ACTIVE STUDENTS IN WEBINARS

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ABSTRACT

To ensure student activity in webinars we have defined 10 learning tasks focusing on production and communication e.g. collaborative writing, discussion and polling, and investigated how the technology supports the learning activities. The three project partners in the VisPed-project use different video-conferencing systems, and we analyzed how it is possible to implement different learning activities in the video-conferencing tools, alternatively using external tools in combination with video-conferencing tools.
The webinar technologies investigated (Microsoft Lync, MeetCon and Adobe Connect) mainly have features to create live polls, share screens and resources, chat and handle user roles (presenter, guests). Learning activities based on e.g. collaborative text production, collaborative work with spreadsheets, presentations and evaluations demand the use of external applications.

KEYWORDS

Webinar, synchronous e-learning, video-conferencing system, student activity.

1. INTRODUCTION

As the "flipped classroom" method spreads around classrooms worldwide, it is worthwhile to consider the adoption of some of these ideas also in online learning, focusing on active students during synchronous webinars while moving one-way teacher presentations to asynchronous learning materials (e.g. videos, which the online student can watch anytime and anywhere). In the field of online learning, there is a lot of focus on MOOCs (massive online open courses) now. MOOCs are usually based on asynchronous e-learning, but also synchronous e-learning is developing as teaching methods and technology are improved. One challenge of synchronous e-learning is boring sessions with the teacher as a "talking head" with one-way presentation (Nielsen, 2005).

Synchronous e-learning often uses video-conferencing systems, teaching lessons through so-called "webinars" (web seminars). Clay (2012) discusses the term webinar, and how the student in a seminar simply sits and watches someone present. Clay suggests the term "web workshop" to more correctly capture the sense that the student will be doing something instead of passively listening. Slåtto et al (2011) compare the webinar to a web conference, which was an "attempt to transfer the physical conference to internet and not very successful. The webinar is better adapted to the characteristics of internet; it is short, fast, supporting, fragmented and dependent on being seen in a larger perspective". Slåtto et al (2011) define a webinar to be "an online meeting where several persons gather around a topic, to listen to a lecture, work on a problem, or combinations of these. A one-way presentation is usually called a webcast". We use the term webinar based on the definition of Slåtto et al (2011), meaning live online meetings including active teachers and students.

According to de Freitas and Neumann (2009) "passive modes of delivering content and a lack of active student participation or effective interaction cause more extreme problems in distance education groups, such as high dropout rates, because of limited or no face-to-face contact between students and tutors". This is one reason why it is important to look into how to create active students in a webinar-based learning environment. Finkelstein (2006) points out "lessons are best learned from group discussion or collaboration. Few things are as rewarding as watching the exploration of a topic take flight as learners discuss, collaborate, construct knowledge and work together to solve a problem".

Teaching activities in e-learning have to emphasize more student activity, through interaction, collaboration and communication. Video-conferencing systems support two-way communication, coordination and collaboration in the learning situations.

The structure of the article is as follows; first, the study and research methods are presented, followed by a theoretical framework focusing on interaction and collaboration, and the definition of student-active learning activities. We then present the results of our study, and finally discuss the results and conclude the article.

2. THE STUDY

The VisPed study involved three educational institutions in Norway: The Norwegian University of Science and Technology (NTNU), Folkeuniversitetet Midt-Norge (FUMN) and Nord-Trøndelag University College (HINT). The project took place in 2012-2014. The three participating institutions, Norway Opening Universities, Stiftelsen for fremtidens Nord-Trøndelag funded the project.

2.1 Research Question

The main research question for this paper is how to ensure student activity in webinars, focusing on production and communication. Next, how can those activities be implemented in three different video conference systems: Microsoft Lync, Adobe Connect and Meetcon, alternatively in external tools that can be used together with the video-conferencing systems to ensure student activity.

2.2 Research Methods

The research design of this study follows the basic guidelines for qualitative research (Askheim and Grenness, 2008) with descriptions of research questions and relevant informants, where the survey was implemented and at last, how it was performed.

The main informants of this study were six teachers who planned, lead and reflected upon the webinars in their courses. We developed a guided questionnaire online, where the teachers could reflect upon specific topics after each webinar. The topics of the questionnaire were time, pilot course, video-conferencing system, categories of planned student activity in the webinar, digital tools, problems/challenges and positive experiences. Based on 20 different evaluations of webinars, mainly from using MeetCon and Adobe Connect and reflecting notes from the teachers using Lync, in addition to a focus group meeting in the end of the project with participants from all the institutions, we analyzed the experiences of the teachers. The main purpose of the focus group meeting was to highlight opportunities, similarities and differences in tools for student-active webinars.

2.2.1 Data Collection

Data was collected through pilot courses using video conferences as a teaching platform; two Spanish language courses (NTNU), a business management course (FUMN), a chemistry course and a pharmacy course (HINT). The courses were different when it comes to content, academic methods, number of students and tradition for student activity in the classroom (Kolås, 2014). The differences were valuable to the study in order to learn from each other, as well as to discuss and compare learning activities. Table 1 gives an overview of the courses involved in this project.

Table 1. Courses and webinars in the VISPED project

Name of the course	Institution	Numbers of students	Webinars
Business management	FUMN	9	6 webinars * 4 hours. Solely online students.
Chemisty2 and 3 (24 ECTS)	HINT	26	Combination of webinars and physical gatherings.
Practical pharmacy (11 ECTS)	HINT	32	Combination of webinars and physical gatherings.
SPA0502 Spanish (7,5 ECTS)	NTNU	Few	5 webinars * two hours, mixed group with both online and classroom students.
SPA6500 Migration in the Spanish speaking world (15 ESCS)	NTNU	10	12 webinars * one hour. All the students participated at the webinars.

Through seven online workshops, the participating teachers were introduced to relevant tools for student activities, e.g. wiki tools, collaborative tools related to text editors, presentation editors, mind map editors, spreadsheets and polling tools, and how to use video. The topic of the last workshop was to discuss which tools were adequate to use in different courses. The workshops took place before the pilot courses started in the fall of 2012. The workshops provided the teachers with experiences of running webinars with high impact of involvement from everyone in the webinar. Six of the online workshops took place in Microsoft Lync video-conferencing system and one workshop used Adobe Connect as webinar platform. The webinar workshops were limited to one hour each.

The three educational institutions use different video conferencing systems: Adobe Connect (NTNU), MeetCon (FUMN) and Microsoft Lync (HINT). This was valuable in our study as the different video conferencing systems provide different possibilities of student activity features and tools, e.g. chat, private chat, web cam video stream, screen sharing, polling etc. Clay (2012) suggests to use polls to check knowledge, comprehension or experience, stimulate interest, set up discussion, provide instant feedback, allow learners to compare their responses. Finkelstein (2006) points out that "live video is the most obvious answer to conveying virtual body language and a sense of immediacy. Used well and appropriate, live video can deliver a very powerful and human experience." Clay (2012) describes how a teacher is using the whiteboard not only to record ideas in real time but also use it for freehand drawings, and to let the students fill in information to a table, where each students gets his /her own grid.

2.2.2 Limitations

The students of the pilot courses had limited skills in using digital collaborative tools. Krokan (2012) claims that many so-called "digital natives" in reality are almost digital illiterate because they have little knowledge of how to work together using services such as wiki and Google Docs. The number of student activities and tools had to be limited according to educational benefits in the learning situation. The teachers had to choose a few digital tools for each course, as each tool had to be introduced technically and pedagogically to the students. This is time-consuming since many of the students were not tech savvy. The digital tools had to provide added value to the learning activity, in order to feel useful and not a waste of time. Therefore, each learning activity and tool are limited tested.

3.   THEORETICAL FRAMEWORK

To create an environment of student participation in a synchronous webinar-based classroom, it is necessary to change the role of the student. We have to replace the traditional passive receiving student with an active participant. In turn, this approach affects the manner in which we view the role of the teacher as such.

3.1 Interaction and Collaboration

Clay (2012) defines "interaction" in a virtual classroom setting as "verbal and written synchronous (two-way) communication, usually between the facilitator and the participants". When a student is asking the teacher or a fellow student a question, and receives an answer, this is interaction, but not collaboration. Clay (2012) exemplifies "interaction" as a facilitator's use of questions or polls to check understanding, maintain interest, promote the sharing of ideas and experiences or otherwise engage participants in learning activities.

Clay (2012) refers to the term "collaboration" as the "act of working together to achieve a goal", often with participants contributing independently from the facilitator. An example of collaboration is to create a product (e.g. a presentation or a text) together. Conrad and Donaldson (2004) stated that "collaboration is a key element to the success of an online learning environment".

3.2 Learning Activities

Conole and Fill (2005) define a learning activity as consisting of three elements; the context (subject, level of difficulty, the intended learning outcomes etc); the learning / teaching approaches (theories and models); and the tasks undertaken (type of task, techniques, resources, tools etc). Examples of tasks are reading paper, discussing ideas, answering questions etc.

Finkelstein (2006, page 52-53) presents several ideal learning situations based on real-time online venues, e.g. chat rooms, virtual meeting room, virtual classroom, interactive webcasting etc. A virtual classroom is according to Finkelstein (2006) characterized by real-time voice and visual contact between all participants, a shared whiteboard, an integrated area for the projection of slides, text-based interaction, student indication means, assessment tools and the ability to gauge virtual body language. Examples of ideal learning situations in different venues:

- Game-based learning activities, role-playing activities, group problem-solving simulations and team-building activities are classified as possibilities at multi-user virtual environment.
- Group meetings, team- or group discussion and work, review sessions and "show and tell" sessions are possibilities at virtual meeting room environment.
- Interactive seminars, student-led presentations, critique sessions, facilitated labs or problem solving and organized breakout sessions are possibilities at virtual classroom.
- Remote student or expert participation, group collaboration, question submission, quizzing and polling, and synchronized note taking are possibilities at in-class online aids.
- Peer discussion on course material / technical support are other useful possibilities (Finkelstein, 2006).

Combining task types, techniques and tools/resources from the learning design toolkit (Conole & Fill, 2005) and ideal learning situations defined by Finkelstein (2006) we have identified 10 learning tasks focusing on student activity in a synchronous online learning environment. We focus on learning tasks based on production and communication:

1. Collaborative writing of text. This may be in the shape of a joint effort in taking notes from class, in problem solving sessions, brainstorming sessions, resumes of texts or written discussions regarding the topics at hand.
2. Collaborative work in spreadsheets.
3. Collaborative work in presentation tools like prezi and mind map tools.
4. Collaborative drawing.
5. Collaborative data collection and data analytics.
6. Voting / polling is a learning task where the students take part in or create a survey, e.g. an opinion poll. Voting/ polling tools usually have a variety of question types and multiple choice.

7. Student presentations means that individual students or groups of students prepare and present student work orally or using media-based presentations.
8. Discussion as a learning task involves the students in oral speaking or writing statements, debating a topic.
9. Group work in small groups, where the participants collaborate (orally and/or written).
10. Share resources, which means sharing of links, images, text, files, videos etc.

4. RESULTS

Based on the 10 defined learning tasks we first shortly present how different student activities took place in our pilot courses. Next, we examined and compared the functionality of the three chosen video conferencing system, focusing on the 10 learning tasks.

4.1 Student Activity in the Webinars

The evaluation of webinars showed several useful examples and experiences of student activities.
- Collaborative text production (1) using Google Disk Document took place in the courses Business Management and Chemistry.
- Collaborative spreadsheet production (2) using Google Disk Spreadsheet was investigated in the course of Business Management. The topics were accounting and budgeting.
- Collaborative development of a presentation (3) was a task in the Spanish language course, where the students used Prezi. No pilot course used mind map tools for student collaboration.
- Collaborative drawing (4) was a topic in the Chemistry course. The teacher and the students used an electronic pen for writing chemical formulas and derivations.
- Collaborative production of surveys (5) was a topic in the courses of Practical pharmacy, Chemistry and Spanish language. In the course of Spanish language, the students used Google Forms as a common tool.
- Voting and polling (6) were used for evaluation purposes in the Chemistry course, and they used the "One Minute Paper" technique in a Google Form to evaluate the course of Business Management.
- Oral student presentation (7) based on online group work was a method in the course of Business Management, and another group had to give feedback on the student presentation (peer assessment).
- Reflections and group discussions (8) about situations from practical tasks were used in the course of Practical pharmacy. The group work took place in smaller groups (9).
- The students also created and shared resources (10) like project plans and reports in Google Disk Document (Practical pharmacy). It was also easy to share links and resources through the chat tool in the video-conferencing systems during the webinars.

4.2 Tools for Student-Active Learning Activities in Video-Conferencing Systems

We soon realized that besides video-conferencing systems, another way to develop student-active learning activities is to use external tools in combination with video conferencing tools. The results in table 2 is based on the 10 learning tasks and shows the evaluation of three video conferencing tools focusing on synchronous learning activities where the goal is active students.

Table 2. Tools for student active learning activities in three video-conferencing systems

Student activity	Microsoft Lync	Meetcon	Adobe Connect	External tools (possible to combine with video conferencing tools)
Collaborative text production (1).	Digital whiteboard	Digital whiteboard	Digital whiteboard	OneNote/Notes, Etherpad, Google Disk ++
Collaborative production of a spreadsheet (2)	No internal system.	No internal system.	No internal system.	Google Drive Spreadsheets, or application sharing (Excel, Numbers)
Collaborative production of presentation (3)	No internal system.	No internal system.	No internal system.	Prezi, Google Drive or application sharing (Powerpoint, Keynote).
Collaborative drawing (4)	Digital blackboard	Digital blackboard	Digital blackboard	Google Drive Drawing
Collaborative production of an survey (5)	An internal tool for making a survey.	No internal system.	No internal system.	Google Drive Forms
Voting and polling (6)	Survey tool	No internal system.	No internal system.	Kahoot!, Socrative + +
Student presentation (7)	Application sharing (student has a presenter role)	Application sharing (student has a presenter role)	Application sharing (student has a presenter role)	Prezi (remote presentation), PowerPoint (Broadcast slideshow)
Discussion (8)	Oral discussion through the webinar and written discussion through the chat	Oral discussion through the webinar and written discussion through the chat	Oral discussion through the webinar and through the chat	LMS discussion forums, Facebook groups ++
Group work in small groups (9)	No breakout room function	No breakout room function	The Breakout room function.	
Share resources (10)	Oral through the webinar and posting through the chat.	Oral through the webinar and posting through the chat.	Oral through the webinar and posting through the chat.	

For group work in webinars (9) only Adobe Connect have Breakout room with random subdivision of the group or the administrator could define the subdivision. Further, the webinar administrator decides when the breakout rooms ends and with automatically transfer to the ordinary webinar room. For Microsoft Lync and Meetcon the students must leave the webinar room and enter separate group-rooms. After the group session, the students must return to the ordinary webinar room.

5. DISCUSSION

Our study shows that it is possible to make online students active in webinars, but the study also shows that the video conferencing systems have limited tools to ensure student-active learning activities. It is often necessary to use external tools, e.g. Kahoot!, Prezi, MindJet etc as the video conferencing systems lack features, which are necessary to implement student-active learning activities. One drawback of using external applications are that the teachers and the students need to learn to use several applications.

5.1 Challenges with Cloud-Based Software

The VisPed project mainly used free software for the project, e.g. Google Disk, Prezi, Etherpad, Padlet, Mind42, Socrative, Wikispaces and Kahoot! The advantages of these tools are that they are easy to learn and possible to use in a browser (no software installation) and they have collaborative functionality. However, the use of cloud-based services has some disadvantages. Cloud-based software often has its own user/password session. Teachers and students have to sign in, remember, use and maintain several logon sessions, which is time-consuming and confusing. Some free versions lack some tools compared with the more advanced versions. Changes of functionality in free software happens, and free software sometimes work in only a specific browser. This frustrates teachers and students.

5.2 Teaching the Teachers

Teacher-centric presentations have long traditions in higher education, and new ways of teaching like the flipped classroom method and more student-active learning activities challenge both teachers and students. Teachers have to learn to use a variety of tools. It is important that the teacher learn the digital tools they want to use for student activities before ahead of the course. Many tools were new to the teachers in our project, but were learned through online workshops. The goals of the workshops were to learn how to use tools for collaborative work, e.g. wiki, writing, spreadsheet, presentation and mind map. In addition, the webinar form of the workshops made the involved teachers familiar with webinar tools. The teachers got pedagogical ideas and sufficient technological skill to organize their own webinars with several elements of student activities.

5.3 Student Expectations

Many students expect a traditional teacher to teach them knowledge, skills and attitudes. Introducing several student activities into the webinar classroom indicate that the students have to be more active and visible. They have to write, speak, discuss and evaluate during the webinars, and not all of them are familiar with professional communication through video conferencing devices. Further, the students have to spend some time to learn new digital tools instead of using the same time focusing on the learning outcome of the course. New digital tools have to provide added values and be well-supported with learning materials. The VisPed project developed a toolbox for student-active learning activities. Here each software tool was introduced with a short introduction page and short "how-to" videos and written instructions. These resources were available for both teachers and students.

Webinars and collaborative tools introduce several sources for learning content and relevant student work. Collaborative tools store the learning content in different places, and mainly in cloud-based services like Google, Prezi, YouTube and other social media. This is more complex than reading the learning content from a textbook and use a LMS for messages, tasks and assignments. The students expect an uncomplicated learning environment, and complain if the learning environments are too complicate. To solve this challenge we have to teach the students how to organize their own learning environment when we introduce new learning tools. It is also important to present a common digital hub where teachers and students can post links to learning content each webinar and topic of learning outcome.

6. CONCLUSION

The main goal of the VisPed project was to investigate how to introduce student-active learning activities for webinar-based teaching. We defined 10 learning tasks focusing on active student participation in webinars. Collaborative writing of text, spreadsheets, presentation, drawing and surveys are valuable student activities in addition to discussion, voting, polling, sharing resources and student presentation.

Video conferencing systems used for webinars have limited functionality to ensure an active and participating student. Microsoft Lync, MeetCon and Adobe Connect mainly have features to create live polls, share screens and resources, chat and handle user roles (presenter, guests). In order to create learning activities based on e.g. collaborative text production, collaborative work with spreadsheet, mind map, presentations, polls and evaluations it is necessary to use external applications e.g. Kahoot!, Google drive, Etherpad and Wiki pages.

As Conole and Fill (2005) defined "learning activity" to consist of context, learning/teaching approach and task, we have in our study a learning / teaching approach focusing on student activity, a context of three different video conferencing systems and tasks based on production and communication.

Video conferencing systems allow for interaction and collaboration, using a variety of tools e.g. chat, sharing application and polling. Instead of focusing on the existing tools, we have performed a study of three video conferencing systems focusing on their abilities to ensure student activity. This study ensures that online teaching methods do not solely take software features as a starting point, but first consider what learning activities are preferable to use, and afterwards look at what software features are needed.

6.1 Further Research

After the VisPed project was ended, the use of webinars in synchronous e-learning has expanded to other courses at the institutions (Kolås, 2014). Several participants raise demand for further evaluation of the webinar area. The literature study points out some other relevant learning tasks for synchronous online learning environment, which are not evaluated in our study, e.g. brainstorming, role-playing, game-based learning, collaborative video production and peer assessment.

Even though students and teachers meet through e.g. weekly webinars, the learning materials accessible between the webinars are also important. Further research should include the investigation of how e.g. short videos can replace the one-way teacher presentations (in an "online" flipped classroom method) to ensure that even more time of the webinars can be dedicated to active student participation.

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