The Global Classroom Model Simultaneous campus- and home-based education using videoconferencing

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Abstract: This paper presents and discusses findings about how students, teachers, and the organization experience a start-up-project applying videoconferences between campus and home. This is new territory for adult learning centers. The research is based on the *Global Classroom Model* as it is implemented and used at an adult learning center in Denmark, named VUC Storstrøm. . After a couple of years of campus-to-campus video streaming, VUC Storstrøm started a fulltime day program in 2011 with the support of a hybrid campus and videoconference model. In this model the teachers and some of the students are present on campus in the classroom, while other students are participating simultaneously from their home using laptops. In this paper, the case and context of VUC Storstrøm, the research design chosen, and the literature that already exists in this area constitutes the backdrop for the analysis and discussion of the first activities in this long-term project. The research is based on interviews, on utterances in feedback sessions, and on the observed interaction taking place in the first sixths month of 2013 (i.e. 1½ year after the first program commenced). Evaluations show that the students are happy with the flexibility this model provides in their everyday life. However, findings also show several obstacles: Technical issues are at play, but also the learning design of the lessons, as well as general organizational and cultural issues. In this paper we focus on the students and teachers experiences and on the organizational issues related to the transition to the Global Classroom Model as well as provide outlines to the consequences these findings may have, for example in relation to the continued development of the teachers' educational designs.

Keywords: Global Classroom, videoconferences, hybrid campus- and home-based education, adult education, competence development, teacher education

1. Introduction

This paper presents experiences from a long-term research study on how students, teachers, and the educational organization experience a videoconference start-up-project, where students attend class on campus and from home synchronously. This is a new field for adult learning centres, and as our literature study in relation to our analysis shows, the specific Global Classroom model is a new kind of setup that influences the pedagogic and learning design in different ways than what is known from the more well-established campus-to-campus or desktop videoconference settings.

1.1 Videoconferencing in education

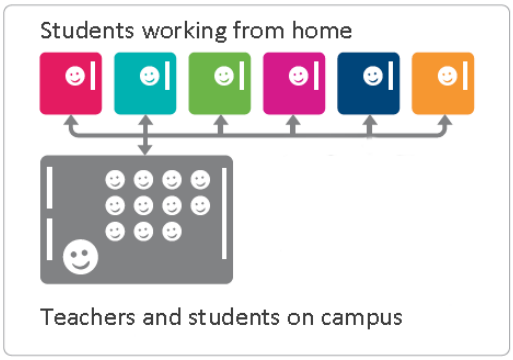
Videoconferencing is a synchronous technology that allows for a direct and immersive learning experience for on-line students since it enables a simultaneous face-to–face interaction with both audio and video, giving a sense of connectedness and utilizing the premise that visual signals improve human interaction (Bower, 2012 and Lawson 2010). According to the literature videoconferencing has "promised benefits of real-time interaction, immediacy, motivation, and collaborative learning" (Gillies, 2008: 108). Though the literature gives examples of these benefits, many also points to technical problems, difficulties in adapting to new teacher roles and functions, and critical challenges to adapting and developing learning designs (e.g. Hedestig & Kapetilinin, 2005 and Kjær et al 2010).Videoconferencing has developed into two main forms in education: The oldest is the parallel form that uses dedicated videoconference-hardware and is used for reaching one or multiple remote campuses, where the teacher and some of the students are in one location and other students are at another location. Today, other uses of this model exist for instance international guest lectures and virtual study trips (Lawson 2010). The newer desktop form uses personal devices as PC's or tablets and is a software-solution. Students sit separately at home or together on campus, using live-streaming from everyone to everyone (Andrews and Klease, 1998; Freeman, 1998; Kjær et al, 2010; Roberts, 2009). The two videoconference forms both has a major impact on the learning design as the first one takes out-set in the classroom and the teachers' physical location herein, and the second one uses a shared laptop space as the starting point of the educational activity. In a third videoconference studio-form, the teacher is in a studio by herself and the students either together at another campus or at home, and thereby hybrid versions emerge.

1.2 VUC Storstrøms Global Classroom Model

VUC Storstrøm is our case organization. VUC is a generic abbreviation for adult learning centres in Denmark. When we refer to VUC, we only refer to our case organization and not VUC's in general unless specifically noted. In the VUC a new hybrid videoconference form named *the Global Classroom Model* is used. The teacher and students on campus use dedicated hardware solutions (Polycom Realpresence), while the students at home sign-in to the classroom via a desktop-software solution. Unlike the literature describing technologies as Adobe Connect etc. (Kjær, 2010; Karabulut and Correia, 2008; Lawson 2010) this teaching process uses the classroom and the physical boards (digital smart boards) as reference point.

The teacher addresses the students in the physical classroom at the same time as the students online via representations on the projected screen on campus (see figure 1), this being two distinct modes of communication. The students have the choice to participate from campus or from home on a daily basis. Very few describes this hybrid form, and all are new pilot-like-studies (as Ellingson and Notbohm, 2012; Ørngreen et al, 2013) and this is why further research in the area is needed.

Global Classroom uses videoconference equipment that allows the teacher and students on campus to see and communicate synchronously with the students at home and vice versa. From the start the students could attend from home every other week, and every other week they were obliged to go to the campus. Today students generally can chose if they want to attend from campus or from home. The equipment in the class is situated in a way that enables 1) the teacher to see and hear the class at campus and at home at the same time, 2) the students to see the whiteboard in class and to see and hear the teacher in class and the students at home 3) the students at home to hear the classroom, to see the whiteboard as well as the teacher or the students at campus depending on which camera is used at campus (see figure 1). It is also possible to establish virtual-group rooms for group-assignments.



(a)

(b)

Figure 1: The global classroom set-up

In the school year 2010/11 VUC had approx. 5,500 students (VUC, 2013). HF-Global Classroom represents a very small proportion of this (two classes respectively 10 and 26 participants (1.3.2013)). Applying the Global Classroom Model to the HF education is the first initiative in a long-term strategy in a relatively low population

density area with long distances. One of the purposes is to ensure each citizen access to education regardless of time and place.

1.3 New demands for the adult learning teachers in the videoconference setting

VUC is an adult learning center and our research also fills a gap concerning the teachers, since there has been a decrease in the academic interest in "*The roles, characteristics and capabilities of educators*" (Harris and Morrison, 2011: 42). According to the review of the 50-years history of the *Australian Journal of Adult Learning*, papers on teachers in adult learning fell from 32% to 7% from 1960-2010. However, due to the increased demand of technology in education there is a continued interest in researching the roles, development of learning design, and general professional development for teachers using on-line technologies (Dede et al, 2009; Laurillard, 2011 and 2012; Beetham and Sharpe, 2013; Baran et al., 2011). Thus, there is a need to gain knowledge about how to enable the teachers and the organization to establish effective and engaging designs for learning in videoconference settings.

VUC is implementing *the Global Classroom Model* to the *HF* education. HF is a Higher Preparatory Examination Course (upper secondary general education program) that lasts 2 years. To teach at HF requires*" a Master degree in at least one relevant subject and to have completed a Post-graduate teacher training course for upper secondary school teachers"* (Milana, 2008: 7). However, it is a recent phenomenon that the majority of the teachers at VUC use technology in their teaching practice, such as sharing digital materials and using traditional learning management systems. The distributed videoconferencing will furthermore make technology constantly present during the teaching.

For the last 10 years, the Danish Government has focused on the implementation of IT in education, as a mean to increase the academic level and ensure that more people get an education. The argument is that IT provides better opportunities for differentiated and more flexible learning and evaluation forms (TDGME, 2012). However, teachers lack an established practice and support when navigating in the many new opportunities within IT (Riis, 2012; Laurillard, 2011), and there is a need to examine what it takes to achieve a well-functioning communication and decision-making flow between the organization and teachers (Henriksen et al, 2011).

2. Research objective and methodology

This is a joint research project between VUC Storstrøm and Aalborg University (AAU). The overall research objective is to investigate: *the design of innovative methods, practices and evaluation tools in relation to the use of IT in Global Classroom settings, with a focus on how to enable teachers to create motivating and qualified learning design for the students.*
This paper deals with the first two phases of the cyclic action research process, namely diagnosing and action planning (Susman and Evered, 1978). Our understanding draws on the assumption that an innovative implementation of IT in formal learning situations takes place as an interaction between different actors, and that research of this kind needs to be grounded in mutual learning and dialogue. As such this is a participatory action research study.

This is done by means of a PhD study as well as a research-based competence development project with senior researchers. We have thus gained knowledge about the experiences, challenges, and potentials when teaching and learning within this hybrid videoconference model. Both studies are action research studies, and the PhD-study furthermore uses a Design Based Research approach to formulate empirical and user-driven theories relating to the Global Classroom Model.

The book *Interaction Design* applies Eason's concepts about primary, secondary, and tertiary users (Rogers, Sharp and Preece 2011:333). Primary users often directly use a given system, in this VUC-case the teachers and the students at home using the videoconference. Secondary users do not directly use the system, but are influenced by other person's use. Alternatively, they only use the system occasionally, as in the VUC case those students almost always attending class on campus. Tertiary users are affected by or have influence on the system, for example as administrators, managers, and it-support personnel. Interaction Design as a discipline argues that systems and technologies first and foremost need to be usable for the primary users, the end users. We agree to this, and furthermore we find that students and teachers are the most important to listen to in the evaluation processes. However, previous investigations also show that in learning technologies the

more organizational issues of tertiary users should not be neglected. This does not only mean being able to correct technical errors in the system, when they occur, but also to collaboratively further develop the system to support the intended learning processes and the learning culture of the organization (Ørngreen, Nielsen & Levinsen, 2004). This makes it important to exchange information and share knowledge between the three user levels. In the VUC case, the students at HF-Global Classroom had not yet been involved in or asked about the process. The teachers had received technical assistance in system use, but very little had been done to discuss pedagogical issues at stake, and the administrators, managers and it-personnel knew little about how the actual teaching situation was carried out. We see knowledge sharing as a vital step in sustaining competence development processes and organizational learning. In these first phases, our units of analysis are primarily directed at understanding the primary and secondary users' experiences, and thus identify steps to establish knowledge sharing and competence development processes.

The sub-questions for these particular phases become: *Which teaching practices are sustained or emerge? How do the students perceive the learning situation and the motivational aspects? Can any guidelines and/or future steps be derived from these first experiences?* The empirical material provides insight into these questions in the diagnoses and action-planning phases as listed in table 1.

1 & 6) In the project both formal and scheduled meetings and more informal conversations were held, all of which were part of the *getting to know each other*.
2) The workshop with the teachers was inspired by the *Personal approach to SWOT* (strength, weaknesses, opportunities and threats) (SWOT 2013). We chose to organize it in three rounds: personal, team and plenary, all with pre-prepared question sheets to trigger reflection and dialogue.
3 & 4) The formal conversation took place via videoconference. The researchers had prior to the conversation received written input (from some teachers) to the perceived challenges and thoughts on future focus points .
5) The student evaluation workshop participants was the HF-class (N = 14) that started their education with the Global Classroom Model in August 2012. It was a four-hour workshop, and in the introduction the students were encouraged to be constructive in their criticism. Inspired by interaction design and appreciative inquiry, we argue that informants can be creative, and that by focusing on the areas that are working well, the informants can help to promote and develop these.
7 & 8) The purpose of the interviews with and observations of the teachers was to identify the experienced potentials and barriers in the Global Classroom Model, and to see if innovative approaches in their own learning designs had emerged. A particular focus was to identify motivating elements in the teaching situation.

Table 1: The material from the diagnose and action plan phases

1) Meetings and on-going conversations with project owners, management and (IT) pedagogical consultants at VUC	From early Autumn 2012 to Spring 2013
2) Workshop with teachers, incl. project owners and pedagogical consultants	26 November 2012
3) Written input from teachers – on challenges and future plans	December 2012 and January 2013
4) Formal conversations between teachers and researchers – i.e. scheduled and planned activity	29 January 2013
5) Student evaluation workshop – a qualitative workshop, 14 participants	22 February 2013
6) Informal conversations with teachers	Spring 2013
7) Interviews with teachers – based on semi-structured interviews	15 April – 8 May 2013
8) Observation of Global Classroom teaching	Spring 2013

3. Learning and motivation theory

Since one of the inquiry points in the study focuses on how to create motivating and qualified learning design for the students, we briefly unfold relevant theories on motivation and learning in the following. In Knud Illeris renowned model on how learning takes place, he argues that the following three dimensions are involved in all learning: the inner psychological process of acquisition (content dimension), the interpersonal - interaction dimension, and the willingness and desire to deal with what should be learned (the incentive - dimension) (Illeris 2007). The first two dimensions involve the cognitive (content) learning and collaborative learning domains respectively which are important in teaching and learning. However, the motivational dimension is equally worth focusing on since VUC's are considered as a "second chance". Many (60%) students attending HF at VUC has at least one other discontinued education in their past, where lack of motivation is often mentioned as a key element (Pless and Hansen, 2010). Motivation can influence *when* we choose to learn,

what we learn and *how* we learn, and "*motivated learners are more likely to undertake challenging activities, to be actively engaged, to enjoy and adopt a deep approach to learning, and to exhibit enhanced performance, persistence, and creativity*" (Schunk according to Hartnett, George and Dron, 2011:21). The 3rd of Illeris' dimensions, the driving-force-dimension, deals with the desire or the motivation to learn. Several relevant motivational theories deals with this matter in educational settings. The self-determination theory (Deci and Ryan, 2000), the ARCS model (Keller, 2008), and Flow Theory (Knoop 2004) are all theories offering basic principles on how to measure and apply motivational elements and practices to the different learning elements and situations. It is beyond the scope of this paper to describe these theories in detail, but they are relevant for the further development in the project; that is in the 3rd and 4th phases of the action research process as the experiments with the teachers and students are taking place in workshops and other design-based research approaches. However, we have already seen signs of the motivational elements in the Global Classroom Model in the findings among the students (see later), mainly related to the freedom this model provides for the students. This is supported by Jerome Bruner, who believes that our intrinsic motivation to learn consists of the three following underlying main driving forces: 1) Curiosity: the desire and freedom to explore things, and decide for yourself - a playful mood. 2) Achieving competence: the desire to show that we can do things and therefore are independent individuals. Mastering something creates joy and pride and is thus motivating. 3) Reciprocity: the desire to be an indispensable part of the community. People like to achieve goals with others, to be part of a "learning community"(Bruner according to Gärdenfors 2010). The argument is: if the learning is planned in a way that enables the student to achieve one or more of the three motives above, it will help the student to feel an inner motivation to learn (Gärdenfors, 2010).

That said, motivation is also complex, multifaceted, and influenced by both person and context. Motivation cannot be fully explained from the perspective of neither the effect of "learning environment design" nor the "learner characteristic". Therefore, it is important to consider both the learning environment design as well as the relevance and interest from the learners perspective (Hartnett, George and Dron, 2011). In our study of the videoconference literature we have found little that relates the combination of the three perspectives of the acquisition, interaction and motivation of learning processes as presented in the Illeris learning model.

4. Theoretical and grounded analysis of the empirical data

Our analysis applied the above theoretical focus on learning and motivation, with the unit of analysis being the three user groups. Apart from this our primary objective was to be open to emerging themes in the eight activities (table 1), an approach inspired from grounded theory. When interpreting the themes we related them to the existing literature on the various identified videoconference forms.

4.1 The students

The Global Classroom Model consist of the videoconference as a mediated learning process, and also comprises the use of other forms of IT in education including digital materials, software, and processes because of the changed environment for the learning design. For example, all the instructional materials should be accessible online (Rice, 2011). In this way, the Global Classroom concept has inspired some of the teachers to implement new kinds of IT in their teaching practice. These new ways of involving IT in the teaching may, together with the Global Classroom concept, potentially help to create a more relevant and motivating learning for the students appealing to the students' curiosity (Gärdenfors, 2010; Somekh, 2008).

According to the German professor of pedagogy Thomas Ziehe there has been a "de-conventionalisation" - a change in young people's knowledge, behaviour, and motivation (Wiborg, 2009). Today, young people are choosing what they want to learn, and young people's behaviour has changed because they have become major media consumers. The student's motivation helps establishing interest in the subject matter and is therefore an important contributing factor to the learning process (Koster, 2005; Weitze and Ørngreen, 2012).

Motivational elements: In this study, the students explain that they find a number of aspects of the Global Classroom concept motivating; this is supported by other findings of the increased motivation for students in videoconference settings (Lawson, 2010). For example the students own choice of environment gives them the freedom to manage their family and everyday life by not always having to be present at school (Gärdenfors, 2010). Several students are also pleased with being able to vary their classroom environment during a day by changing geographical location, and when sitting at home they have the feeling that the school-day ends

sooner. These flexible possibilities can partly be seen as equivalent to the *work-life flexibility practise* known from many modern companies. Another equivalence is that the students also have to show up when needed at school; for instance, when they are conducting experiments at the lab. The format also creates a new "intermediate solution" for some students, when they feel “sluggish” and normally would have taken a sick-day. In this way, the concept contributes to their ability to complete their education, because they end up attending school more often during the year.

Technological-pedagogical issues: The students’ experienced technical problems and many of these problems were solved along the way. Problems were partly due to Global Classroom being a new concept developed through a bottom-up approach, and partly due to the fact that students and teachers, had to learn how to use the system from scratch. That said the experience remains that once in a while periods with more technical problems occur. For instance when the software in the systems are updated at some points in the “supply chain” and not updated synchronous at other points by the suppliers. This is a constant point of frustration for the students and the teachers.

The Global Classroom seems to provide a transparent experience (Dourish, 2001), giving the feeling that it is possible to simulate a traditional classroom. Therefore the teachers expect to be able to apply various educational activities equivalent to what takes place in a traditional classroom. But for instance it can be a problem to make the students at home engage in class conversation, because the technology sometimes, against the teachers expectations, causes noise in the class, or causes delay in audio and photo (Lawson, 2010; Allen et al. 2013). So because of the noise and delay the students at home often perceive it as a disturbance when they speak. In addition, the human ear cannot filter sounds in the same way in online space as in physical space; all sounds are mixed and more difficult to differentiate (voices, moving of chairs, coughing etc.). It has also proved difficult to create groups across home and campus because of technological problems and issues with too much noise in the class. Pure home-based-groups also have problems in detecting when to “return” to the classroom debate. We see a need for the teachers to experiment with various ways of working actively across the constellations of home and campus.

The students tell that they have been frustrated in relation to the communication with the technicians when something is wrong with the technology. Some problems are of so vital importance that the teacher or student should be able to get immediate technical assistance, as videoconferencing in its nature is very sensitive to the kind of technical breakdowns that stops transmission and has the effect that the teaching cannot be carried out (Gillies, 2008; Hedestig and Kaptelinin, 2005). Uncertainty about deadlines for repairs and corrective actions are inconvenient in everyday life and has also concerned the students.

Learning Design: The students’ experience that the teachers are very different in their approach when activating the students at home. Some teachers are very aware of home-students asking them very directly to participate in the debate, while other teachers hardly pay any attention to the students at home. This finding is well in line with previous findings in the videoconference and online learning literature, where one of the mayor emphasis and keys to success are on how the teachers has to develop strategies in their learning design for activating and creating collaboration with the online learners (Majid, 2006; Baran et al 2011; Bower 2001; Gillies, 2008; Kjær 2009; Lawson 2010; Laurillard, 2011). Some students find it difficult to make the teacher aware that they want to answer a question. This makes the students at home frustrated and uninvolved. Therefore, the students feel it is important for teachers to take this issue into consideration in the learning design and to be aware that the students at home would like to be invited more into the class activity. The students at home are using different strategies to solve this problem like writing to the campus-students on Facebook etc. In our dialogues with the teachers we have also found that the class from August 12 who participated in the qualitative student evaluation is very different from the class from August 11. In the 2011-class the students at home are always very active and also often the "diligent" ones in the class. Consequently, it might not be the teachers that ignore the students at home, it may also be that students at home are less active, hiding a bit and not so easy to activate (Lawson 2010).

Another consequence of the Global Classroom setting is that it is important for the students to have access to all instructional material as well as assignments on-line before the lesson begins. This gives the students a chance to participate actively in the current lesson by solving these assignments in spite of any technical difficulties that might arise (Rice, 2011).

Rules in Global Classroom: The students are satisfied with the rules of conduct in Global Classroom regarding the recommendations on behaving as in a traditional class, e.g. not to attend in pyjamas from bed, no smoking etc. These rules have been developed bottom-up as such situations did happen, and are changed regularly according to new experiences. One can, however, consider whether it also would be beneficial to develop pedagogical recommendations on for instance: active participation, working in groups etc.

Pedagogical Innovation: The students have been pleased with the new learning designs that involved working and interacting on the Internet, as this gave equal opportunities for students at home and on campus, as e.g. preparing multimedia presentations (Lawson, 2010; Bower 2011; Kjær 2009). However, when inquiring about ideas for other initiatives the students had difficulties articulating new ideas. Thus, as for teachers it can be hard for students to think beyond the traditional educational culture. This calls for the development of a more innovative pedagogical culture and practise, if students and teachers are participating in further development of the learning design (Laurillard, 2011; Lawson 2010).

It is important to acknowledge that in spite of the many problems, in terms of technology, in relation to pedagogy, and mental stress issues, the students still perceive the videoconference as advantageous and want to continue within the Global Classroom concept.

4.2 The teachers

The teachers have not been employed specifically as Global Classroom teachers (Rice, 2011). Though they received initial training in the concept, it was, at first, difficult for them to imagine how it would be to work with. The IT-pedagogical project group chose different approaches to educate the teachers: short seminars, and later involving researchers conducting innovative workshops, but all the time also with a bottom-up/ learning-while-doing approach. At times this was frustrating for the teachers, but considered necessary by the IT-pedagogical project group, since this was new terrain. Somekh stresses that adopting to change is learning and, "*like students, teachers need to learn actively and have opportunities to try things out and evaluate the outcomes on the basis of evidence, with the support of strong leadership and a community of peers*" (Somekh, 2008: 9; Baran 2011). What sometimes is regarded as "*teachers resisting to be innovative in their pedagogical practice*" is indeed a complex and cross organizational issue, since teachers, students, managers, and project groups in the organization are all embedded in an educational culture that at the same time supports and restrains its members. Pedagogical innovation does not only concern and involve the teachers but the entire learning organization.

Motivational elements: At the moment the teachers primarily regard Global Classroom as being beneficial for the students, and they appreciate that it makes it possible for some of the students to complete their education. The fact that the teachers themselves doesn't yet find the Global Classroom Model motivating could be seen as a sign of the model not yet being sufficiently matured and developed. In a more matured model containing 5 levels related to online learning, it shows that it is often not until level 5 that the organization's learning system have the ability to cater for motivation and engagement, after the other levels subjects are cared for. (Suzuki and Tada, 2009). At VUC, problems are still in the technological area (level 1) as well as in the learning design (level 4). The future development of the pedagogical aspects in the concept will hopefully also contribute to the teacher's own motivational experiences within this frame.

Pedagogical-Technological issues: In the initial phase at VUC the teachers often had to spend a large part of their time and attention on making the videoconference technology work, experiencing that they wasted valuable teaching time. However, in our latest observations and interviews with the teachers, we note that several of the teachers tell that the technology now is running most days.

Cognitive demands: The teachers experience sudden interruptions in the middle of a sentence in class, when students at the videoconference cannot see or hear the teacher clearly and therefore interferes out of the teaching context. Students use different strategies to solve this problem as for instance writing to campus students on Facebook, since there are no chat facilities with the teacher in the current videoconference system. At the same time, the teachers experience mental overload due to the many media at play and the many points of attention. Many teachers experience an immense fatigue after a Global Classroom lesson. The student evaluation showed that it would be advantageous and less disruptive if the students used chat to submit information to the teacher during a lesson, but this is not necessarily the teacher's desire. On the

contrary, many teachers expressed reservations about getting one more media to communicate in and keep an eye on, though a few forerunners seemed to have the energy to work with multiple media and students at 2 locations at the same time.

Learning design and activity level: Just like the students, the teachers find it possible to carry out teaching and learning in a traditional manner in the Global Classroom Model including the content-, interaction- and incentive- dimensions (Illeris, 2007), and they see this as an advantage. But there are communicative difficulties partly due to lack of the valuable flow and synergy experienced in the interaction in a traditional classroom discussion; these difficulties are due to sound delay and poor lighting from the students at home; and due to some students that deliberately choose a passive role (Gillies, 2008). Depending on where the most active students are, the "centre of gravity" in the activity level in the class or at home shifts. This is an interesting aspect in the debate since this highlights the importance of student engagement and study skills in general instead of only focusing on trouble with the technology (Illeris,2007). As teachers are based on campus, and since some students are always there as well, it might be less obvious for the teachers to consider teaching strategies from entirely online teaching, as for example online discussion forums, online games etc.(Bower 2011; Lawson 2010; Laurillard, 2011; Beetham and Sharpe, 2013).

Facial decoding and visual attendance: Another problem occurs when the teacher cannot read students' facial expressions or they "disappear" from the screen. Sometimes the teacher can only see the student's silhouette if he sits with the light coming from behind. By reading facial expressions the teacher evaluate whether the student does not know the answer, or if he's shy and the teacher just needs to ask. "*They are all adults, and the moment you ask them a question and they don't respond; then I can't see any point in going on.*" a teacher utters, with reference to the students' having to take responsibility of their own learning process (Illeris,2007). Since it was more difficult to see the facial expressions of the students at home, he asked them less frequently, if he was in doubt that they were able to answer. *Another* problem is when a student at home "disappears" during a session (leaves the laptop, turns of web-cam or logs-off the system). There is an 80% attendance-rule. When a student cannot be seen on the screen, some teachers choose to ignore it, others comment on it. At the student evaluation, some of the students expressed that the teachers were violating their trust if they commented harshly on how often they walked away from the screen. These are stress-creating issues that underlie the teaching and runs as an additional point of focus for the teacher during the teaching.

Pedagogical Innovation: Research shows that apart from few enthusiasts, it is in general difficult for teachers to be innovative in their use of IT in the teaching. Teachers often settle for transferring their existing and inherent practice. This practice can certainly be really good, but according to the Danish Evaluation Institute teachers do not fully utilize the pedagogical and academic possibilities lying in front of them concerning the use of IT (EVA, 2012). This indicates that teachers need to learn to work with IT learning tools, but also that they need support for the process of innovation and for the development of innovative thinking (Darsø, 2011; Laurillard, 2011).

4.3 The organization

Conversations and meetings with the organization's project owners has, along with the other empirical activities, illuminated classical issues in the change processes in which project managers at times are well ahead of the rest of the organization since they already understand the ideas within the process that they themselves have developed. This was evident in the SWOT analysis with the teachers, where the teachers articulated that they had a fundamental lack of insight into and influence on the process, as well as a frustration with the basic challenges in technology, pedagogy, and the organizational setup. This was in contrast to the project owners' first dissemination about the situation to us as researchers at the first meetings, and this indicates the potential in looking at the different stakeholders views and at the movement between topdown and participative management in the organization, and possible adjustments in the organizational change management processes (Jacobsen and Thorsvik, 2008).

IT-pedagogical roles: The IT-pedagogical project department at VUC has a tripartite role since they are 1) visionary designers for future learning, 2) helping with the actual implementation process in cooperation with the department managers and teachers, for example by participating in the organizing of training courses for teachers and 3) contributing to the evaluation and anchoring of the many IT-in-education-initiatives, e.g. by

involving researchers in the development and documentation of the project, as well as in the dissemination of these results.

Organizational challenges: The teachers get frustrated when they are faced with new challenges from the organization and asked to think in innovative ways in relation to the implementation of the new systems, not at least when technical issues are at play. The teachers feel that they are being asked to redefine their teaching role and thereby themselves. The literature supports the redefinition of the teachers' role, recognizing that there is a need for new roles and competencies for teachers using technology in education (Lawson, 2010; Dede, 2009; Laurillard 2011, 2012). Furthermore the teachers miss that the organization decides, establishes, and announces a more general framework on "how we do Global Classroom", rather than each teacher using a personal approach that needs to be negotiated with the students every time. Different views exist between teachers and technical staff in the assessment of the frequency and seriousness of the technical problems occurring. This calls for knowledge exchange between these groups.

5. Discussion and findings

Our analysis reveals these primary themes:

- That the students perceive Global Classroom as motivating because of the freedom/agency to select their own educational environment with the flexibility this provides in their everyday lives. And that it is important to develop motivating learning situations for the VUC audience.
- That the students were motivated when presented for technological tools that allowed them to work equally from campus and from home.
- That the teachers find that their teaching can be carried out in a fairly traditional way in the Global Classroom setup. At the same time they find it difficult to change the part of their teaching practices that could benefit from being changed. In the videoconferencing literature it is generally recommended to re-design student interaction and collaboration compared to traditional teaching, for instance with new kinds of interactive educational technologies as well as with asynchronous collaboration (Lawson, 2010; Kjær, 2009, Gillies, 2008).
- That the Global Classroom model is a hybrid model, always having the teacher and part of the students on campus. This situation – always having part of the class at campus - might contribute to a greater expectation of being able to teach in a traditional way, than in other forms of videoconferencing settings. Therefore, it might be a bigger leap in the teachers' awareness of the need for a different design for learning when teaching in the Global Classroom Model. But "*online teaching is different from face-to-face teaching and […] as such, it requires the development of its own pedagogies*" (Baran, 2011:425). The teachers in The Global Classroom Model will thus have to innovate and develop their own best practices to make the concept a success.
- That both students and teachers are experiencing communication difficulties and that some of the problems arise because the Global Classroom concept is so close to a traditional classroom that they consequently have high expectations to the communicative "flow" in the learning situation. This should also be taken into consideration when developing educational designs for learning.
- That after this start-up period there is a need for the organization in collaboration with teachers and students to elaborate a more detailed framework that defines and helps establishing a culture of "how we do Global Classroom at VUC", while also providing room for a sandbox approach. A culture that works on revealing and disseminating the basics of teaching in the Global Classroom concept, on finding ways to establish clear and sufficient communication, and to build upon the good examples of innovative cooperation between the different agents in the educational institution. There should also be an openness to continue developing rules and best practices "bottom up" in order for the learning environment to work in an un-stressful way.

Certain characteristics of the VUC students make VUC particularly challenged by dropout issues (VUC, 2009; VUC, 2011; EVA, 2013). These issues make the findings of the students' positive and motivating experiences of the Global Classroom concept essential.

For the students and the teachers the start-up process of the Global Classroom concept has involved so many technical problems that the quality of the teaching was affected. However, evidence from our observations shows that Global Classroom for most teachers today (spring / early summer 2013) operates with few technical problems in daily life, contrary to what the teachers expresses verbally which is perhaps sparked by

occasional problems leading to unpleasant loss of control during a lesson. This means that although the percentage of technical problems may have decreased, their influence on the learning situation is still servere, as it still takes valuable time to recover from such incidents.

There is an interesting paradox in the different views of the students and the teachers in relation to class activity. Many teachers express that this HF class has students who make a deliberate choice to be at home since this allows them to be somewhat passive in class. While the students suggest that teachers tend not to activate them at home. Both parties may well have the ”right” perception of this experience, as this might be an example of self-reinforcing pedagogy built on assumptions about a specific group of students without it necessarily being an explicit and chosen pedagogy of the teaching staff.

6. Conclusions and future perspectives

VUC Storstrøms transition to the Global Classroom Model has been challenging and has contributed to the organizations consciousness of needed skills in supporting innovative developments, skills they are already taking new initiatives to develop. At the same time, the students have found the Global Classroom concept to have motivational aspects, because they have obtained freedom to design their own learning environment.

Although students who have chosen the HF-Global Classroom class to begin with want to continue with this model, there are still technical difficulties. Our study showed that one or more sessions between teachers, students and the technical staff would provide the technical staff with more knowledge about which pedagogical and learning design activities they particularly need to support.

It is essential that the teachers have the opportunity to innovate, develop and practice new designs in safe-zones to get a better sense of what it takes to create activity and motivational training in the Global Classroom concept. This requires an attention and willingness to schedule this from the management at VUC. The purpose of phase 3 and 4 of the action research process is to implement innovative pedagogical activities with workshops and design-based research approaches.

The Global Classroom Model differs from other videoconference models, using either solely hardware- or desktop based solutions, in a new combined model. The Global Classroom Model generally gives the students a freedom to choose if they want to attend school from campus or from home, giving the adult learners new freedom to create a work-life balance on a daily basis. Nevertheless, this at the same time calls for an increased awareness from the teachers on how to innovate and redesign the traditional education in a way that provides equal opportunities for the students on campus and at home.

Future perspectives: The use of more innovative IT-pedagogical elements inside the Global Classroom frame can provide further opportunities. Based on the analysis, we argue that play and gamification, and bodily activation with the purpose of motivating both the students and also the teachers are worth investigating. This could be explored through the use of learning games, students' digital productions, role playing, or complex multimodal presentation forms etc. (Koster, 2005; Weitze and Ørngreen, 2012).

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