Teaching Online or On-Campus? – What Students Say About Desktop Videoconferencing

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Abstract

In order to refine online teaching environments, we ask: What do in-service student teachers (n=32) and master's degree students (n=24) say about desktop videoconferencing (DVC), and how has DVC influenced online teaching and learning? 56 students have completed a survey. Focus group interviews (n=11) and recordings from lessons were also part of the data collected. Our students say that they can cope with the practical and technological issues. The responses indicate there are changes according to student attendance when using DVC.

Keywords: teacher education, desktop video conferencing

Introduction

Since 1990, Stord/Haugesund University College (SHUC) has offered web-based in-service courses for teachers on "ICT in learning" (Ask & Haugen, 2009; Nilsen & Almås, 2003; Nilsen & Instefjord, 2000). The knowledge developed by using synchronous video and web conferencing tools now enables us to identify and further elaborate pedagogical potential. The early experiences were characterized by large gaps between requirements and reality in various areas: users and their demands, software functionality, broadband and PC capacity, among other things. Perhaps we also underestimated the organizational culture and the technological ripening period. Digital infrastructure is now established in Norway (Vaage, 2012), and offers an ideal opportunity to build on our prior experience.

Several strategic documents have analyzed the potential of technology in teaching and learning online in higher education (Allen & Seaman, 2011; KUF, 2001; NMC Horizon Project, 2011; Uninett, 2009). Greater "flexibility and openness to the labour market in teaching/learning by fully exploiting the potential of information and communications technology (ICT)" (EU, 2006) is also part of the European Union's strategy for "lifelong learning" and reforms of universities (EC, 2012, p. 43). An essential part of this is the flexibility of ICT, which can enable new groups of students to access a learning community. These perspectives can also be found in Norwegian policy documents, which confirm that "ICT is an important tool for making education accessible to those who, for various reasons, are not able to participate in regular teaching on campus" (KD, 2009, p. 82) (our translation). Additionally, since 2001, the Quality Reform for Norwegian higher education (KUF, 2001, pp. 30–31) has specified goals for improving learning environments considerably, by demanding a newer and more active method of studying. Through the national eCampus-project (Uninett, 2009), Norway intends to establish a modern video- and web conference infrastructure in all universities and colleges for the purposes of research, teaching, and broadcasting. Students' use of computers in learning and education-related work in higher education has increased since 2008 (Ørnes, Wilhelmsen, Breivik, & Solstad, 2011, p. 11). A 2011 national survey showed that 6 out of 10 students expect education to be flexible and organized in order to allow study anywhere, at any time (Ørnes et al., 2011, p. 33), but only 6.5% of the students in higher education were enrolled in a flexible study program in 2011 (Børsheim, 2012). Yet there is still a large gap "between some sweeping expectations as to the potential of the new technologies and their actual implementation" (Guri-Rosenblit, 2009, p. 12).

Educational desktop videoconferencing (DVC) systems allow geographically separated learners to participate in an online classroom. The transition to such a "classroom" is major, and it is the teacher who organizes the entire online learning environment. But the utilization of videoconferencing is at a very early stage (Lawson, Comber, Gage, & Cullum-Hanshaw, 2010). In 2011, less than 20% of the students were using web meeting tools or videoconferencing systems once a month or more (Ørnes et al., 2011, p. 42). Lawson et al. (2010) argue that the field of videoconferencing in education is under-researched by the academic community. Desktop videoconferencing tools (e.g. Elluminate *Live!* and Adobe Connect) have lately received more attention owing to their synchronous communication technologies and interactive learning environment tools. Generally, the introduction of ICT in teaching and learning demands a revitalization of pedagogics (Krumsvik & Almås, 2009). We need further research in order to analyze and understand how to integrate and use new tools in web-based courses. We know that many of today's students are working part-time while studying (Bates & Sangrà, 2011). According to Selwyn (2011a), there is a pressing need to pay more attention to individual learners' experiences with distance education.

This paper is based on an exploratory case study which investigates master's degree students and students in web-based, in-service courses in ICT and learning for teachers, and their experiences with desktop videoconferencing (DVC). We present some of our students' experiences, both challenges and decisive findings, based on their participation in this environment. How is desktop videoconferencing changing the scale, scope, and dynamics of teachers' and learners' working days? What new practices are developing from the use of DVC? ICT influences the world of teaching and learning, and is obviously part of an educational ecosystem. We know that the social construction of pedagogical discourse on ICT and design still has to be considered a work in progress (Granberg, 2011, p. 5).

More specifically, the research question is: What do students say about DVC, and how has DVC influenced online teaching and learning? By analyzing the topic based on these perspectives, it will be possible to develop useful contributions that will help to enhance web-based teaching and learning.

Theoretical perspectives

Since the 1990s, studies on different web-based environments have a socio-cultural learning paradigm as a point of departure (Dillenbourg, Baker, Blaye, & O'Malley, 1995; Koschmann, 1996). In practice, this learning paradigm emphasizes the context, environment, and culture surrounding the learner. By changing the communicative ecology of our daily practices, we influence the way in which we interact (Säljö, 2010). Accordingly, it fits in with everyday practice and focuses the students' concern in their self-regulated learning environment. Regarding students in a socio-cultural perspective as online learners gives rise to an important pedagogical question relating to the content and pattern of use: What kind of learning competencies, knowledge, and practices will we see? Annika Andersson (2010, p. 5) reflects on this in her thesis:

> *...a major challenge for students was the change of learning practices that distance education required. Findings also showed that new constructive learning practices emerged through the use of ICT.*

One of the main objectives of Andersson's research was to increase our understanding of how ICT and web-based teaching can support constructive learning practices. In this, she builds on Sällström's conclusions from a pilot study carried out by the Swedish Net University (Sällström, 2005, pp. 4–5):

> *We believe it is an absolute necessity to cooperate at both national and international level to better understand technology-supported learning and to strengthen the development of new methods and technical solutions to be used in higher education.*

It is a challenge to create successful active and collaborative situations in a classroom; transferring this method to an online environment makes the task even more complex (Nilsen & Almås, 2003). In such a situation, the composition and orchestration of the entire working environment will, according to Salomon (1992), be more important than the design of the technology.

A broader interpretation of knowledge and teaching requires a perspective where teaching and learning take place within highly complex educational ecosystems (OECD, 2010, p. 109; Shear, Gallagher, & Patel, 2011, p. 12). Technological changes and globalization demand a framework that emphasizes a range of factors to be linked to teaching practices and student learning in a national, school, and classroom context. Using this perspective as point departure demands an analysis of

students' sayings in light of everyday practice and the students' concern in their self-regulated learning environment. This is extended in our focus on practical and technological issues, and the activity and appearance of our students.

Digital didactics

Didactics can be defined as the field of educational theory that provides guidelines and tools that are used to develop the practice of teaching (Laursen, 1994, p. 125). Teaching in technology-rich environments, especially lecturing via DVC tools, demands a revitalization of didactics (Krumsvik & Almås, 2009) and its elements described by Hiim & Hippe (2006); learning conditions, setting, goals, content, learning process and assessment. The new area to be defined is known as "distance pedagogy" (Amnéus, 2010) (our translation). The combination of lectures, seminars, teamwork, question-and-answer sessions, student-controlled shifts, etc., requires that the teacher rethink his teaching strategies (Kirkwood & Price, 2006). The development of web-based teaching into hybrid solutions will expand the potential for activity and engagement (Garrison & Vaughan, 2008). Anderson & Dron (2011) describe the past as three generations of distance education pedagogy, our practice as net teachers in higher education has also provided contributions and different models of flexible teaching (Nilsen, Instefjord, & Almås, 2010). Whether or not we need specific "distance pedagogy", digital didactics (Krumsvik & Almås, 2009), or just need to add more dimensions to traditional terminology, it is time to reflect on all of these elements, especially the didactical elements concerned with the interaction between teachers and students.

The technology of everyday life has moved well beyond what educators were taught. Entering such new learning environments is also an unexpected experience for many students. The learning environments have become more complex as a result of expanded opportunities, immediacy, and the convenience of online learning. A decisive contribution to this is to explore what students say and how these responses will affect the way we plan and perform our teaching using DVC.

Methodology

The nature of our research question and our theoretical perspectives calls for an exploratory and qualitative approach. The study is based on a case study design: "A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and with its real-life context" (Yin, 2009, p. 4). To triangulate our exploratory case study we applied both qualitative and quantitative data as a basis for the data collection and analysis. The research question and the analyses followed Van de Ven's (2010) guidelines for process theory research questions, and both the qualitative and the quantitative components were analyzed with regard to this. Researchers in this study were using their own students as respondents. The students were asked to participate in the research after completing the course. A total of 56 teacher education students from all over Norway, both in-service training students and master's degree students, participated in the study, and were enrolled in web-based courses at Stord/Haugesund University College. The topics on these courses related to the pedagogical use of "digital tools in education and training". Their "classrooms" were established in Fronter.com, and the subject content was primarily taught using Elluminate *Live!*[1], which is integrated with Fronter. The application is known as a desktop videoconferencing (DVC) tool since it runs on an ordinary laptop (fig. 1). All activity in the virtual classroom (interactions, chat, audio, video, and presentations) can be recorded easily.

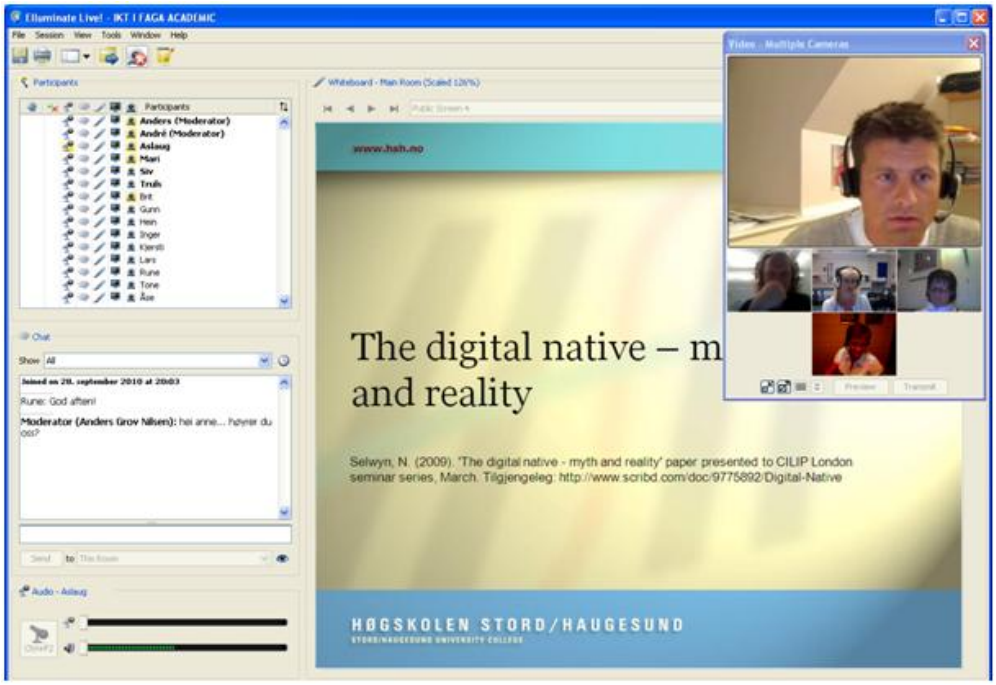

Figure 1. Screen capture from the DVC-tool

The students (n=56, 66.1% female, M age = 42.5 years) completed a survey (quasi statistics, (Yin, 2009)) which revealed their experiences (which differ from 4–8 months) and behaviors when using desktop videoconferencing. The survey was conducted in November and interviews were conducted two months later (February 2012). A group of students (n=11) was selected (purposeful selection, (Maxwell, 2005)) and split into two separate focus group interviews (Kvale & Brinkmann, 2009), which were based on the survey data and conducted when the courses were completed. In addition to time and settings, age, sex and demographic variables were controlled to ensure that the selection was purposeful. Observations (Merriam, 1998) were also part of the data collection, based on recordings from the teaching lessons on the course, recorded through the conference system.

The quantitative part of the study aimed to investigate student confidence and appearance towards technology, as well as the teaching experience. Basic descriptive analyses, e.g., frequencies and percentages, were conducted to analyze the quasi-statistics. The tentative findings from this data were used to design the qualitative part of the study.

In the qualitative part of the design, an interview guide for the focus group and an observation scheme for the video recordings were developed and used to collect data to answer the research questions. The focus group interviews were fully transcribed before the structural phase of the analysis, and Kvale & Brinkmann's seven stages of analysis (2009) were used to examine the interviews and transcriptions. The researchers condensed the views expressed by the informants into shorter formulations and, using meaning categorization, the interviews were coded into categories (Kvale & Brinkmann, 2009) and related to the quantitative survey data. The video observations focused on certain aspects of the teaching lessons, in accordance with Merriam's (1998) strategies and guidelines. The data from the observations were related to the interview data and to the quantitative survey data. Thus, in order to answer the research questions and enhance the internal validity, we combined several research methods (triangulation) in our research design (Yin, 2009).

The study is bound by some limitations. With regard to participants, the study used students that have performed as teachers themselves. Their answers are influenced by their profession, and therefore not representative for other net students.

As regards the ethical part of the research, the NSD (Norwegian Social Science Data Services) have approved the application from the researchers to conduct this research project.

The constructs that have been used in the empirical analysis to present findings are based on categories from the survey, in addition to interviews and observations.

Findings

According to theoretical aspects and empirical analysis the findings are presented in three categories. First, we evaluate findings related to **practical and technological issues**. Second, we examine the **activity and appearance** of our students. And third, we present other **didactical considerations**.

Practical and technical issues

What kind of technological skills are needed, how are we using campus resources, and how do we need to organize the practical issues concerning lessons and courses? Some of the questions on being a 2012 student relate closely to educational infrastructure.

Flexible scheduling

The respondents in this study had 1–4 net meetings (teaching sessions) each month. Of the responses, 80.4% indicated that they did not visit the campus except when attending the two mandatory campus seminars. The variation of timing (daytime/evening), in combination with available recordings, allowed the students to choose when they would attend the teaching sessions. Several respondents noted that this was a main factor in enabling them to take up higher education. Observations also showed that students took advantage of this flexibility; only a half or a third of the students attended some sessions, in other words, they were "coming and going" (in and out of the environment) as they pleased.

A flexible study

Most of the students had a particular place to study at home, and spoke of having to get off the couch and go to that place to start studying. They seemed disciplined, and realized that a quiet place was necessary, mainly in the evenings, in order to focus and avoid distractions:

> *...you could be in a café, or at the movies or anywhere... as long as you have wireless networks, computers, and gadgets available... when you need to concentrate and focus...there are indeed distractions on the screen... and I do not need more distractions ... than I have at home* (Student, 1).
>
> *I also brought my laptop and lectures with me on holidays... and intended to study... but I had no quiet moments... although the intent was there* (Student, 2).

A few students reported that they made use of the flexibility to study in different locations, but this was the exception.

Technical quality

In relation to their use of the system, 60.7% reported no technical problems with their own sound and web cameras. The equipment used varied; the participants had their own cameras and microphones, and their Internet access varied from Wi-Fi to high-speed LAN. Yet, 80.4% were satisfied with the video quality, and 67.9% were satisfied with the sound.

Recordings

The students knew that all net meetings were recorded. During course start-up, we explained to the students and teachers that they were being recorded, and only 5.4% of the students had any concerns about this. The students confirmed that having the recordings was a positive factor in cases where there was no time to watch the lecture synchronously. Our survey reveals that about two thirds (66.1%) sometimes used the recordings even though they also participated synchronously.

User-generated structures

One of the classes established its own Facebook group to which none of the teachers had access. One respondent stated that this kind of media can:

> *be more useful than being on campus...because sometimes on campus you miss some activities or discussions... but on Facebook, everything is written, so I can catch up with it anyway* (Student, 3).

Some of the students also had their own Twitter accounts. The students expressed the view that social media, especially Facebook, have a socializing effect.

Student activity and their appearance

Another relevant perspective of the study focuses on student statements and observations concerning student activity and appearance.

Students' contributions

Several of our students expressed responsibility for their collective learning environment, and regard themselves not only as passive receivers but also as active contributors. Of the responses, 83.9% agreed that fellow students are an important part of the learning environment.

> *It isn't the teacher or someone else who contributes all the time... we must also ourselves join in and participate in a learning environment* (Student, 4).

The DVC tool offers a range of opportunities to communicate, e.g., via chat, microphone, sharing of applications, and presentations via whiteboard. These alternatives generate a wider range of "student voices" than those traditionally heard. Some respondents noted that the idea of communicating during the session is sometimes intimidating, but 25% said they asked more questions in online meetings than in campus sessions (39.3% disagreed and 30.4% said there was no difference). Observations support this, but, as with all classes, some students are active and some are quieter. Interviews did reveal, however, that the chat opportunity can be used to "ask questions we don't dare to ask in an auditorium" (Student, 3); 69.9% reported that they prefer to share their thoughts or questions via the chat function.

> *It is a bit more free than an ordinary traditional university lecture... the chat opportunity... and you have the "raise your hand" button to press... so it is kind of more organized and geared towards participation ...more than the traditional auditorium or lecture hall* (Student, 5).

In relation to being active participants in this way, a student explained that she "didn't like to watch recordings... because it was a totally different experience to join in live" (Student, 6). Several students stated that they found live participation beneficial as it helped them progress and avoid procrastination. This implies that being present is a priority when teaching activities take place. However, another student gave the opposite view:

> *...what I am used to from the university...when it comes to lectures...then you have to sit down passively and listen* (Student, 5).

So if students start off believing that this is a web-based version of an ordinary lecture, they will join the session and act as they usually do.

Appearance, behaviors, and experiences

Our observations and interviews revealed the necessity of quickly establishing digital self-confidence when attending DVC sessions:

> *In the beginning, you have to find out which rules to follow, or how we behave in these environments. Do I dare to speak up? Is what I say reasonable? It is about establishing digital self-confidence* (Student, 1).

To the question "Do you feel that the students behave differently in a net lecture than in an ordinary lecture?", the respondents were divided down the middle, with 39.3% saying yes and 41.1% saying no. To elaborate on this, we asked whether the students combined their attendance at the session with other activities. The results show that students are mostly focused on study-related tasks.

Using DVC tools causes us to miss some gestures and expressions. One respondent indicated that "...you develop a special kind of body language suitable for the video format" (Student, 6). Also, several expressed that they missed being together physically. If the students are using web cameras, some gestures will be visible. These gestures are of a different kind than those used in the auditorium, where students are generally facing the back of the person in front of them; "you see faces more with this kind of education" (Student, 6).

The students reported positively on the synchronous use of audio and video afforded by DVC, which gives them a virtual meeting point and enables a joint review of the syllabus. This has led to sustained communication between students and teachers, and is a positive contribution, since being a net student is often thought to be lonely. Students admitted that using the web camera gets them more involved in learning, but broadcasting with your own web camera also makes you feel more visible. Consequently, the students indicated that they were more aware of their conduct; "You try to sit properly, you don't fidget or doze in your seat" (Student, 4). Both interviews and observations showed that it is more comfortable to switch off the camera. The research revealed that, as an alternative way of engaging, students used chat especially to exchange both informal and subject-specific comments, and to establish and maintain a student fellowship.

Didactical implications

As teachers, we are interested in how we should perform, and how we should orchestrate our courses, and the findings in this investigation do have didactical implications.

Organizing

Each teaching session in the courses analyzed lasted for about two hours, including a break. Of the responses, 42.3% indicated that the sessions should last for 15–60 minutes, while the majority (57.1%) felt that the sessions should be 60–120 minutes. One of the prerequisites is that the sessions are well planned by the lecturer.

About two thirds of the students suggested that the environment was suitable for 10–30 users per session. However, the interviews indicated that if students are to be actively involved, they would prefer the lower end of that scale.

In our sessions, the teacher always used video broadcast, but observations show that broadcasting varied among students: 39.3% wanted to watch the lecturer only, while 42.9% wanted to watch the lecturer and the students. An essential point here is the difficulty in satisfying the majority if a large group of students takes advantage of the course's flexibility and only want to watch the recordings. The students expressed that one way to increase synchronous participation above and beyond the mandatory, is to provide a detailed semester schedule. But the recordings make these lectures flexible and self-regulated anyway:

> *...as an ordinary student, when you attend university or college, it is just a routine every day to show up without thinking... it is something else to sit on the couch watching TV and then decide to sit on the couch to participate in a lesson* (Student, 5).

Some students pointed out that the way the course is organized, with only a few hours of lectures per week, makes the learning environment "feel a bit poor" (Student, 7, 11).

A number of respondents reported that the continuous thread through the activities, lessons, and seminars was a motivating factor to work more or less continuously. The structure "...creates a drive in itself...because it is so systemized" (Student, 6). The semester plan offered structure in the course and contained a schedule with details concerning subject matter content and progress, reading lists, dates and time for activities, net meetings, and campus seminars.

Learning dialogue

The students in this study are all educators themselves, which probably influenced their views concerning how they experienced teaching, and what potential they identified for DVC and the learning dialogue. A joint perception among the respondents seems to be that "learning is interaction; you must participate" (Student, 4). Observations show such contributions, especially chat contributions, are numerous. When a number of people get involved, there is engagement, and being engaged creates a feeling of interactivity. The students want even more of their peers to express their views aloud; "The students have lots of competence and it is interesting to hear their comments and questions" (Student, 4, 7).

That the teacher involved the students actively in the lesson was found to be a positive factor for 87.5% of students. The respondents felt that DVC made participation less inhibiting than on campus: "It's great to be able to post input in the chat room and get responses continuously" (Student, 3). Such activity from students, with specific questions that are followed up by the teacher, results in a more dynamic lesson since it is easier for the teacher to refer to his notes. Here too, we see that the flexibility of the course makes this a dilemma. If the students do not attend synchronously, the opportunity for such dialogue is lost.

> *If you don't engage the student during the teaching, the lesson doesn't have to be broadcasted live, and everyone can use a recording. For the students it is probably more useful to have the opportunity to ask the teacher and the other students questions during the lesson* (Student, 4).

The teachers should use the synchronous option to create a learning dialogue.

The lecture

The flexibility causes the attendance of students to vary a lot, and provides didactical challenges. More than half of the respondents (55.4%) did not agree that "they learn best when the teacher speaks alone via Elluminate *Live!*", whereas 28.6% said that they learned best this way; 16.1% were neutral on this issue.

The need and use of technology seemed to vary somewhat in the teaching sessions. The students pointed out that "sometimes there have been lectures that have been completely one-way, without participation. In those cases, I don't see why the student needs a webcam" (Student, 8). But if it is a more participation-based lecture, the need for a webcam is more obvious, as communication is face to face.

The teaching methods the teacher applies will also affect student behavior:

> *...if there is a lecture form that is pure one-way communication ... it becomes more like pedagogy radio... you will not be the only one attending either... in that case, it is better to just have it on in the background and... continue to iron shirts or something like that* (Student, 1).

Students also claim that the theme of the lectures has a crucial role, and that it is sometimes best when the teacher lectures alone, as it may be intrusive for the students to participate actively. According to them, if the session is characterized by transfer content, then it can take place anywhere, and it is not really necessary for students to be present, in real time. Several students believed that courses involving a lot of lectures (one voice), could just as easily have been seen later on. Thus, some believe that the teachers continue to perform "traditional teaching" regardless of the environment. An interesting point here is that students do not necessarily perceive such one-way-communication as negative. An initiative proposed in such situations is to record the lecture in advance and create a library. The students assert that this could be time-saving, because students and teachers could then use their time together to do other things, e.g. work on topics in detail.

The role of the teacher

Our students provided us with qualified suggestions as to how a good teacher can perform in an online learning environment. They appreciated a responsible teacher who leads and chairs the session, which also involves controlling the dialogue contributions:

> *Without proper management, it often happens that it's the same few people who speak again and again... and it is like that in the classroom... there is always someone who speaks a lot more than others* (Student, 5).

It also involves planning the session and using the tool (DVC):

> *It is totally unworkable if the teacher does not lecture or teach in the medium and does not exploit the opportunities that exist... and the variety you can get; it must all be teacher-directed* (Student, 3).

The students reported that the system works well when teaching has been organized into periods, which means that there is some variety. A typical example would be alternating between teacher

presentations (and reviews), discussion, and the use of external resources, e.g., YouTube videos. With these variations, it is important to give clear and specific instructions, and to make time to implement them.

Discussion

Our findings relating to practical and technical issues prove that the conditions for higher education have changed, and are now more aligned with our modern lifestyle. To establish and refine online education, it is reasonable to listen to what students say about the practicalities of their everyday lives. Understanding this context as an educational ecosystem (OECD, 2010; Shear, Gallagher, & Patel, 2011) is essential. Most students availing themselves of flexible education are older than the average student, and have family, employment and financial obligations that prevent them moving away from home for long periods (Børsheim, 2012, p. ii). Our students rarely use the campus facilities, which is why we have to develop our online courses. As Selwyn (2011b) states, it is not sufficient to see schools just as physical structures (buildings, corridors, classrooms): for example, Facebook and Twitter are supporting arenas for our students.

We have focused on how DVC can be better utilized as a new educational structure, which is also in accordance with national priorities (Uninett, 2009). Our findings on using desktop videoconferencing suggest that the quality and options are in general up to standard and now advanced enough to be included in the context of lifelong learning. It is a solution that makes student life flexible, but most of them have permanent study places, and are dedicated students. A consequence of this is that we do not strive to tailor solutions that necessarily fit everywhere.

An important feature of DVC-technology is its ability to record meetings. Our students highly value these recordings, and use them even if they attended the recorded meeting itself. But it is interesting that they realize this opportunity also provides dilemmas, with several of them stating that they benefit from attending the live session.

When we listen to what students say about student activity and their appearance, we can see some challenges. This calls for developing our competence as actors in these environments. According to Solberg (2011, p. 85), "Experienced users are enthusiastic about the variety of ways of working and learning with others." By analyzing our data and responses, we can attempt to leverage some of the enthusiasm that comes across in our findings. When we listen to the students describing their experiences with DVC, they use terms like "activity", "collaborate", "participation", "community", and "together", all words that correspond well to the socio-cultural framework on which this article is based. Several students also explicitly claimed that both students and teachers in the teaching session are responsible for the learning process.

Findings show that students mostly contribute via the chat function. This functionality seems to help lower the threshold for participation. DVC tools enable new ways of communication, and require modifications in teacher and student competencies. Some students reported that it is easier to be interactive using DVC in education than in traditional contexts, and they want the teacher to allow for such input. The use of web cameras makes the learning situation more intimate. Our experience is that technology implies creation of social spaces, but the mix of tools and functionalities orchestrated by the teacher in a useful way is essential. Consequently, Salomon's (1992) holistic perspectives from 1992, emphasizing the composition, are still valid.

The dilemma that is still frustrating relates to flexibility and the need for social communities. On the one hand, our students express their need for other students to participate in sessions, but on the other hand, they also describe their situation as Selwyn describes it, as a "process of distance learning as a self-centred, private, solitary, ordered exercise" that "chimes with contemporary notions of independent distance learning as a self-regulated and self-disciplined individual 'project'" (2011a, p. 95). The respondents identified this dilemma when both synchronous and asynchronous modes were available on the course. They appreciated the synchronous experience, which gives social presence, intimacy, immediacy, and a sense of belonging; it helps to keep momentum. However, initially, these kinds of courses were applied for because online studies are often looked on as enabling students to study at their own pace. Interview findings indicated that each DVC learning session students attend is associated with greater awareness and reflection. A live session requires greater mental presence. Because of the recordings and the opportunity to choose when to learn, students must increasingly make a conscious choice regarding when they want to study. Allowing your face to be viewed via a web camera implies a completely different awareness of the learning situation, and renders you more mentally present than if you sit in an auditorium looking at the back of a fellow student in front of you.

Owing to its flexibility and the fact that is run off-campus, distance learning is often regarded as a more individually driven form of education. The act of engaging spontaneously in learning, any time, anywhere, and at any pace is challenging, and our students were not all agreed on a way to solve this. They noted that there are differences between learning via DVC and learning via traditional university lectures. As Andersson's research (2010) also shows, it is a challenge for students to identify and adapt to the changes in learning practices that distance education requires. Students stated that attending lectures via DVC did not match their traditional sense of what it means to study. Andersson suggests that new constructive learning practices are emerging, and our research shows similar evidence; students mentioned that the tool provides greater freedom and more opportunities to contribute ideas.

Teaching blended courses in higher education is a complex issue to address. This complexity is one of the main reasons faculties are discouraged from teaching such courses (Ocak, 2011). Bates & Sangrà (2011, p. xxii) state that "a critical area for developing vision for the use of technology is at the academic program planning stage." Web-based learning in an educational ecosystem with a lifelong learning perspective will benefit from a thoroughly prepared seminar plan (Børsheim, 2012), which will provide predictability and low dropout rates. Our students reported that a systemized composition creates a drive in itself. This means we have to integrate decisions about technology with other academic decisions, such as content, reading lists, methods of teaching, mandatory activities, and how the program will be delivered, i.e. the combination of face-to-face and distance learning. Because of this interdependence, an "all or nothing" approach is needed. The courses in this study have a detailed semester schedule and a certain percentage of mandatory synchronous attendance. The students agreed on compulsory attendance and argued that this is related to the activity in the learning dialogue and to a joint responsibility for the learning environment.

The learners in Selwyn's study (2011a) expressed that they were striving to develop studying routines, i.e., stable processes for engaging with their studies. So the implications for teachers are having to pay more attention to the differences between face-to-face and online teaching. The role of the teacher is to work with the students to find the correct balance between synchronous and asynchronous technologies, in a way that will facilitate the principles of effective participation.

Conclusions

We know that new technology adds new levels of complexity and requires students to learn new sets of skills, but using such digital tools also changes teaching methods (Solberg, 2011; Staupe & Kolås, 2007). This article presents what students say about desktop videoconferencing, in order to provide empirical findings concerning didactical implications, which will empower teachers to enhance their online teaching environment. Teaching methods will change as a result of technological development, and based on the demands and expectations of new groups of students. So what did students say about DVC and how DVC has influenced online teaching and learning? Outcomes from discussions of the findings are centered on three key issues:

- Practical and technical issues
  We found that everyday life among many students is preventing them being on campus, but available DVC technology and a reorganization of academic courses can offer new, satisfactory studies without too much difficulty.
- Student activity and their appearance
  Our students study at their own pace. However, they say that their fellow students are an important factor in obtaining the desired learning outcome. In this context, they believe that genuine and sustained interaction between students and instructors is needed. They also stated that they appreciate a reasonable mix of mandatory, synchronous activities, which allows flexibility, but that should not alter the fact that real education requires the development and nurturing of real relationships. Studying via DVC entails a revision of the traditional approach to being a student.
- Didactical questions
  It is evident that a thoroughly prepared seminar plan is highly important in an online learning environment. Such a plan would have to integrate technology decisions, along with other didactical academic decisions, such as content, reading lists, methods of teaching, mandatory activities, and to what extent the course will be delivered as a combination of face-to-face and distance sessions.

Our students are able to cope with the practical and technological issues. Their responses indicated that when using DVC, there are changes and dilemmas according to student activity and appearance. It is to be hoped that we can use our experiences as experimental innovators and reflective practitioners to move education beyond the brink (Laurillard, 2008). The didactical answer derived from our student responses is that the design of any segment depends on the design of all the other segments, and that the teacher is responsible for this orchestration.

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1 The version used in this project was Elluminate Live! Full Edition 10.0.2_18158. During the project period (2010–11) Elluminate Live! was acquired and renamed into Blackboard Collaborate™ web conferencing.