C: crucial and N: neither – nor).

Thus, it appears that organising the part-time study with recorded lectures has been important to most of the students. One of the part-time students who answered *very crucial* elaborated that:

Studying a master's degree in art and design education has been a dream for 20 years. Three or four times I have applied for part-time master’s at Notodden but have had to say no to the place due to a long journey, family situation, difficultly getting leave from work. I could not have studied without a recorded lecture, so I am so grateful to have had this opportunity.

Another of the part-time students said that:

Since I both work and have a demanding family life with a 6-year-old at home, it is extremely important for me to have the flexibility to be able to complete my studies. It has been absolutely great for me to have the recordings available – in addition, it is good for the learning outcome that they are available over time, since it can be useful to listen through several times as you discover new connections etc.

A third of the part-time students commented: “Great to be able to hear recordings several times, especially with difficult material”.

As already mentioned, the needs for the part-time students were the primary reason for the lecture recordings in the FlexiDig project, and this appears very crucial to them for choosing this part-time programme at OsloMet. However, to motivate the full-time students to participate in the project, the recordings were also available to them.

Four of the full-time students (57.1%) *fully agree* (FA), and three (42.9%) *agree* (A) that ‘*It has been positive for me as a student that lectures have been recorded*’ (Fig. 5). None of them answered

neither agree nor disagree (N), *disagrees* (D) nor *strongly disagree*. The part-time students were not asked about the experiences of being recorded because they have just received the recorded lectures.

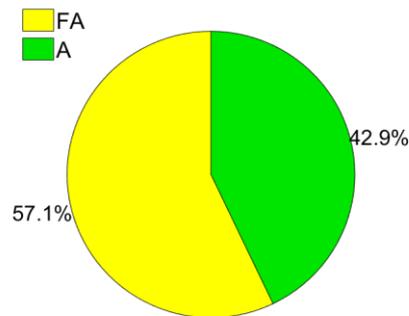


FIGURE 5. Response to statement from full-time students: *It has been positive for me as a student that lectures have been recorded* (FA: fully agree and A: agree).

One of the full-time students that *fully agree* mentioned that: “It has been very useful to be able to look back on lectures, as well as to have the opportunity to follow the teaching if one is ill”, and another of agreed by saying: “Very nice if you are sick or want to hear something again”. While one of the full-time students that *agree* said that:

The quality of the lectures has probably been somewhat affected by the fact that recordings have been made, but not to an excessively noticeable degree. Only some nervousness from the lecturers’ side and a different rhythm of lecture than what we are used to, but I blame it on the fact that we are the first cohort year of students this was tried on. In any case, the experience has not been negative compared to the experience of ‘regular’ lecture without recording, just different!

This demonstrates that most of the full-time students who answered the questionnaire were positive about the recordings, while several worries regarding the effect on the lecturers’ nervousness due to the recording were mentioned. The recording situation potentially affected the lecturers and the students partially, despite of the fact that the student assistant managing the recordings. The lecturers will get a questionnaire regarding their experiences later, and the experiences of the lecturers and the students will be compared and discussed.

Inclusion of dialogues in recordings

As already mentioned, including the dialogue between the lecturers and the students was crucial in this FlexiDig project as part of the SCLT approach in this master’s programme. When it comes to the statement, *‘It has been just as easy for me to participate in the dialogue and ask questions at the lectures when recording’*, most of the students either *fully agree* (28.6%) or *agree* (42.9%). The remaining students are equally distributed in the group of *neither agree nor disagree* and *disagree* (see Fig. 6). None of the full-time students *strongly disagree*.

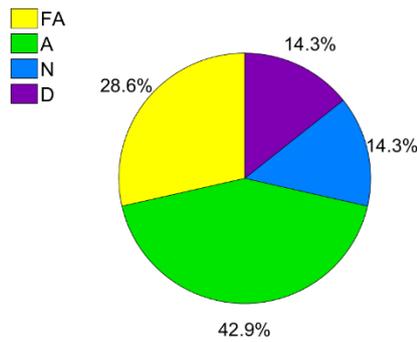


FIGURE 6. Response to statement from full-time students: *It has been just as easy for me to participate in the dialogue and ask questions at the lectures when recording* (FA: fully agree, A: agree, N: neither agree nor disagree and D: disagree).

One of the full-time students that *fully agree* says that: “The flow of a discussion is not quite the same”. In contrast, the student that ticked *disagree* says: “A little unfamiliar with having to send a microphone around. But otherwise good”. Again, the full-time students involved in the recording mentioned throwing the CatchBox microphone whenever saying something was unfamiliar, but they got more used to it when practicing.

For the statement, *‘I like that the dialogue between lecturer and students is included in the recording’*, three of the part-time students (27.3%) ticked of *fully agree* (FA), five (45.5%) *agree* (A), and two (18.2%) *neither agree nor disagree* (D), while one (9.1%) *disagree* (D) (Fig. 7a). While for the full-time students with the same statement, four of them (57.1%) *fully agree* (FA), two (28.6%) *agree* (A), and one (14.3%) *neither agree nor disagree* (N), while neither *disagree* nor *strongly disagree* (Fig. 7b).

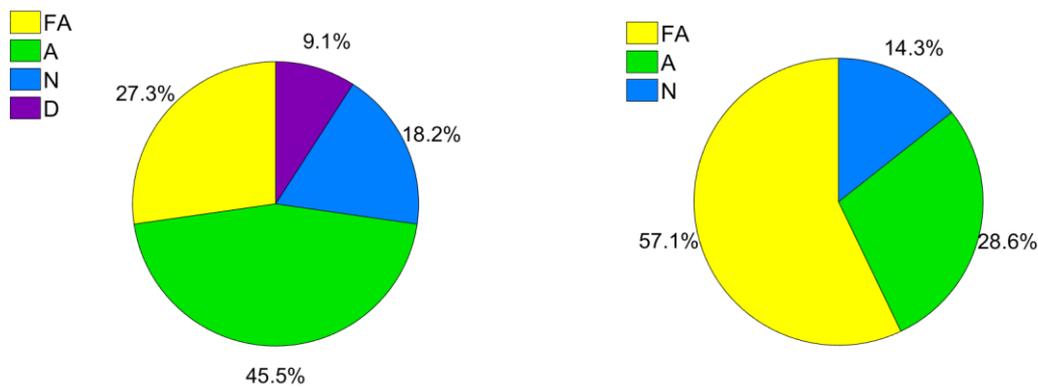


FIGURE 7. a Part-time students’ **b** full-time students’ response to statement: *I like that the dialogue between lecturer and students is included in the recording* (FA: fully agree, A: agree, N: neither agree nor disagree and D: disagree).

One of the part-time students who *fully agree* elaborated:

I like that very much! It becomes more personal and enlightening. Unfortunately, it is quite often that we do not hear what the student has asked about, so one must guess the question based on what the lecturer answers. It would have been nice if the lecturer repeated the student’s questions, but I understand that it can be difficult to think about it there and then.

Another of them added that: “It is nice to have the opportunity to hear fellow students’ reflections and questions along the way. If something is not so relevant, you can instead fast forward a bit”. A student who *agrees* commented: “But, as mentioned earlier, the sound quality of the dialogue is often not good

enough for me to hear the students' answers/questions". Moreover, a student who *neither agree nor disagree* mentioned that: "In some cases this is fine, in other cases it is very irrelevant, and I scroll over the longer digressions".

One of the full-time students who *fully agree* added that it is "Very important because the person sitting at home often wonders the same as those in the room" and another of them that:

It is the dialogue that is often the most exciting part of the lecture, so of course it must be included! The dialogue is part of the essential difference between being present and only reading the PowerPoint afterwards, without having been present.

Most part-time and full-time students *fully agree* or *agree* that dialogue is an essential part of the learning situation. This is consistent with Klemenčič & Hoidn (2020) where they mentioned that "Student-centered teachers are not only sensitive to what students know and understand but also to how students can participate in the inquiry, discourse, and reasoning, and how they can facilitate a more effective participation in these practices" (p. 630).

However, the survey reveals that the sound quality of the student's dialogues varied much. The students used the throwable CatchBox and the volume differed greatly depending on how far the student held the CatchBox from the mouth. The full-time students were more positive regarding integrating the dialogue in the recordings; this could be that they also were present in the live lecture and therefore had fewer problems in understanding what the students said in the dialogues because they had heard it before. In the following questionnaire and interviews, we will ask more extensively regarding this.

Quality of implementation

Satisfaction with audio quality

With the question 'How satisfied are you with the audio quality of the recordings?', none of the part-time students answered *very satisfied*, nine of them (81.8%) answered *satisfied* (S), one (9.1%) answered *neither satisfied nor dissatisfied* (N), and one (9.1%) answered *dissatisfied* (D), but none answered *very dissatisfied* (Fig. 8a). While for the full-time students, three (42.9%) answered *very satisfied* (VS), and four (57.1%) answered *satisfied* (S) (Fig. 8b).

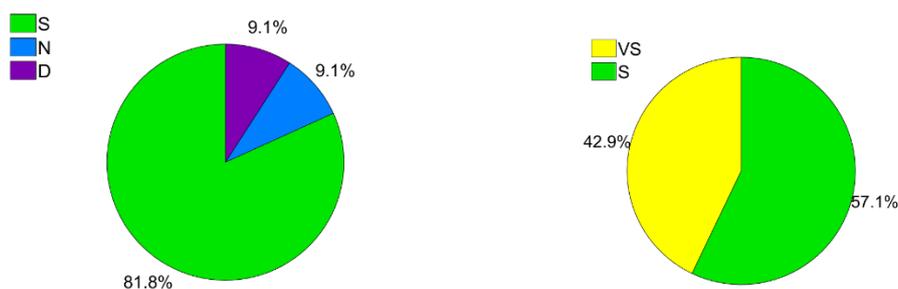


FIGURE 8. Response from **a** part-time students **b** full-time students to question: *How satisfied are you with the audio quality of the recordings?* (VS: very satisfied, S: satisfied, N: neither satisfied nor dissatisfied and D: dissatisfied).

One of the part-time students who were *satisfied* added: "Sometimes the sound is weak and jarring, but for the most part it is acceptable quality". Another mentioned that:

The quality varies a bit. On some of the recordings there has been a small echo effect, on one recording the sound level varied greatly from voice to playbacks in the classroom, but on most the audio quality has been good.

A third added that: “The dialogue between the lecturer and students in the room often has a bad audio quality, students may forget to use a microphone. Eventually the lecturer should repeat students' questions and answers”. One part-time student that was *neither satisfied nor dissatisfied* commented that:

Sometimes very good. Sometimes changing volume. For example, when we cannot always hear all the questions and discussions from the group. When film clips have been shown in the lecture, the sound has sometimes become strange (very loud and with echo / double sound). Could it be the location of the CatchBox that is the cause?

While the *dissatisfied* student explained that: “Very large variation in audio quality. Lots of noise beeps and different volume make some lectures demanding to listen to”.

The only comment to this question from one of the full-time students that were *satisfied* was: “Good sound! You just have to agree on how far away you should have those throwing microphones when you talk, so that the sound is on an even level no matter who is talking”.

This demonstrates that most of the students, both part-time and full-time, who mentioned the problems with the quality of the CatchBox microphone from the perception of the dialogue, either ticked *satisfied* or *not satisfied* in the questionnaire on this statement. This challenge will be important in the development of the FlexiDig research project for future students. The full-time students were more satisfied with the audio quality of the recordings, the reason could be the same as in the previous question; that they also were present in the live lecture and therefore had fewer problems in understanding what the students said in the dialogues because they had heard it before. Additionally, we will ask about this question more extensively in the following questionnaire and interviews.

Satisfaction with image quality

However, in the question, ‘How satisfied are you with the image quality of the recordings of the lectures?’, four part-time students (36.4%) answered *very satisfied* (VS), and the remaining seven (63.6%) answered *satisfied* (S) (Fig. 9a). While four full-time students (57.1%) answered *very satisfied* (VS), one (14.3%) answered *satisfied* (S), and two (28,6%) answered *neither satisfied nor dissatisfied* (N) (Fig. 9b). None of the part-time or full-time students answered *dissatisfied* or *very dissatisfied*.

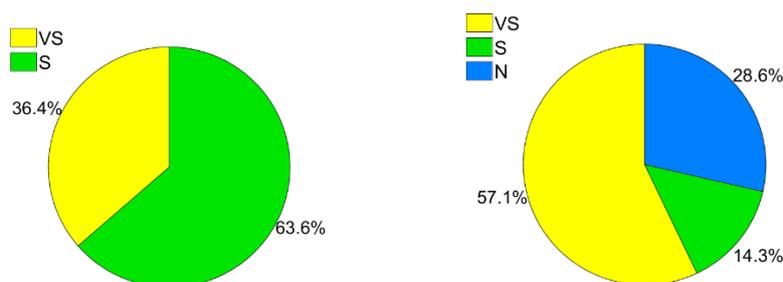


FIGURE 9. Response to question from **a** part-time students **b** full-time students: *How satisfied are you with the image quality of the recordings of the lectures?* (VS: very satisfied, S: satisfied and N: neither satisfied nor dissatisfied).

Four of the part-time students were *very satisfied*, one of them added: “In any case, they are just Power Point slides - and I almost always print them out in advance, so that I can write down them along the way”. Another said that: “It has not been a picture like in a movie, but I am very happy to follow the PowerPoint along the way”, and the third student said it “Can sometimes be a bit of an echo effect when playing video with audio. May miss a pointer when the lecturer points to something in a slide”.

One of the full-time students who were *neither satisfied nor dissatisfied* said: “Can't remember watching the video”. While a very satisfied student stated: “Bright!”

None of the students appeared dissatisfied with the quality of the images in the recorded video, opposite to the response related to the audio quality. However, as several of them mention, the video only displays what is on the screen, usually a PowerPoint presentation. However, the lecturers should remember to state what they are pointing at because the students that are not present in the lecture cannot see where the lecturer points. A reason why the part-time students were more satisfied with the image quality of the recordings could be the opposite of the previous two questions; that they were absent during the live lecture and therefore did not miss the presence of the lecturer. While the full-time students missed the presence of the lecturer in the recordings because they thought that was an advantage. Additionally, we will ask more about this question extensively in the following questionnaire and interviews.

Satisfaction with recording of audio and screen and not of the lecturer

In the question ‘How satisfied are you that it is only the recording of audio and screen and not of the lecturer?’, one (9.1%) of the part-time student answered *very satisfied* (VS), seven (63.6%) were *satisfied* (S), and three (27.3%) answered *neither satisfied nor unsatisfied* (N), while none of the full-time students answered *dissatisfied* or *very dissatisfied* (Fig. 10a). Conversely, two of the full-time students (28.6%) answered *very satisfied* (VS), one (14.3%) answered *satisfied* (S), three (42.9%) were *neither satisfied nor dissatisfied* (N), and one answered (14.3%) *dissatisfied* (D). None of the full-time students answered *very dissatisfied* (Fig. 10b).

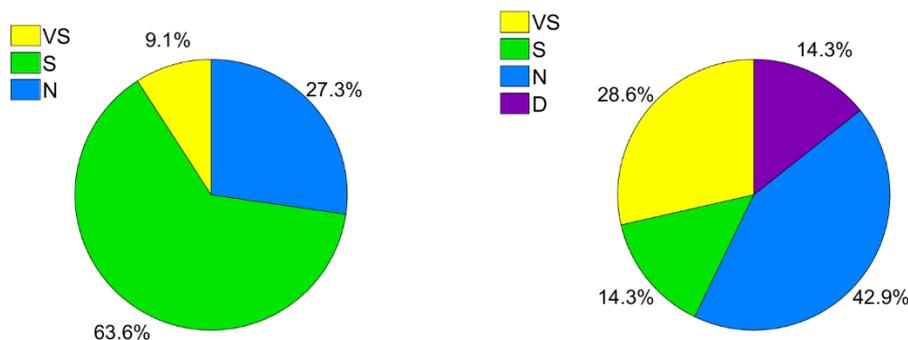


FIGURE 10. Response from **a.** part-time students **b.** full-time students to question: *How satisfied are you that it is only the recording of audio and screen and not of the lecturer?* (VS: very satisfied, S: satisfied, N: neither satisfied nor dissatisfied and D: dissatisfied).

One of the part-time students that answered *satisfied* elaborated: “I usually think that it has worked well, the lecturers and students in the room have been good at adding additional comments and paying attention to the listeners”. One of the part-time students that answered *neither satisfied nor unsatisfied* added: “Have not been bothered by it :).” One of the full-time students who answered *satisfied* elaborated that: “You miss body language, unfortunately. Understand that it would have been difficult to record a lecturer, then he might have had to sit still – or use a GoPro;). So, for full-time students, it is probably best not to record a lecturer, unless a solution is used which allows him to move around”. While the student who answered *dissatisfied* stated that: “It can quickly get a little boring when you do not see the person talking”.

This demonstrates that the students accept the absence of the lecturer in the recordings but would prefer the inclusion of the lecturer. This could be a challenge to develop for the FlexiDig project in the future. Why the part-time students were more satisfied with only the recording of audio and screen and not of the lecturer could be the opposite to the previous two questions (Fig. 8 and 9); that they were not present in the live lecture and therefore did not experience and miss the presence of the lecturer. Conversely, the full-time students missed the presence of the lecturer in the recordings

because they thought that was an advantage in the live lecture. However, the 14.3% of the full-time students that answered *dissatisfied* with this question represent just one student. To get more insight into this matter, we will ask more extensively about it in the following questionnaires and interviews.

Satisfaction with recording of lectures in general

When it comes to the question ‘*How satisfied are you with the quality of the recordings of the lectures in general?*’, four of the full-time students (57.1%) answered *very satisfied* (VS) and three of them (42.9%) answered *satisfied* (S) (Fig. 11).

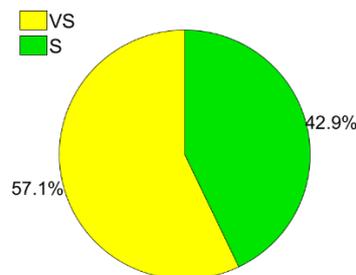


FIGURE 11. Response from full-time students to question: *How satisfied are you with the quality of the recordings of the lectures in general?* (VS: very satisfied and S: satisfied).

One of those who were *very satisfied* added: “It is important that people do not talk too close to the CatchBox because then it will be very loud”. While the student who answered *satisfied* added:

I am glad that the lecturers have managed to make the lectures as ‘natural’ as possible. That is, that they have not to a very noticeable negative degree allowed themselves or the content to be affected by the recording. Of course, there is always room for improvement, but they think I will come a lot by themselves with more and more practice!

Although all the students are either *satisfied* or *fully satisfied*, the varying quality of the sound from the CatchBox microphone is mentioned. While another student suggests that recording lectures have negative consequences, the lecturers are good at conducting the lectures as ‘naturally’ as possible concerning what they are used to experience. Furthermore, a goal of this project has been that the recording of lectures should have the least possible negative impact for those who are present live at the lectures. Simultaneously, we believe that this makes the recordings better to watch for part-time students too, who do not experience the lectures live.

Satisfaction with way lecture materials were provided

To the statement, ‘*To what extent do you feel that the lecturers have been arranged for the students to get a benefit from the recordings? (timing, student involvement, etc.)*’, none of the part-time students answered to a *very large degree*. However, nine of the part-time students (81.8%) answered to a *large degree* (L), one of them (9.1%) answered *neither-nor* (N), and one of them (9.1%) answered to a *small degree* (S) (Fig. 12a). While three of the full-time students (42.9%) answered to a *very large degree* (VL), two (28.6%) to a *large degree* (L), and two (28.6%) *neither to a large nor small degree* (N) (Fig. 12b).

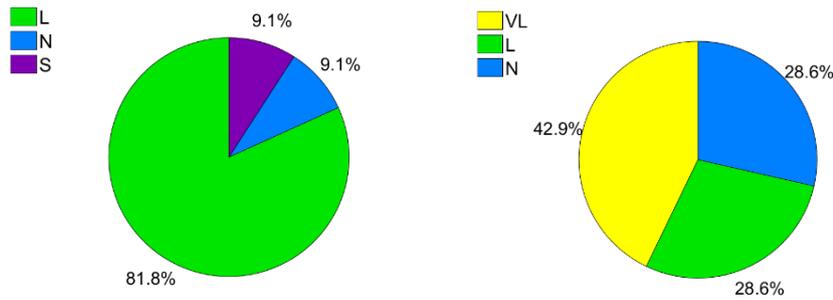


FIGURE 12. Response from **a** part-time students' **b** full-time students' to question: *To what extent do you feel that the lecturers have arranged for the students to get a good benefit from the recordings? (timing, student involvement, etc.)* (VL: to a very large degree, L: to a large degree, N: neither-nor and S: to a small degree).

One of the part-time students that answered *to a large degree* commented: "Varying, sometimes there is a lot of recording of 'technical trouble' or long cosy introductory conversations. But that is often good", another commented: "They have explicitly mentioned and explained things to us who listen (It has been a bit different from lecturer to lecturer – but it is not so strange, for some it is probably completely new and unfamiliar)". The only comment from a full-time student came from one who answered *to a very large degree*:

I'm very happy with this! There has been a good balance in the lectures in regard to long, breaks, working methods, etc., often in a better way than the lecturer does in lectures without recordings. Maybe just because they are forced to think differently and reconsider the lecture layout!

Considering that the lecturers were not expected to put much extra effort into arranging the lecture for recordings for the part-time students, it appears that both the part-time and full-time students are satisfied with the results. The part-time students were satisfied with it being adequately facilitated, and the full-time students appreciated that live lectures were not too affected by the recordings.

Overall satisfaction and general remarks

In the question *'Give an overall evaluation of how satisfied you are with receiving lectures as recordings'*, nine of the part-time students (81.8%) were *very satisfied* (VS) and the remaining two (18.2%) were *neither satisfied nor dissatisfied* (N) (Fig. 13a). Three of the full-time students (42.9%) were *very satisfied* (VS), and four (57.1%) were *satisfied* (S) (Fig. 13b).

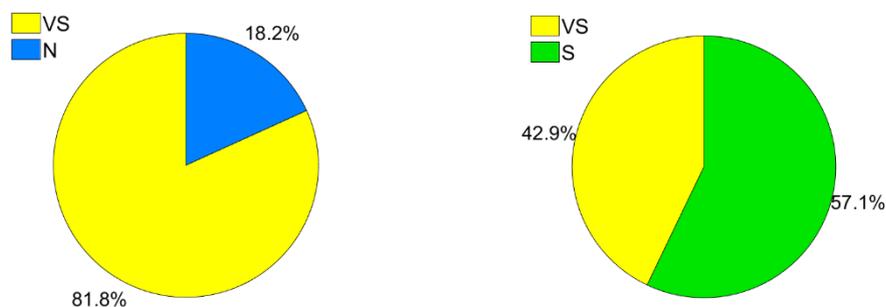


FIGURE 13. **a** Part-time students' **b** full-time students' response to question: *Give an overall evaluation of how satisfied you are with receiving lectures as recordings.* (VS: very satisfied and S: satisfied and N: neither satisfied nor dissatisfied).

One of the part-time students who were *very satisfied* elaborated that: “Without the recording I would not have been able to study, so it goes without saying that I am very grateful!” and another of them: “It’s great! And definitely something that makes life easier and time more practically spent!” When it comes to the full-time students, one of them who was *satisfied* elaborated: “As I wrote earlier, there is always room for improvement, and a lot of improvement will happen the more experience the lecturers get with recordings and how they introduce the students to and involve them in the recordings”!

The part-time students, who are the reason for the whole lecture recordings in this project FlexiDig, appeared more satisfied with *receiving lectures as recordings*, with 81.8 % *very satisfied* compared to 42.9% of the full-time students. This is expected because the part-time students, where most of them are full-time teaching professionals, would not take a master's degree without this flexibility in watching the lectures. Conversely, the full-time students have first been present at the lectures and then had the opportunity to listen to the recordings afterwards. Thus, for full-time students, the recordings of the lectures are a supplement, while for part-time students, recordings are the only option.

Advice for future

In the last question in the questionnaire, ‘*Do you have any good advice for the further project of recording lectures?*’, the part-time students answered:

- Offer the part-time students recordings from ALL the lectures that are given full-time! Thank you so much for making it possible to study part-time, which means that I am now at the top of Maslow’s pyramid of needs!
- Maybe communicate experiences about audio quality to the various lecturers?
- Practice makes perfect! I think you are very good, and if this continues for a couple of years it will probably be much better! Personally, I want more focus on slides / PowerPoint and less focus on student / teacher.
- Be aware of changes in volume from speech to playback of audio / movie files in the classroom. Keep up the good work! Awesome that the lectures are available, and that available over a long period of time; it reduces stress and time pressure and gives more peace and desire to learn!
- Better audio quality for recording in classrooms will do much to raise the standard.

Two the full-time students answered:

Very useful if you are ill. Good to have afterwards if you are unsure of something that was said. It is important that the student's questions are included in the recording because these are things the others often also wonder. It is important that the lecturer says where he / she is on the PowerPoint so that the listener can follow if they, for example, point to a picture.

Feel free to conduct even more evaluation along the way, to agree on what works and what does not. And maybe even more dialogue between part-time and full-time students? So that full-time students together with lecturers can help optimize the experience for part-time students. There are two separate classroom environments, but we probably have a lot to learn from each other, about things like not just about recording too, that is;)

Here again, the part-time students repeat that the lecture recordings are crucial for them to complete the master's programme at all. Furthermore, the full-time students appear concerned regarding the part-time students' needs and want closer collaboration with them, not only regarding the technical aspects of video recording but also academically. Several part-time students mentioned the problems with the poor audio quality when students spoke into the CatchBox microphone, which negatively affected the ability to perceive the dialogue between the lecturer and the students. Thus, getting full-time students to learn to use this CatchBox microphone properly appears to be one of the most

important challenges in the project going forward. However, currently, we cannot use these CatchBox microphones due to the risk of infection from Covid-19 if the microphone is thrown from student to student.

Changes due to corona pandemic

In the statement ‘*The changes after the recordings were made in Zoom due to the corona crisis have made them*’, none of the part-time students answered *much better*, five of them (45.5%) answered *a little better* (LB), six (54.5%) *neither better nor worse* (N), and none *worse* or *much worse* (Fig. 14).

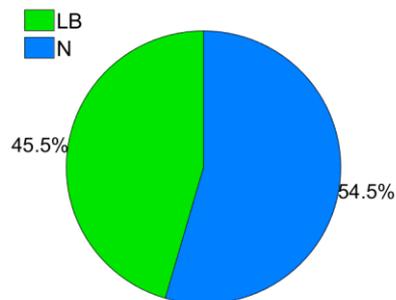


FIGURE 14. Part-time students’ response to statement: *The changes after the recordings were made in Zoom due to the corona crisis have made them*. (LB: a little better and N: neither better nor worse).

One of the part-time students who answered *a little better* added: “Quite good in the beginning but is clearer that the lecturer is more focused on the recording”.

On March 12 2020, Norway was locked down because of the Covid-19 virus, similar to most of the world. For the rest of the spring semester, all the teaching was offered digitally via Zoom (www.zoom.us). Ironically, this saved the problems with the uneven quality of the audio from the CatchBox microphone when the dialogue was recorded directly in Zoom.

DISCUSSION IN RELATION TO RELEVANT LITERATURE

We will present and discuss the answers from the questionnaires connecting relevant literature to lecture recordings. The literature of lecture recordings is extensive and focuses on different purposes, and in this section, we present several of them that we found most relevant to our project. Suitable keywords were used to find the research contributions via a google scholar search, and relevant cross-references were also consulted from the relevant articles.

In their study, Zawacki-Richter et al. (2018) made a content analysis of abstracts and titles in the journal *Computers & Education* over 40 years, revealing four distinct stages:

- “the advancement and growth of computer-based instruction (1976-1986)”.
- “stand-alone multimedia learning (1987-1996)”.
- “networked computers as tools for collaborative learning (1997-2006)”.
- “online learning in a digital age (2007-2016)”.

The Flexidig project, which started preparation several years after 2016, fits in the fourth category. The technical solutions relied on the circumstance that “Learners quickly became acquainted with these new tools; in contrast with the early days of educational computing, many learners came to learning tasks already familiar with interfaces and well versed in using them to find information, learn, create

and collaborate” (Zawacki-Richter et al., 2018, p. 144). Although we have strived to make the technical solutions as easy to use as possible, the part-time students had to master a certain level of technical skills to access the recorded lectures. Because the part-time students were teachers at schools also belonging to the ‘digital age’, this has not been reported as a problem.

In the systematic review of the literature on the flipped classroom model, Akçayır et al. (2018) reported several advantages like enhanced learning motivation and students' positive attitudes. The positive outcomes of the flipped classroom model are often argued as the actual benefit arising from the inherently involved *active learning* strategies in the model (e.g., see the study of Freeman et al., 2014 regarding active learning revealing the enhancement of the performance). Namely, using active learning strategies in a traditional setup may yield outcomes similar to that of flipping the classroom. Nevertheless, the time commitment and increased workload in a flipped model are the major challenges. It is to be noted that, while designing a flipped classroom, the quality of the instructional videos is very important. This has a direct/indirect impact, and as mentioned by Akçayır et al. (2018), the videos must be interesting and should not be too long.

We regard the part-time programme as a flipped classroom approach because they watched the lectures before they attended the seminars for assignments and discussions. To make the videos as interesting as possible for the part-time students, we included the dialogues between the full-time students and the lecturers. The purpose was to provide a more real-time experience of the actual lecture. Because the recordings included these dialogues and not solely the lecturers speaking, we did not make short videos. However, both the part-time and the full-time students were free to stop and continue the videos according to their preferred watching, making the learning situation more flexible to their individual preferences. The answers to the questionnaires for both the part-time and the full-time students confirm the problems with the uneven quality of the sound in the dialogues between students and lecturers.

The open online courses with the intense application of distance learning technologies in present days are widespread. In this regard, Beskrovnaya et al. (2019) mentioned the “lack of quality of training assessing system” (p. 721) and suggested learning outcomes monitoring tools to build competence. Our courses are not open online courses because we see it as necessary that students meet in person for discussions regarding the subject matter to develop the necessary competence in critical reflection that this master's program requires. The assessing system for the part-time students is equivalent to the full-time students, as described in the section *The Master's Programme in Visual and Performing Arts at OsloMet*.

Cacault et al. (2019) performed a randomised experiment in a Swiss public university on the impact of distance learning technology via online live streaming of lectures on student performance and reported that:

- I. students use the live streaming technology only punctually, apparently when random events make attending in class too costly;
- II. attending lectures via live streaming lowers achievement for low-ability students and increases achievement for high-ability ones;
- III. offering live streaming reduces in-class attendance only mildly.

In our case, we did not offer live streaming. This could have been an option if the technological solutions had that possibility. When we started this project, we did not use live streaming because the full-time students were present at the lectures, and the part-time students were occupied with teaching or other jobs. However, during the covid-19 pandemic, we had to use online lecturers on Zoom, which allowed for live and recorded streaming. If the part-time students report that they want access to live streaming of lectures, we will consider this.

In their work, O’Callaghan et al. (2015) dealt with web-based lecture technology (WBLT), lecture recording/lecture capture/video podcasts, and mentioned the cognitive theory of multimedia learning and the media richness theory. The perspective of students was generally positive. Significant usage of the recorded material had been observed towards the benefits in the learning process. Lecturers

recognise the positive effects but encountered an expected drop in attendance and engagement. Additionally, the authors discussed the restricted style/structure of lectures. Institutions generally thrive to avail of the WBLT. Consistent with our investigations, O’Callaghan et al. (2015) stated that “In terms of perceptions, students are generally positive about having lecture recordings available” (p. 6) regarding Gosper et al. (2008), Heilesen (2010), McGarr 2009, Pons et al. (2013) and Traphagan et al. (2010).

In our investigation, most of the part-time students only received the lectures by the web, and the full-time students were present at the lectures and received them as recordings and were satisfied or very satisfied with lectures recordings.

A comparison of the answers from the part-time students reveals that in the question ‘*How crucial has it been for your opportunity to be a master student that the university has an offer where you can follow the lectures in recording when it suits you?*’, ten of them (90.9%) answered *very crucial* or *crucial* (C) and the last one (9.1%) *neither – nor* (N). While when asked to ‘*Give an overall evaluation of how satisfied you are with receiving lectures as recordings*’, nine of the part-time students were 100% *very satisfied* or *neither satisfied nor dissatisfied* (N). This can be interpreted as part-time students who do not think they needed to follow the lectures in the recording when it suits them and are satisfied with receiving lectures as recordings.

Dona et al. (2017) investigated the experiences of both students and lecturers for a fully integrated lecture recording system that enabled audio and presentation screen capture. Students were generally found to be positive regarding the affordances. Conversely, lecturers were found to be undecided. Interestingly, they also noticed the discipline-based differences. The lecturers of business and social sciences were more positive than the lecturers of engineering and sciences. None of the part-time and full-time students in our survey were dissatisfied with the recordings of the audio and presentation screen capture, and so far, we have not investigated the experiences of the lecturers. One master programme in engineering is now a part of the Flexidig project and will explore this. However, usage of CatchBox microphones is restricted under covid-pandemic regulations.

The impact of lecture capture availability and lecture capture usage on student attendance and attainment are also addressed by Edwards and Clinton (2019), and the conclusion of their study is that lecture capture “... introduction appears to reduce attendance as lecture absence increases significantly” (p. 419). These issues are addressed by Nordmann et al. (2019) and an attempt to investigate the impact of lecture attendance and the use of recordings on the achievement of the students. In the current master’s programme, lecture attendance is mandatory, so this has not been a problem. However, students that are ill mention the benefit of recorded lectures when they must be absent (see section *Advice for the future*)

In their work, Evans & Luke (2020) focused on lecture capture technology addressing ‘Why’ and ‘How’ students use lecture recording. It is difficult to summarise how, when, and why students use lecture recordings. Here again, students were found to be satisfied, and valued recorded lectures. Moreover, they also make more use of short clips than full recordings. The availability was found to be beneficial for revision purposes. The authors emphasised “Working in partnership with learners” (p. 11) to enhance teaching and learning. A detailed survey of British Universities related to Lecture Capture Policies can be found in Ibrahim et al. (2020). A wide range of educational technologies, tools, and systems are increasingly adopted by universities towards a blended learning approach. Morris et al. (2019) emphasised the positive effects/outcomes of blended learning towards enhancing “flexibility”, “inclusivity”, “engagement”, and “motivation”. In blended learning, both face-to-face and online learning components are combined for improvements in teaching-learning goals.

In this regard, Wang et al. (2015) proposed a framework of blended learning based on the complex adaptive systems theory (The complex adaptive blended learning system (CABLS)), discussing the various characteristics (Complex, adaptive, dynamic, self-organising, and co-evolving) of the blended learning. CABLS consists of six subsystems: learner, teacher, technology, content, learning support, and institution (p. 385). They also stress the relationships between these and the focus on them in empirical studies, which demonstrates that the learner-content relation is most frequent (69%), and the learner-technology is the second most frequent (46%) (p. 386). The primary focus of our empirical study is on

the learner-technology relationship, while the other relationships will be focused on more in later investigations in the Flexidig project.

Diverse definitions of blended learning, the models, and conceptualisations, and their implications are discussed by Hrastinski (2019). They conclude that “The breadth of conceptualizations means that essentially all types of education that include some aspect of face-to-face learning and online learning are being described as blended learning in the literature. Since blended learning appears to mean many things, it is important that researchers and practitioners carefully describe what blended learning means to them” (p. 568). In the current case, blended learning primarily concerns the part-time students, who receive most of the lectures recorded while they met face-to-face for seminars with discussions and group work. Conversely, the full-time students live lectures were recorded, including their dialogue with the lecturer and each other, and they could watch the recordings for repetition.

In their recent study, Rasheed et al. (2020) conducted a systematic review to highlight the challenges involved in blended learning from the perspectives of students, teachers, and educational institutions. Our investigation in this article is consistent with their research question ‘What are the challenges that students face in the online component of blended learning?’ While their other two research questions will be followed up in another investigation: ‘What are the challenges that teachers face in the online component of blended learning?’ and ‘What are the challenges that educational institutions face in the online component of blended learning?’ (p. 2). Before we started the part-time programme, we carefully considered how to take care of the social networking in the group, which we regard as a success factor for our programme. In the first seminar at the campus for the part-time students, socialising was the focus both by giving them group work and taking them out for social events. This has continued with the other seminars at the campus. We also encourage them to make colloquies to meet outside the seminars. We did not rely on the LMS for collaboration between the part-time students to avoid the problems that Rasheed et al. (2020) describe as:

Recent research has shown that traditional learning management systems fall short in providing a collaborative and interactive online community, which essentially offers students sense of ownership. The approach of improving students online social presence by integrating social network sites with traditional learning management systems has proven to significantly impact students learning outcome, and has brought higher level of students' satisfaction and engagement by intervening on some of the challenges that students face with technology in their online components. (p. 8)

However, as Ellisa et al. (2016) mentioned, careful consideration of various aspects must be undertaken for teaching and course design together with the effective evaluation of the experiences in blended learning systems in higher education. The authors additionally highlighted the aspects of “collaboration” towards explaining the disparity of the performance of students. Although collaboration is highlighted in our programme but was not investigated in the present surveys, this question will be included in future investigations. Collaboration is also discussed by Keengwe and Kang (2013) and stated as “Collaborative learning, project-based methods, and problem-based learning ought to be integrated in blended learning because these activities can minimize student teachers’ isolation, and enhance better understanding of the curriculum” (p. 491). In this first phase of the Flexidig project, we mostly just adapted the regular education to a blended education by recording the lectures for the full-time students to make them available to the part-time students to offer a part-time programme. However, in the future, we would like to develop the advantage of blended learning and teaching for both part-time and full-time students in this master programme, also considering the experience of online teaching due to covid 19-pandemic.

LMS toolboxes (see Garrote, 2012) are common in the education system nowadays for course administration, distribution, communication, and interaction. An interesting study reported by Holmes et al. (2018) focuses on “participants’ perceptions of two broad affordances of the LMS: accessibility and interactivity” (p. 21) in blended learning settings.

The question for teaching staff, therefore, is to carefully consider the affordances offered by LMS tools, and to ask whether the use of any particular tool can complement or supplement routine teaching and learning strategies. (p. 32)

Increasingly digital technologies are finding their way into school classrooms and teachers are using LMSs to organise student work and manage their interactions with students. Therefore, the messages relayed through this study may not only apply to higher education but also to education for students of any age. Understanding the deliberate choices to be made in relation to technology use, through the lens of interaction equivalency theory, will be an important skill for all future teachers. (p. 32)

Needless to mention that the recent pandemic due to Covid-19 exposes the education system to an emergency remote-teaching situation altogether (Hodges et al., 2020). They point out that:

Well-planned online learning experiences are meaningfully different from courses offered online in response to a crisis or disaster. Colleges and universities working to maintain instruction during the COVID-19 pandemic should understand those differences when evaluating this emergency remote teaching. (p. 1)

We started the planning of this blended education master part-time programme before the Covid-19 pandemic caught up with us, but it struck us in the middle of the last semester of the first two years containing all the courses before the part-time students started the two years' work on their master's thesis. From March 12, 2020, until today (June 2021), all the teaching has been online and not blended because the campus has been closed for students. In the future, we will build a better blended education based on both the experiences from Flexidig project and the fully online teaching and learning in response to situations like the present pandemic.

Oliver et al. (2018) explored the research areas with 'Learning design' to address challenges related to teachers' development and proposes that the documentation, sharing teachers' professional knowledge to potentially improve the educational practice. They addressed the challenges of scaling up teacher development through case studies in Norway and the UK. Nowadays, technology-enhanced learning (TEL) is increasingly being used in education. A critical review can be found in the work of Kirkwood & Price (2014) regarding the 'enhancement' related to this. Apart from the beneficial aspects of TEL, an interesting study by Selwyn (2016) addresses the four distinct types of digital downsides of digital technology in higher education such as 'Distraction', 'Disruption', 'Difficulty', and 'Detriment' via a survey of 1658 undergraduate students from two Australian universities. One of the primary purposes of the Flexidig project is to develop a learning design of lecture recordings, including the dialogue between students and lecturers, as simple as possible. We are developing several core principles, not a recipe to follow in every teaching and learning situation.

However, none of these references focus on the dialogue between lecturers and students when recording lectures, which is the focus of this work.

SUMMARY AND CONCLUSIONS

In this study, we presented the results of a survey on students' experiences with blended education as a part of the FlexiDig project at OsloMet. Generally, both the part- and full-time students were very satisfied with the recordings of lectures. We briefly summarise the essential results below:

- In general, the part-time students are relatively older than full-time students and work as teachers in schools at different levels.
- The capture of dialogues in the recording is very useful for better understanding and learning.
- Full-time students also appreciate this and are very caring for the part-time students.
- According to the survey, the image quality of the recordings is very good. Interestingly, the full-time students mentioned that they missed the body language and facial expressions of the

lecturers while watching the recording as they experienced it during the live lecture. Conversely, the part-time students accepted this and had no comments.

- CatchBox was used for audio recording for the students. However, several practical issues like the efficient usage of the CatchBox could not be achieved. This is because the students were a little unaware and inexperienced in judging the distance of the mouth from the microphone of the CatchBox. This compromised the quality of the audio recordings of the dialogues among the students and lecturers sometimes. Nevertheless, this could be easily resolved by collecting regular feedback from the part-time students who follow the recorded lectures regularly. Due to Covid-19, the recording has been done via zoom at the later phase of the semester. In a way, this nullified the issues regarding the CatchBox recording of the dialogue of the students.

The idea of the present study was to develop a flexible digital classroom that also has transfer value to other education situations. The recordings have been made with the TechSmith Relay software, but because this program is being phased out soon in higher education in Norway (UNIT, 2020), from 2020, we have switched to use MediaSite (www.mediasite.com) for recording, which also provides a few more editing options after the recording.

Further research

Many issues can be taken forward from this study to improve digital technology provision and practices within universities. The lecture recordings of the full-time master students' lectures for the part-time students in Art and design education at OsloMet continue. The current part-time and full-time students, alongside the lecturers, will also be asked to participate in a customised survey regarding their experiences, including the full-time students who experienced the lecture recordings in the academic year of 2019-20. We will also conduct interviews with students and lecturers, both individually and in groups, to gain more detailed knowledge regarding the experiences with recording lectures to develop the research project further. We found that the students appreciate the recordings of lectures, including the dialogue between the students and the lecturers. This is due to the accessibility and flexibility of the lecture materials, and these are very conducive and favourable for preparation for examinations and very useful to achieve overall learning outcomes.

Because the full-time students at the master's programme in Art and design education experienced both recordings of lectures in several courses and no recordings in others, depending on if the part-time students followed the actual course at the time or not, we will explore more regarding the advantages and disadvantages they experienced. We will also survey both primary lecturers and guest lecturers in a questionnaire regarding their experiences, and the experiences of the lecturers and the students will be compared and discussed. However, both part-time and full-time students mentioned the problems with the quality of the CatchBox microphone for the perception of dialogue, either they ticked *satisfied* or *not satisfied* in the questionnaire on this statement. This challenge will be important in the development of the FlexiDig project for future students.

The Master's programme (Oslo Metropolitan University, 2020b) at the Department of Building and Energy Technology⁴ at OsloMet is also participating in the FlexiDig project with the recording of lectures. The students want the recording to be able to rehearse. The lecturers there also prefer and need to use a board to write and draw during the lectures. To record this, a new Sharp touch screen has been purchased for one room, and they use a SmartBoard in the other. This will be an interesting development of the project by integrating mediums for drawing.

The participants in the FlexiDig project regard lectures as 'fresh produce', and therefore, new recordings are made for each cohort year of students unless the lecturers explicitly wish to use the same recordings several times. The preliminary feedback is mainly positive, from the lecturers and full-time students present during recordings and part-time students who only listen to the recordings. As part of this project, surveys will be conducted among the students and lecturers involved in the different education and courses to gain a more nuanced picture of the benefits and potential for improvement in recording lectures to develop a concept that may have transfer value to other educations. All these are contributions to the ongoing project, which aims to develop blended student-centred learning and

teaching to be as good as possible for the part- and full-time students and the lecturers. Nevertheless, in the recent pandemic situation, programmes are opting for hybrid teaching, combining digital lecturing and usual on-campus lectures. The recording system under the FlexiDig project is very timely as the recordings can easily be made available to the students. As mentioned, we will now continue the project, we are also open to including more programmes because the main goal is to develop a flexible digital classroom with as little effort as possible, suitable for different kinds of higher education. Therefore, the publication of articles regarding the experiences of all involved in the FlexiDig project is crucial.

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1 In Norwegian: Institutt for estetiske fag

2 In Norwegian: Master i estetiske fag

3 In Norwegian: Fagdidaktikk: kunst og design

4 In Norwegian: Institutt for bygg- og energiteknikk