

Embedding Microblogging Technology to Support Classroom Dialogue

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Abstract: It's crucial for teachers to support the development of students' dialogic skills. Such skills refer to the students' use of language as a tool to enable understanding of each other's knowledge, which creates the possibility of constructing new knowledge together. Digital technology in classroom activities can support this form of dialogue, but it must be embedded into a classroom's complex ecosystem to be beneficial. This paper explores how a group of seventh grade students were taught dialogic skills through the integration of microblogging in the classroom. The data analysed consists of video from the classroom, and the study is grounded in sociocultural theory. Findings suggest that integrating microblogging in classroom activities increased participation and made students' contributions more visible, thus creating the opportunity for students to build on each other's knowledge. However, this is dependent on the teachers' facilitation of the activities.

Introduction

This paper reports on a study of embedding new technology into classrooms to support and develop students' dialogic skills during group discussions and whole-class discussions. Dialogic skills refer to the specific use of language as a tool to enable understanding of one another's knowledge and perspectives. It is a way of reasoning that creates understanding based on one's perceptions while allowing other ideas and opinions to adapt or integrate into one's own thinking. Participants in this type of dialogue learn to think together and construct new knowledge and ideas as a collective (Mercer, 2002). Students' dialogic skills can be an important predictor of academic achievement (Applebee, Langer, Nystrand, & Gamoran, 2003; Howe & Abedin, 2013). Thus, we argue that it is valuable that teachers can support the development of students' dialogic skills. The use of digital technology in classroom activities may enhance new forms of dialogue (Rasmussen & Ludvigsen, 2010). Within the Computer Supported Collaborative Learning (CSCL) community, research has shown that it is not technology itself that increases quality in classroom discussions; technologies need to be integrated into the teacher's practices and task design (Dillenbourg, Järvelä, & Fisher, 2009). Research has also shown the importance of establishing norms and ground rules that are defined and regulated in the context of the classroom to productively handle the presence of technologies (Rasmussen, Lund, & Smørdal, 2012). To date there is little in-depth research on the use of hybrid technologies to support classroom dialogue. Hybrid technologies here refer to technologies that are designed to support synchronous, collocated interaction, such as microblogging tools. Despite the fact that few studies have examined this type of technology in a classroom context, some findings indicate that the format of microblogs may enhance engagement and increase participation (Gao, Luo, & Zhang, 2012; Luo & Gao, 2012) and that using tools like Twitter in classroom discussions can support collaborative learning, encourage reflective thinking and help initiate conversations, (Gao et al., 2012). In addition, it can be used to explore and bring new information into conversations (Thoms, 2012).

In this paper, we investigate how students in a Norwegian seventh-grade classroom were taught dialogic skills during a Norwegian language and literature class with the use of a microblogging tool called Talkwall. The data consists of videotaped student-teacher and student-student interactions from a primary school class that took part in a design-based research (DBR) project called Digital Dialogues Across the Curriculum (DiDiAC) where 21 teachers and their students from Norway and the UK took part. The study is grounded in a sociocultural approach to learning, and here dialogue is understood as a specific use of language to help people *Interthink* in order to understand each other's knowledge and perspectives (Mercer, 2002). To guide the analysis, we asked; *In what ways can the microblogging tool Talkwall facilitate the teaching of dialogic skills?*

Research context

In the DiDiAC project, the participating teachers were encouraged to use the material from the *Thinking Together approach* (Mercer, 2002) and to experiment with Talkwall as a means to support the development of dialogic skills. Talkwall (see Figure 1) is a microblogging tool specifically designed to promote and support student participation in classroom dialogues. Talkwall draws on the microblogging approach of using only short messages to communicate, using this to encourage students to engage in learning and share their developing

ideas, in turn, promoting productive classroom dialogues. Short texts/messages can be produced either collectively or individually and are shared on digital devices. These texts can be sorted using hashtags (#) to make it easier for students to follow specific topics or selected concepts.

The participants presented in this paper were one teacher and a class of 25 primary school students (N = 25), aged 11–12 years. In the beginning of the project, this class and their teacher created and agreed to a set of ground rules for talk as part of the project intervention. The ground rules are examples of suggested strategies used as scaffolds to promote dialogic skills (Rojas-Drummond et al., 2003). The class focussed on two or three rules at a time. In the example presented here, they focussed specifically on *being a good listener* and *building on each other's ideas*. The ground rules were applied to the different subjects. The presented data in this paper is from one lesson in the subject Norwegian language and literature lesson.

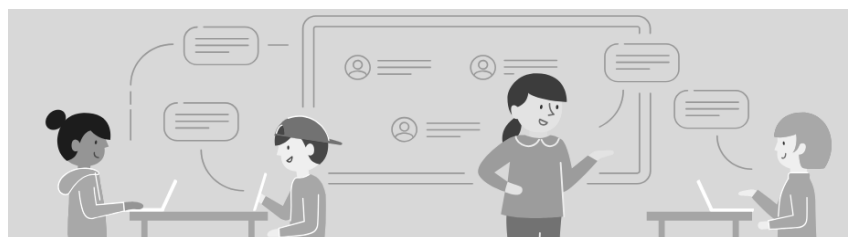


Figure 1. The use of Talkwall in classroom interaction. Students can write on individual or shared devices. Their contributions appear on the whiteboard.

Methods and data analysis

The data analysed is part of the material from the DiDiAC project. In this paper we have chosen to focus on one specific episode of whole class discussion to illustrate some of the main findings from the qualitative analysis of the whole material. All the data collected in the research project was coded on a minute by minute level for an overview of the whole corpus. This allowed us to see the data set selected for this paper in relation to the larger corpus. The data set selected consists of three research lessons recorded over a six months period in a primary school in Oslo (seven hours of video: three and a half hours each from a camera focussing on group discussions and a camera focussing on the teacher and teacher-student interactions). In order to explore key features concerning the interactional work performed to teach and develop students' dialogic skills, excerpts of teacher-student interactions were selected for detailed analysis using techniques from a microanalytical approach (Derry et al., 2010). The interaction analysis applied involved a sequential analysis of the interactions between the participants. Each utterance in the selected excerpt was analysed in relation to the previous utterance, and the focus was not on a single utterance but on how meaning was created within the discourse (Jordan & Henderson, 1995).

Findings

As mentioned, the episode presented was selected because it illustrates some of the main findings. These findings indicate that embedding Talkwall in the classroom with the support of the *Thinking Together* material can: 1) provide insight into the knowledge of peers, 2) act as a starting point for the teacher to initiate whole-class discussions based on the students' contributions, and 3) engage the students in whole-class discussions by extending the voices of the individuals from a small group conversation.

The excerpt chosen (see Figure 3) shows some characteristics of how Talkwall can be embedded in both group and whole-class discussions. In the lesson analysed, the students were engaged in a larger learning activity about different literature genres. The genre in focus was self-biography, and the task was to discuss the theme 'what you cannot live without' as preparation for writing their own self-biographies. To prepare for this discussion, students individually wrote five things that they cannot live without on a Talkwall created by the teacher. In the classroom, the teacher divided the class into groups of three to discuss their opinions about this theme and then to hashtag the different contributions of their peers with #*opinion* or #*fact* using an iPad. Each group had to engage in discussion before assigning the hashtags. The discussion was strictly directed by the teacher and by the ground rules the class previously agreed on. The teacher reminded the students several times that they were *expected* to contribute to the discussion and that they were not allowed to decide the hashtags before everyone in the group had the opportunity to state their opinions. They were also expected to give reasons for their opinions. These expectations were among the ground rules the class had developed. In addition to following the expected ground rules, the teacher focussed specifically on helping the students follow the ground rules; *being a good listener* and *building on each other's ideas* in this lesson.

During the group discussions, the teacher walked around the in classroom listening to all the groups'

discussions. In addition, the teacher used her own computer to read the appearing contributions from the groups on Talkwall, both via the feed and also via the *participants walls* (see Figure 2). When all the groups had hashtagged the Talkwall contributions, the teacher started a class-wide discussion concerning one group's Talkwall (see Figure 3).

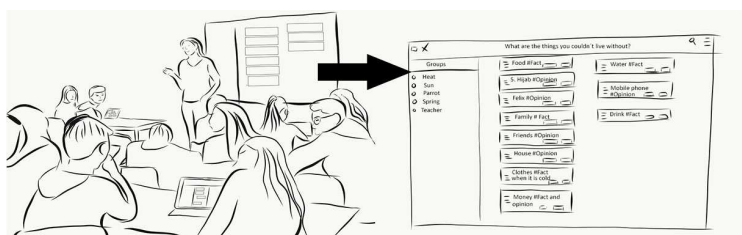


Figure 2. Talkwall on both the groups' iPads and on the whiteboard. Group contributions on Talkwall with #fact or #opinion.

The teacher displayed the group's Talkwall contributions on the whiteboard (see Figure 2) and encouraged the students in the selected group to share their discussion with the class. The teacher asked the group to elaborate on why they chose the hashtags and what they discussed the most. One group member, Lina, said that clothes were the biggest subject of discussion in their group. She then offered the group's reasoning, saying that clothes could be an opinion because people can survive without them, but they could also be a fact because humans need to protect their bodies. Lina concluded that it depends on where one is in the world (see Figure 3, lines 2–7). On their Talkwall, Lina and her group wrote that clothes are a #fact when it is cold (see Figure 2).

- 1 Teacher: Clothes. Yes, Yes. Tell us about this.
- 2 Lina: Because, if no one in the world had clothes then it
- 3 would not be like it would be strange.
- 4 But you would survive without clothes. But we could say that it
- 5 is a fact because clothes are something that we use to
- 6 protect the body. So, it depends a bit on where you live
- 7 in the world.
- 8 Teacher: Yes. Good. Cindy, did you have a comment to this?
- 9 ((points to Cindy))
- 10 (1.0)
- 11 Cindy: Uh I think clothes is a fact because you need clothes. But
- 12 you can cover yourself in a plastic bag. But you cannot
- 13 run around naked. You need clothes to cover the body. To
- 14 protect it from snakes and so on.

Figure 3. Excerpt from whole-class discussion.

The group's Talkwall contributions were displayed to the whole class on the whiteboard (see Figure 2), and other students signalled to the teacher that they wanted to comment on this group's contributions. The teacher called on Cindy, who elaborated on what Lina had said and what Lina and her group wrote on Talkwall. Cindy elaborated on why you need clothes: not only because it can be cold, but also 'to protect the body from snakes and so on' (see Figure 3, lines 11–14). Here, Cindy built on Lina and her group's contributions in Talkwall by elaborating, providing a reason, and providing an example.

The teacher used the Talkwall contributions as a starting point for directing the whole-class discussion by displaying and leading attention to one group's Talkwall. Using Talkwall in this way enabled the teacher to get insight into what the groups were discussing. This insight was possible because of the ability to read the groups' contributions in real time as they were appearing on Talkwall. In addition, this activity created the opportunity for other students to build on the ideas their peers expressed in the Talkwall contributions and to elaborate further, thereby developing their dialogic skills. Furthermore, the visualisation of the Talkwall contributions and the display of the outcomes of the group discussions extended the voices of all the group members to the whole class. This was made possible because they all had to contribute to the group discussion due to the ground rules that obligated everyone to participate.

Conclusion and implications

Research has demonstrated that embedding technology in classroom activities may support the development of students' dialogic skills (Rasmussen & Ludvigsen, 2010). For example, the microblogging technology has potential to support students building on each other's thinking and also to increase participation in classroom discussions (Gao et al., 2012; Luo & Gao, 2012). However, research on CSCL settings has shown that digital

technologies in the classroom are not beneficial in and of themselves; they need to be embedded in the design of the activities (Dillenbourg et al., 2009).

By using detailed microanalysis of classroom interaction, this study contributes to existing research by illustrating how digital artefacts—when embedded in the activity design—can provide new opportunities for students to develop dialogic skills. Based on our analysis, we argue for the importance of the design of the learning activity. Moreover, we argue that the teacher's role in orchestrating the complex ecosystem of the classroom is crucial for the realisation of the potential of a digital artefact, such as Talkwall. The case of Talkwall demonstrates how this digital artefact provide new possibilities by making visible written contributions from students, thus providing the teacher with access to developing knowledge and ideas that can be used as a starting point for continuing whole-class discussion. Furthermore, how technology can facilitate the engagement of more students by extending group conversation through blog-contributions that make visible segment of each individual voice that contribute to the building of a collective knowledge base for the whole class.

This study has certain limitations, it is work mentioning that the teacher in this case is experienced both in teaching and with the use of digital technologies in the classroom which has implications on how she designed the learning activity. Also, Talkwall opens up the possibility to gain insight into the knowledge of peers, further studies are necessary to obtain more empirical documentation of how this information is being used to for e.g. build on each other's knowledge. Third, to provide a deeper understanding and also to get a broader perspective on how this technology can support the development of students' dialogic skills will require more investigation of different teachers design of learning activities and how they adapt the tool in their classrooms.

The teacher in this case creatively adapted both the technology and the material from the *Thinking Together approach* to further develop her teaching repertoire and facilitate students' dialogic skills, i.e. the process through which they learn to reason, discuss, argue, and explain their developing knowledge and ideas (Mercer, 2002). As such, this study contributes to the existing body of CSCL research with knowledge about what it takes to successfully embed technologies in classroom activities to enhance learning opportunities.

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