Conditions for Participation within Synchronous Online Collaborative Learning

Completed Research Paper

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Abstract

Interactive and communicative situations within social environments are prerequisites for learning in collaboration. Synchronous communication offers the opportunity to actively engage students in collaborative learning activities. This paper is based on an action research conducted within a learning project including synchronous communication between students in lower secondary school. The students collaborate in a cross-border project involving Danish, Norwegian and Swedish students. The aim of the paper is to analyse the conditions for participation in synchronous online learning, collaborative learning. The findings are derived from the empirical study within a three-part learning project using synchronous online communication. The conclusion is that the conditions for participation in synchronous online learning are authenticity, motivation, confidence, preparation and teacher engagement.

Keywords

Synchronous online learning, collaborative learning, participation, authenticity

Introduction

Interactive and communicative situations within social environments are prerequisites for learning in collaboration, according to the view of socio-cultural theory. Synchronous computer-mediated communication is often used as a means to achieve active learning in collaboration (Hrastinski, 2008; Hrastinski, Keller & Carlsson, 2010). Computer-mediated learning is often called online learning and it is stated within research for quite a long time that participation is an inseparable activity within learning (Hrastinski, 2009). Synchronous communication thus offers the opportunity to actively involve and engage students in collaborative learning activities. Research has argued about the positive effects on online learning (Brown & Duguid, 1996; Leidner & Jarvenpaa, 1995; Rovai, 2002). When participation is a prerequisite for learning, we have to consider the conditions for how to really design for online learning participation. However, these conditions are not very well elaborated within the research. Synchronous online learning has been considered much less in the research compared to asynchronous online learning (Hrastinski, Keller & Carlsson, 2010). Moreover, online learning is also characterised as a challenge for learning, involving online network technologies (Garrison & Anderson, 2003).

This paper is based on an action research conducted within a project of synchronous learning between students in the lower secondary school collaborating in a cross-border project involving Danish, Norwegian and Swedish students. The project is aimed to promote the students in their Scandinavian inter comprehension skills using their own native languages when the students are collaborating in different joint projects. In the empirical setting analysed in this paper the students work in small groups at each site. This situation is arranged in order to facilitate and contribute to a common understanding (Lave & Wenger, 1991). In this setting the students can develop verbal and social abilities within their neighbouring languages. When students explain their ideas to others, they have to verbalize the
understanding, and in this activity obtain a clearer perspective of the actual topic (Gillies, 2006). The students’ engagement is required in order to obtain an effective collaborative learning, as collaboration by itself necessarily does not yield learning (Dillenbourg, 2002). Moreover, the engagement from the teachers is of vital importance for the students’ active participation in the synchronous collaboration. The teachers act as facilitators, monitor progress and provide specific assistance in the background. Hence, this approach to synchronous collaborative learning between students in groups in different locations is more time consuming than the traditional approach of classroom learning where learning in groups can be difficult to design and manage (Baines, Blatchford & Kutnick, 2003). Some challenges however occur within the synchronous collaborative online learning. It can be hard to develop the students’ interaction skills, to promote collaborative problem solving and to stimulate the students’ emotionally and intellectually capacity in the emerging synchronous situation, which is more “real-world” like than other types of learning. This implies a performative nature of learning (Säljö, 2009). Therefore it is important to consider the real conditions in order to obtain quality of the participation in the online learning. Thus, the aim of the paper is to analyse the conditions needed for the qualitative participation and learning within synchronous online learning. This is made by applying the collaborative three-part learning project using synchronous online communication.

The paper is organised as follows. First, there is a theoretical framework that states the theoretical lens from which the action research is performed. Next, there is a description on how the empirical data was collected and analysed. Then, the empirical setting is described. This is followed by the concepts of conditions for participation in online learning that have been found when analysing the empirical data. Finally, the findings are discussed and the conclusion is presented.

**Theoretical Framework**

**The New Learning Practices**

Our theoretical framework is grounded in Vygotsky’s (1896-1934), sociocultural theory. This theory is based on the assumption that human cognitive development is highly dependent upon the social context within which it takes place (Lantolf & Appel, 1994). Sociocultural theory emphasises that the locus of learning is a product of social interaction with other individuals, rather than that learning is an activity exclusively within the individual’s mind. Thus, it is the conditions for the learning to take place that underlie the possibilities for learning.

Collaborative learning with support of digital technologies implies certain transformations compared to traditional classroom learning. The traditional, teacher centered pedagogy, with the blackboard in focus, is exchanged in favour of the use of computers and digital technologies. Thus, the educational practices are changing. The relationships between learning and technologies are rather complex and transform the institutionalised way of the traditional organising and teaching in schools (Säljö, 2010).

The skills, both for teachers and students, for involving in the new educational practices will be changed. The skills which are more needed now are more based on interaction with technology and artefacts as well as on social interaction (Säljö, 2010). The previous skills are learned and used within the educational system in order to write and calculate. These skills are now challenged, because the skills needed within the new learning context are to a large extent developed outside the educational system. Moreover, as the learning is more directed towards collaboration with support of digital technologies, the learning context will also be more authentic in its character (Herrington, Oliver, Reeves, 2003).

**Online Learning in Collaboration**

Students working in a common context, in small groups, have the opportunity to contribute to a common understanding, as well as to improve their verbal and social abilities (Lave & Wenger, 1991). The synchronous online communication is a means to facilitate face-to-face communication between different distance-based groups. The online communication will add complexity and a multifaceted nature to the learning processes. The introduction of technical tools within the teaching alters the process of learning to a great extent (Darhower, 2002). The traditional educational roles shift and this blurs the boundaries of traditional classroom teaching (de Andrés Martinez, 2012). Online learning is also effective in learning communication skills, as in authentic learning in neighbour languages. Moreover, learning within a real
time implies a social interaction among other students. Thus, social presence is another factor that is important for promoting learning, as occur when synchronous online learning is arranged (Gunawardena & Zittle, 1997). Social presence enhances students’ satisfaction with learning, and affects the will to learn, and thus, enhance the learning performance (Yamada, 2009). As social presence facilitates social cues as smiling and gestures, this is one important psychological factor (Garrison & Anderson, 2003). Collaborative learning is used in order for motivating students, as to facilitate student-centered communication and giving authentic learning from the socio-cultural approach (Dörnei, 2001). The students’ social and emotional competences is also of vital importance in online communication, as these exhibit competencies to recognise emotions, set and achieve positive goals, appreciate the perspective of others, establish and maintain positive relationships, make responsible decisions, and handle interpersonal situations constructively (Elias, et al., 1997).

Effective learning in collaboration requires a well-defined learning process that students involve in (Blatchford, Kutnick & Galton, 2003; Dillenbourg, 2002). Teachers have to be comfortable with the role of facilitator. However, to organise learning in smaller collaborating groups appeared to be harder and more time consuming for teachers than the traditional approach to learning, as tasks that give opportunities for meaningful collaborative learning can be hard to design and manage (Sharan, Shachar & Levine, 1999). Adequate learning tasks have to be defined. Teachers have to prepare the lessons in detail to make use of the characters of online communication (Rummel, Spada & Hauser, 2006).

**Research Method**

This study was conducted as an action-based research. The authors are one teacher and one researcher participated within the learning project. The learning project was planned and conducted by a team consisted of teachers and researchers within the Scandinavian countries. Both the teachers and the researchers have had the opportunity to influence and follow the learning project and its process (Wallén, 1996). In this way the authors had the opportunity to use the class of secondary school students as a research laboratory, and tested different teaching models in previous learning projects. The performance of the learning project studied in this paper was studied and analysed, where important results have been obvious during the real-based project. This implied increased experiences also based on previous learning projects performed. The project is of an innovative character, where new initiatives on teaching models using digital technologies within a cross-border context should be developed. In this way, the action research method is particularly suitable to use (Somekh, 2006).

Groups of students in lower secondary school from Norway, Denmark and Sweden were collaborating with support of a synchronous computer-based communication using the software Adobe Connect. During one day nine different student groups conducted their learning project, each project lasted about thirty to forty minutes. During the students’ learning sessions the teachers and the researchers had the possibility to support and intervene as one teacher and one researcher in each country were sitting within the very same room as the students who were collaborating with the students within the other countries. The learning sessions were video-recorded by the software used, whereby the learning sessions have been possible to analyse after the performance.

The learning sessions were qualitatively analysed from different themes that were regarded as important based on the aim of the paper (Braun & Clarke, 2006). The analytic interest was conditions for qualitative participation and learning among students. The challenge in the analysis was to find and categorize the data that had some relevance to this area of interest. In this work the authors analysed the recorded videos of the synchronous online learning projects performed by different student groups, as well as had several discussions about the learning project’s performance. Thus, the themes are derived from the synchronous online learning performed and observed within the empirical setting. The themes ended up as conditions as authenticity, motivation, confidence, preparation and teacher engagement within the real-based situated learning processes. Each of the themes captures some important evidence in relation the overall aim with the paper.
The project was conducted in spring 2013 with three school classes, one from Denmark, Norway and Sweden each. The collaboration plan was based on common content in the curricula in their respective native language in the three countries involved, focusing on training of the four abilities: reading, writing, speaking and listening. The teachers selected in consultation to primarily focus on reading and understanding youth literature from the Scandinavian countries on their respective native languages. The students were supposed to train the ability to analyse and discuss the content, divided into theme, message and the narrative perspective.

The education process for the present project was planned in five phases: 1) an initial phase with theory examination and discussion, and selection of literature, 2) a phase of development by reading and working with texts and language, 3) a preparatory phase for the discussion, 4) a discussion phase including synchronous computer-based collaboration across national boundaries with use of a videoconferencing tool called Adobe Connect, and 5) a phase for evaluation and reflection.

The students started their work asynchronously in the three countries. The students should read and discuss literature in each of the languages, Danish, Norwegian, and Swedish. The literature in each language was chosen by the students in the country with that language as their native one. Together with corresponding teacher, the students in the class discussed contemporary indigenous youth literature, and jointly they selected a representative book of this genre. A smaller group of students in each country, who already was familiar with the book, then selected a shorter section from the book and wrote a summary of the content occurring before this section. The literature section was scanned and transmitted together with the summary to the classes in the other countries.

The three texts were read and reviewed with a focus on content, theme, message and narrative perspective. In parallel they trained understanding from a linguistic point of view, through reflections on the similarities and differences in meaning and linguistic origin. The students made lists of words that they did not understand, and then looked up their meaning. Likewise they worked with the common words in the different languages, which the students, due to the context, understood have different meanings than in their mother tongue. In that way the students familiarised themselves with words that could occur at the following synchronous discussion.

The students were divided into nine cross-border groups of between two and four students from each country. In the preparation for the synchronous discussion, the students met nationally in their groups to compare ideas about content, interpretation and linguistic differences between the texts. Thereafter they wrote a joint analysis of the various texts, to use as a basis for the synchronous discussion. The meeting agenda was written by the teachers. Before the synchronous discussions, the teacher and the students in each class were trained on using the meeting agenda. The meeting agenda started with a short presentation of each participant, and then consisted of reading aloud of the selected text section from each book, followed by conversation about the theme, message and narrative perspective. One student in each collaborating group had been designated to be a group leader for the synchronous meeting. Of the nine group leaders, three were from each country.

All synchronous three-part discussions were performed during one day. Each school connected one computer to a virtual room set up in Adobe Connect, where the meetings were recorded for analysis and assessment. Settings and equipment were carefully prepared to minimise technical problems and to maximise the authenticity of meeting. It is a prerequisite for the synchronous online communication that the technical standard of the digital connection and other equipment is good, especially the microphones and the loudspeakers. Poor sound quality will furthermore obstruct the linguistic difficulties, whereas a good sound quality provides clarity and amplifies the experience of an authentic situation.

During the day, the groups came for the synchronous meeting according to a planned schedule. The students wore name tags to facilitate the conversation, especially for the group leader. Throughout the day, one teacher and one researcher in each country were sitting within the very same room as the students during the synchronous meeting to support the meetings and for technical support. In the next day, the students individually evaluated their overall work performance. The groups in each country also met their responsible teacher for a joint reflection and evaluation, with focus on the synchronous meeting.
Analysis

Five different conditions have been found within this study, as important conditions for obtaining a qualitative participation and learning in a collaborative synchronous online learning setting. Authenticity can be related to the success within the online learning analysed in this paper. Moreover, four other different conditions are found to be of vital importance; motivation, confidence, preparation and teacher engagement.

Authenticity

Authenticity seems to be an important condition for the Scandinavian collaborating learning project performed. The authentic learning situates the learning project in the real-world context and allow students to experience problem-solving situations as in their daily endeavors. As the project was performed within a situated learning context, that is of vital importance for the authentic character. The learning is authentic in the respect that it is not class-room based. Moreover, there are other students at different locations that would be affected of different actions and choices made. In turn, other students responded on what is happening within their common learning context in real time. The authentic learning activities facilitate and promote the practice of the knowledge and the skills that should be learnt at school. Authentic and real based learning processes cannot be fully predetermined, and thus the situation will be conducted based on the collaboration and interaction of the attending individual students. The students have to identify their own unique tasks in order to fulfil the collaborating learning project. The authentic learning situation thus occurs in the spur of the moments. Students need to engage as the participation in the learning process is going on.

Motivation

An obvious success factor in progress is how much authenticity gives motivation. Already the initial literature discussions, where the students talked about and valued literature with respect to the original recipient, gave an increased engagement of the students. Usually, this type of discussion is mainly focused on storyline, thrill factor and a simple evaluation of a book as "good" or "bad". On this occasion the students identified new factors to consider before selecting a suitable text. Based on the fact that the recipients have a different mother tongue, linguistic difficulties were discussed. Some bilingual students informed the other students about their experiences regarding the difficulties in understanding a language that is not fully mastered. After some discussions, the class decided to choose a book with a relatively simple language. Another factor to consider was the two-year difference in age between the students from the participating countries.

Most students were encouraged and worked ambitiously and purposefully for the scheduled conversation. The students, who usually tend to work too quickly and non-reflective, immersed themselves in the texts far more than otherwise. Most of them read the texts several times and the students spontaneously collaborated around the different tasks.

Confidence

In the synchronous online cross-border discussions, most students were excited and a little tensed. In those groups, where the team leader took his/her responsibility and the participants tried to do their best in the communication, the students experienced that they kept a reasoning where they usually got their own thoughts confirmed. This gave them a sense of self-confidence and an experience of consensus on the different tasks.

It was, however, obvious that some students did not get the enthusiasm and intensity in the learning situation as expected. For some of them the situation, to imagine a conversation with people they never had met before, was probably too abstract, which reduced the motivation factor in the preparatory phase. These students were thus not fully prepared for the synchronous discussion, which inhibited their ability to communicate and participate. However, despite an insufficient motivation during the preparation phase, some students improved during the meeting and participated well in the end. For these students, the very online synchronous session was the motivating and incentive to learn, and their progress during the discussion was proportionally larger than for the other students.
During the evaluation process it appeared that some students, due to respect to the students in the other countries, did not present their own opinions at the online discussion. The opinion presented by the first persons was hard for the other members to argue against, and thus became a kind of truth. The reason for this behaviour was fear to discredit the first speakers. This clearly indicates that more reliability should be present within the cross-over group before the collaborative learning can take place. This can be done with additional preceding meetings in the cross-over group.

**Preparation**

The preparation of the learning project was governed by the teachers to a great extent, in order to be meaningful and related to the intended learning outcomes. That the students were prepared in advance what to do in the learning project was of vital importance for a smooth learning process. However, some students who were less prepared in terms of subject, but who came to the meeting with a high degree of curiosity, developed well during the discussions at the meeting. Well-prepared students, who usually are well-organised and take responsibility, were not always the good leaders that they were expected to be. Despite the fact that the linguistic understanding was good, these group leaders experienced low empathy for the group members that were only present via the computer screen, and gave them less possibility to participate in the discussion. In some groups, the discussion was hampered by nervousness by the group leader, although they were well prepared. This sometimes resulted in a dominant behaviour of the group leader inhibiting further discussion in the group.

**Teacher Engagement**

The teachers were present in the rooms where the students performed the synchronous communication. The teachers were involved and coached the students when they perceived that the students needed it. However, the presence of the teachers made the students more aware of the seriousness of the learning task. But at the same time the students were somewhat tensed, since they felt somehow controlled. On the other side, the students also searched support from the teacher, when they found the communication hard to continue. On the occasions when a teacher appeared on the computer screen or actively pushed the internal discussion, the cross-over communication between students stalled, and thereby even the joint learning stalled. Thus, as all the students in the group was hampered in such a situation, the meeting rather would be a presentation than a conversation.

**Discussion**

The learning enhanced by information technology transforms both students’ and teachers’ understanding of their traditional roles. The learning tasks need to be appropriate to the capabilities of the students, and have to be designed so that the students cooperatively work together within the learning process (Baines, Blatchford & Kutnick, 2003). Effective learning within online learning requires guidance and instruction for the students (Blatchford, Kutnick & Galton, 2003). Thus, the instructional strategies and advises the students got from the teachers in advance were of significant importance.

The synchronous online learning, with the use of a video-conferencing tool, implies social presence, which enhances the learning process as the students be more conscious within the learning (Yamada, 2009). Moreover, the teachers’ engagement also has an impact on the students’ sense of trust and confidence between each other and between the students in each collaborating country within the synchronous communication. The teachers have a crucial role in order to orchestrate the intended collaborative learning. Thus, the teachers’ role consists of giving the appropriate guidance and coaching within the collaborative learning processes. The teachers have to take part in the background in each room in the different countries within the collaborating online synchronous session. This imply a more serious and engaged participation of all the students. The absence of a teacher can lead to a decline of motivation and confidence as the appropriate and immediate feedback then will be missing (Lou, Dedic & Rosenfield, 2003).

However, a critical part of the synchronous collaboration was the assignment for the group collaboration leader. It has been obvious that the student assigned for the role really is coping with this situation. The group collaborating leader has to take initiative, related the discussion to the actual subject, distribute the word between the participants, ask questions and distribute the questions between the students in the
different collaborating countries speaking different neighbour languages. A prerequisite is that the group collaboration leaders have to have the social skills as self-esteem, empathy, emotional intelligence as well as problem solving. Thus, these students need different types of cognitive, affective and social skills related to cope with a real situation performed synchronously with support of information and communication technology (Elias, et al., 1997). Some students sometimes prove specific coping skills in this real-based authentic context in the school and are not necessarily those students who are the most skilled within their native language.

Making the learning as realistic, natural and authentic as possible is a challenge within learning. However, collaborative online communication in cooperation with appropriate designed learning processes could enhance the students’ learning. Moreover, the teachers’ engagement in the learning process and their presence in the rooms where the students performed the synchronous communication are necessary in order to coach and give support to the students when they needed.

Conclusion

The aim of the paper was to analyse conditions for qualitative participation and learning within synchronous online learning. The analysis has shown that five different conditions are important for the quality of participation and learning. The first condition is the authentic character of the synchronous collaborative learning. This situated learning context that is prevalent within a synchronous online learning situation is of vital importance for the authenticity. The four other different conditions are; motivation, confidence, preparation and teacher engagement. The authenticity gives the students a high degree of motivation, as they cooperatively work together with students in another Scandinavian country. Confidence was required by the students in the authentic learning situation in order to reach a successful communication and conversation. The preparation of the learning project is of vital importance, as to reach the intended learning outcomes. The teachers have to prepare the students in advance, in detail, of what to do within the online learning process.

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