Nordisk tidsskrift for utdanning og praksis
Nordic Journal of Education and Practice

Original Research Article | **Vol. 13, No. 1, 2019, p. 44–61**
PEER-REVIEWED ARTICLE

Exploring initial collaboration in an intervention: Creating a meeting place between educational research and educational practice

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ABSTRACT

In the field of education, researchers have focused on the importance of achieving a common understanding of school development and change of practice in collaborations with practitioners. In an attempt to contribute to this research, a formative Change Laboratory intervention is suggested as an interface between the researcher's world and the practitioner's world to facilitate collaboration between the two.

The case study, conducted in one mathematics class in a primary school with 27 students and two teachers, was informed by the following research question: How does initial collaboration between a researcher and practitioners create a meeting place, and what implications can be drawn from this?

The teachers' motive for joining the intervention was to expand their practice of using the digital game Minecraft. The collaboration lasted 1.5 years.

The findings show that e-mail correspondence seems to play a crucial role in the continuation and expansion of dialogue towards achieving an object-oriented activity.

Keywords: *Change Laboratory, activity theory, case study, classroom research, dialogue.*

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SAMMENDRAG

Innenfor utdanningsfeltet har forskere hatt fokus på viktigheten av en felles forståelse, i samarbeid med praktikere i skolen, av skoleutvikling og endring av praksis. Som et bidrag til denne type forskning er formativ intervensjonsforskning tatt i bruk for å forsøke å binde sammen forskerens og lærerens verden og legge til rette for samarbeid.

Jarvoll, A. B. (2019). Exploring initial collaboration in an intervention: Creating a meeting place between educational research and educational practice. *Nordisk tidsskrift for utdanning og praksis*, *13*(1), 44–61. https://doi.org/10.23865/up.v13.1836

Kasusstudien som presenteres er gjennomført i en klasse i grunnskolen med 27 elever og to lærere som jobbet med matematikk. Følgende problemstilling er blitt fulgt opp: Hvordan bidrar et begynnende samarbeid mellom forskeren og praktikeren til å skape et møtested, og hvilke implikasjoner kan trekkes ut fra dette?

Læreres motiv for å delta i intervensjonen var å utvikle egen praksis ved bruk av dataspillet Minecraft. Samarbeidet med lærerne og forskeren varte i 1.5 år.

Funn viser at korrespondansen gjennom e-post har spilt en avgjørende rolle for kontinuiteten og utviklingen av en dialog som resulterte i målorientert handling, altså aktivitet i matematikk-klasserommet med bruk av Minecraft som hjelpemiddel.

Nøkkelord: *formativ intervensjonsforskning, aktivitetsteori, kasusstudie, klasseromsforskning, dialog*

Introduction

On 11 November 2014, a teacher from a primary school sent me an e-mail after he was told that I was interested in collaborating in an intervention study using technological tools. He wrote, 'This is interesting. I am open to everything, primarily the use of digital programmes in the classroom. Students are very oriented towards Minecraft.[1] If we can begin there, then we have a start'.

Many researchers have focused on the importance of achieving a common understanding of school development and change of practice in collaborations between researchers and practitioners in the field of education (Biesta, 2007; Engeström & Toiviainen, 2011; Postholm, 2008; Quartz et al., 2017; Thorgeirsdottir, 2018; Zeichner, Payne, & Brayko, 2014). It has been argued that a fundamental shift is needed where the focus can be on substantive transformations in the current system (Zeichner et al., 2014). In addition, there is a need for a meeting place where researchers and practitioners can collaborate to provide a coherent understanding of the field of education (Rønbeck & Germeten, 2014, pp. 22–26) and its development (Postholm & Moen, 2011). This meeting place can support teacher education and practice, and it is suggested that Cultural Historical Activity Theory (CHAT) (Engeström, 2015, 2016; Virkkunen & Newnham, 2013) offers conceptual tools that combine the necessary sources of expertise (Botha, 2017; Zeichner et al., 2014).

Various developmental studies using CHAT have addressed the importance of collaborative activity in such a meeting place (Botha, 2017; Engeström & Toiviainen, 2011; Postholm, 2008; Thorgeirsdottir, 2018). However, a search in Oria, with access to many databases with peer-reviewed journals, shows that few studies have focused on how such a meeting place could be developed at the beginning of a collaboration. Collaboration can emerge through dialogue (Sannino, Engeström, & Lahikainen,

1. Minecraft is one of the most popular digital games for children between the ages of 9 and 14 years, according to the Norwegian Media Authority (2018).

2016), and dialogical processes appear to connect ongoing communication and future-oriented actions (Sannino, 2008; Sannino et al., 2016).

In some studies, a meeting place[2] is described as being part of the initial phase of collaboration between practitioners and researchers (Engeström & Toiviainen, 2011; Postholm, 2008), and it includes project talk that is only considered in studies if it facilitates or prevents the continuity of the work (Engeström & Toiviainen, 2011, p. 40). Moreover, the meeting place, as part of an initial phase in developmental school research, is considered important, and it is addressed in a variety of models (Engeström & Toiviainen, 2011; Thorgeirsdottir, 2018; Virkkunen & Newnham, 2013) within the context of a whole study. However, the focus has not been on how this initial collaboration contributes to the development of a meeting place.

This leads to the following research question: *How does initial collaboration between a researcher and practitioners create a meeting place, and what implications can be drawn from this?*

To answer this question, I used a formative Change Laboratory intervention as an interface between the researcher's world and the practitioner's world to facilitate better dialogue between the researcher and the practitioners (Virkkunen & Newnham, 2013, p. 12).

Thus, in this article, I will first present the context of the intervention study before describing the theoretical framework and methodological approach. Finally, I will discuss the research findings and present a model of expansive dialogue and a conclusion.

Study context

The hosting school was purposefully selected (Creswell, 2013, p. 156) from a network of collaborating schools that were connected to my institution of higher education. The school is located in northern Norway, and it offers compulsory schooling. The school has approximately 70 employees and 300 students from both Norwegian and immigrant families.

The principal was interested in the possibility of collaboration. He expressed that collaboration with institutions of higher education was highlighted in the school's policy plan and that it was interesting to expand the teaching practice connected to the use of information and communication technology (ICT) at his school. He

2. In this article, 'meeting place' refers to a fostered and developed common ground for a practical object-oriented activity. 'Third space' or 'boundary zones' are concepts used in CHAT. As I understand it, the former has met some criticism, never to be fully achievable because of traditional knowledge hierarchies (Zeichner et al., 2014). Meanwhile, the latter is based on 'horizontal expertise', characterised by already-defined processes, and it may be used to describe or analyse an established collaborative constellation (Engeström & Sannino, 2010).

clarified that he was unable to allocate extra resources, such as time, to any participating teacher. However, he did take responsibility for informing the teachers about a possible collaboration.

The first teacher, Mr Todd, who participated with me, noted that students' motivation for mathematics was decreasing and the books they were using were unsatisfying. After conducting an informal study in his class with 11 girls and 16 boys, ages 11 and 12, he realised that about 20 of his students were eager to play Minecraft. The teacher and I learned that Minecraft has lately found its way into schools in various countries and at different class levels (Callaghan, 2016; Cipollone, Schiffer, & Moffat, 2014; Mail, 2015; Nebel, Schneider, & Rey, 2016; Sáez-López, Miller, Vázquez-Cano, & Domínguez-Garrido, 2015). Furthermore, it shows advantages highlighted in contemporary research in connection to motivation (Abrams, 2017; Canossa, Martinez, & Togelius, 2013; Sáez-López et al., 2015). Because the teacher selected Minecraft as our entry to working both with ICT and with mathematics to restore students' motivation, the teacher and I had the opportunity to investigate students' experiences with Minecraft closely as an educational tool (Jarvoll, 2018).

Due to accessibility issues related to the use of computers and busy school days, Minecraft had not been used as an alternative educational tool at this school. With the principal's permission, the game was installed by an ICT-responsible teacher during the spring term in 2015.

As Mr Todd was offered and he did accept a position as a principal at another school, a second teacher, Mr Marvin, participated in the last half-year of the intervention.

The intervention lasted from the spring term in 2015 to the spring term in 2016. One introductory session was conducted in week 22 in spring 2015, and one session without Minecraft was conducted during week 39 in autumn. Then, sessions were conducted during weeks 41, 44 and 45 in 2015 and weeks 2, 3 and 6 in 2016, with a follow-up session in week 24. However, as will be shown, the initiative for this collaboration started earlier.

CHAT as a theoretical framework

CHAT (Engeström, 2015, 2016) is a dialectical theory (Engeström, 2016, p. 42) that builds on the idea that, to grasp the essence of any learning activity, the logic of its development must be reproduced theoretically. This thinking appeals to the intervention study presented in this article because, as will be shown later, it addresses the idea that abstraction captures the smallest and simplest unit of the whole study.

CHAT is often used as an analytical tool, but it is also a tool for further development, alluded to as a Change Laboratory (Aas, 2011, p. 275). A Change Laboratory is based on Engeström's experiences of Developmental Work Research

(Aas, 2011, p. 279), typically conducted in an activity system, such as a class, that is facing transformation (Engeström & Sannino, 2010, p. 15) and experiencing a new practice using a digital game as a new educational tool. It is designed so the participants meet tasks that call for expansive learning actions. Expansive learning is the process of working out and resolving contradictions that may evolve in the activity to be transformed. According to Engeström and Sannino (2011, p. 375), contradictions have several types of discursive manifestations, including dilemmas, conflicts or double binds. They define dilemmas as expressions or exchanges of incompatible evaluations, where a reformulation of the situation can contribute to a resolution. Conflicts can be expressed as a rejection using the word 'no' in a situation, and they can be resolved by finding a compromise. Double binds are explained as a pressing need to do something and, at the same time, a perceived impossibility of action. A practical transformation may be the solution.

Furthermore, Engeström (2016, p. 9) emphasised expansiveness as something primarily in material and cultural terms inherent to the potential of learning to produce new material objects, practices and patterns of activity. This is connected to dialectical processes, meaning that opposing forces in a system require one another, through their interplay, to form the basis of the development of the system. However, as Sannino et al. (2016, p. 260) conclude, talk and words alone do not make a difference. Development of the object is grounded in practical actions (Sanninno, 2008, p. 237), meaning that besides being discursive or conversational, productive activities are material, object-oriented and collective.

According to Virkkunen and Newnham (2013, p. 12), a Change Laboratory intervention can be seen as a dialogue and a process of co-production between the representatives of the worlds of research and practice. In total, five to 12 Change Laboratory sessions are needed to analyse and specify the challenges of developing a new practice. Previously, I noted the number of sessions that were used in this study's intervention.

A Change Laboratory focuses on opening people up to new perspectives, and it calls for motivation and flexibility; thus, participation should be voluntary for practitioners. This brings us to the role of the researcher.

The researcher in formative Change Laboratory interventions

In qualitative studies, it is important to clarify the researcher's role (Charmaz, 2014; Engeström, 2016; Stake, 1995; Virkkunen & Newnham, 2013). In Change Laboratory, the researcher aims to initiate, motivate, analyse, reflect and contribute to decision making and information dissemination (Engeström & Sannino, 2010; Virkkunen & Newnham, 2013); thus, the researcher must be flexible and open to change and be supportive when needed in the developmental process (Aas, 2011, p. 281). Lack of time can prevent a project from proceeding, and it was found to be problem-

atic for teachers in the initial phase of a study conducted by Postholm (2008). This study described what collaboration between the researcher and teachers means for the progress of the project. When teachers found the project useful, they no longer struggled to find time. This study showed that teachers wanted to reflect together, and they were interested in improving their teaching methods, enabling the project to move forward.

The Change Laboratory processes should not primarily proceed at the verbal level as rhetorical processes, but as an object-oriented inquiry, such as an expressed wish from a teacher to explore educational tools. The researcher can use a variety of discursive tools and probes to support the dialectic movement of suggestions. Virkkunen and Newnham (2013, p. 39) express, 'Tools are cultural mediators that are used for changing the external world'. This refers to a principle in formative interventions known as 'double stimulation' (Engeström, 2016, p. 43). By using mediating artifacts in the empirical reality, for instance, the use of ICT, the researcher can combine various suggestions into a functional whole (Virkkunen & Newnham, 2013, p. 113). However, according to Engeström and Sannino (2010), researchers must remember that in formative interventions, the participants own the process and the outcome.

The researcher is also responsible for collecting the empirical data, and the research findings will be shared with others who have a mutual interest in the study and its results. The researcher's role is to provide readers with the necessary vicarious experiences that are interesting enough from which to learn (Creswell, 2013, p. 200). Such a naturalistic generalisation (Stake, 1995) relates to the readers' experiences.

As outlined above, the researcher must focus on tasks that can be challenging (Aas, 2011, p. 282). Postholm (2015) met that challenge by showing how expansive learning and collaboration between the researcher and a teacher, with their overarching reflections, can be connected in the research and development process, where the researcher's task is especially visible. This overview of research connected to expansive learning in CHAT (Engeström, 2015) is crystallised in a model for research and development known as the R&D model (Postholm & Moen, 2011, p. 399). In this model, the researcher's plateau is clearly defined as a 'transparent roof', where he/she is no longer in contact with the practitioners but has an overview of the conducted developmental work. The researcher tries to reveal all the processes essential to the developmental work. In the present study, this task brought me to apply Situational Analysis (Clarke, 2015), a choice that will be explained in the following section.

Methodology

The study described in this article was conducted in a real-life context (Creswell, 2013; Yin, 2014) as a collaboration between two teachers from a primary school in

Norway and a researcher (me). For this reason, the research was conducted as a single case study design (Yin, 2014). This implies an in-depth investigation of a contemporary phenomenon, specified as the intervention, in a single primary school classroom. As indicated by Stake (1995, pp. 85–86), single case studies do not serve as a strong basis for generalising a study's findings to a population of wider cases. Nevertheless, case studies are generalizable to theoretical propositions (Yin, 2014, p. 21), meaning a study's theoretical framework can be used to establish a logic (i.e., an analytical generalisation) that could be applicable to other situations (Yin, 2014, p. 237) and to conduct naturalistic generalisations, as previously mentioned.

As outlined earlier, a Change Laboratory builds on a dialectical view where changing and developing a human activity are primarily seen as processes and relationships of interaction (Virkkunen & Newnham, 2013, pp. 29–30). This viewpoint is also the perspective taken in this study, thus positioning it under the social constructivist approach (Creswell, 2013), which is based on the epistemological assumption that knowledge can be acquired through the participants' subjective experience, in their real-life context and in dialogue with the researcher (Creswell, 2013, pp. 20–21).

The analysis and data selection methods

The research question focuses on the intervention itself and on the intervention participants. To address the research question, I used two related analysis methods. First, Situational Analysis was used. Clarke (2015) developed Situational Analysis as her contribution to Grounded Theory. Situational Analysis is applied to analyse the research situation itself (Clarke, 2015, p. 99). This method guided me to analyse further the e-mail correspondence in this study, where I used the Constant Comparative Method of analysis (Strauss & Corbin, 1998), which is more directed at social processes and human actions in the area of inquiry (Clarke, 2015, p. 133). Sitting on a 'transparent roof' (Postholm & Moen, 2011, p. 399) in an attempt to answer the research question, I claim that a researcher's plateau refers to all the elements found in the intervention. Situational Analysis is relevant to this intervention study because it acknowledges a situation as something more than the sum of its parts. This gestalt understanding is interesting for exploring an intervention as a meeting place between the researcher's world and the practitioner's world. Another important reason for applying this method of analysis is that it is concerned with mapping the relation among various elements in a research situation. Situational Analysis has helped me to discover the importance of e-mails when sitting on the 'transparent roof' (Postholm & Moen, 2011, p. 399) analysing the research situation itself. That said, a further understanding of e-mails is as mediating artifacts that are necessary means for dialogue continuity.

Situational Analysis enables a researcher to construct maps that elucidate the key elements as discourses, structures and conditions of the possibilities available in a

research situation and to analyse the relation among them. By the term 'relation', I mean there is a clear linkage or an attachment that can be traced from the e-mails to the other elements.

The situational maps I have used have helped me comprehend the complexity of the intervention, and they were modified and revised several times during the research process. First, I identified the miscellaneous elements of the intervention. Then, I constructed a situational map, as shown in Figure 1, to relate the different discovered elements to each other, one at a time. As seen in Figure 1, the e-mails are related to most of the other elements. This made me ask how and when the e-mails relate to the other elements.

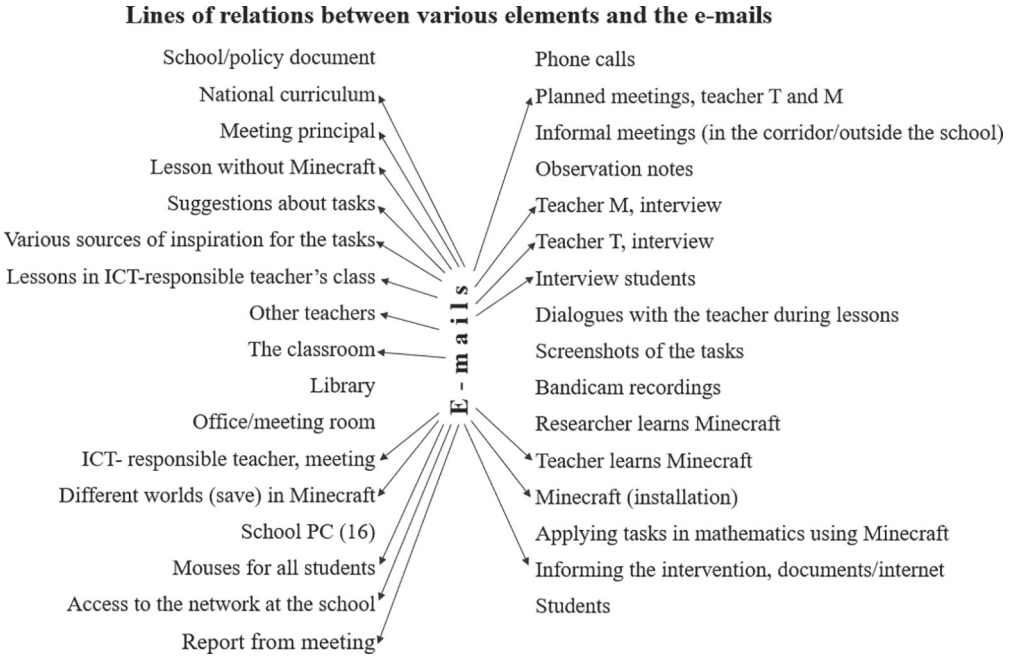

Figure 1: Elements of concern found in the intervention, with a special focus on the relationships between e-mails and the other elements.

Memos are a tool recommended in Situational Analysis, as well as in the Constant Comparative Method (Charmaz, 2014; Clarke, 2015; Strauss & Corbin, 1998), as they have been essential to maintaining my direction during the research process. From the beginning, I noted my thoughts and the ideas that emerged concerning what was needed for me to proceed. Later, I asked where the empirical data and experience led me (Charmaz, 2014, p. 162). Bearing these questions in mind, I examined the e-mails more closely.

Analysing the e-mails

The data consisted of the contents of 56 e-mails, which began before the intervention was planned, starting on 16 October 2013, until the end of the intervention on 13 June 2016. The use of e-mails was an important part of maintaining the dia-

logue in this intervention between the people involved. E-mails are a type of document, and there is evidence of their strengths and weaknesses (Yin, 2014, p. 106). E-mails contain the names of the people corresponding, which could threaten their anonymity if they are not stored correctly. They can also lead to bias in the study's findings if data collection is incomplete. All the people involved in the e-mail correspondence were anonymised, and data collection and storage adhered to the requirements for personal data (NESH, 2016). However, some ethical considerations may appear in the use of e-mails. As far as possible, I tried to present a complex picture of an initial collaboration, analysing the e-mail correspondence, which provided justice to the participants. Nevertheless, a holistic representation of participants' perspectives that includes other sources has been limited. Still, I am reasoning that the analysis does shed light on the setting connected to the participants' perspective and not my preferences as a researcher. Using a Change Laboratory approach positions me as a collaboration partner who is reflexively following whatever may appear or emerge during the intervention processes. If the opposite was the case, it would be difficult in a flexible manner to be supportive when needed (Aas, 2011, p. 281).

In this study, dialogue continuity was maintained in different arenas over a longer period. The dialogue included planned and unplanned spontaneous meetings, lessons, mobile phone calls and e-mails. However, with the e-mails, it was possible to locate various activities throughout the entire intervention. The e-mails show suggestions with details, and they provide clarifying information, as well as information about appointments. In short, the e-mails were a stable resource throughout the lifespan of the intervention, documenting different parts of the process. After a comprehensive review of the different elements of the intervention, it was clear that the e-mails played a central role (Clarke, 2015). The e-mails show a timeline of the different phases and activities that took place, and they reflect the different elements of the study.

After reviewing the e-mail correspondence, several themes emerged during the process of coding and categorising using the Constant Comparative Method (Strauss & Corbin, 1998). Moreover, three basic phases emerged. The first phase of the e-mail correspondence, from 16 October to 12 November 2013, consisted of my dialogue with the principal about the future collaboration. This phase focused on the principal's acceptance of the research topic and his permission to conduct the intervention at his school. The second phase, from 11 November 2014 to 24 September 2015, consisted of my e-mail correspondence with the first teacher about the possibilities and contradictions connected to the emerging collaboration. This phase was fundamental in laying the groundwork for the possible collaboration in the classroom. The third phase, from 2 October 2015 to 13 June 2016, consisted of e-mails about concrete planning and task suggestions, as well as all the practical solutions and pedagogical thinking that led to the accomplishment of the lessons as the intervention progressed. This phase was realised because of the first two phases I consider to constitute the initial collaboration in the intervention. The next section will present more details about the three phases.

Findings

The first phase, eight e-mails

This phase started with one meeting between my institution of higher education and a network of collaborating schools, where I presented some thoughts connected to the use of ICT in teaching. One principal was highly interested in a collaboration where teachers could expand their ICT practice. In an e-mail after our first meeting, I confirmed that the use of ICT to support learning processes is interesting and asked whether teachers have concrete needs or if they could send me any thoughts or ideas that I could include in an outline. The principal answered that the ICT-responsible teacher with whom he spoke agreed that this was a highly relevant theme. Further, he wrote:

> I will present your request during our meeting Monday morning. The first step in our school will be to make some teachers eager for this idea. I hope teachers will see the possibilities and not only the limitations. If someone has some suggestions, I will pass them on to you.

The principal signalled again his interest. However, as seen in a later e-mail, he also noted that lack of time was a concern:

> It has been such a hectic morning. One class was going to have this national test, and we had some technological problems. Therefore, I had no time to answer you earlier. I am at a hotel now. It is too bad that we do not have more time to talk, but I feel that we have enough time to make a plan about this project.

I asked him if he had talked with teachers about the ICT theme and learning processes. I wrote:

> Did you find time to talk about the possibilities connected to learning processes and ICT with your teachers? It can be ok to consider this theme. I will be away until Friday, so we can have a meeting on Friday or next week. Just choose what suits you best.

After the second meeting, he noted in an e-mail that to be able to 'sell' the possibilities when he was meeting with teachers, he needed me to provide an outline of what I had in mind. He also wrote, 'Teachers must feel that this type of collaboration would be beneficial to their busy workdays'. He suggested that we then could have a meeting where I described closely what I have in mind, so he could pass this on to the teachers and so 'we could hope that someone would join this collaboration'.

The second phase, 23 e-mails

The teacher (Mr Todd) who wished to collaborate with me stated in the beginning that he wanted to try something else in his mathematics lessons, and he chose Minecraft to be his new teaching practice. In my first e-mail to him in November 2014, after we had our first conversation about collaboration possibilities, I asked him when he had an opportunity to start. I wrote:

> The reason for my question is that I have the possibility to connect some of my working hours to our collaboration, and the use of ICT in education is of special interest to me,[3] particularly when it comes to mathematics education.

He wrote back that we could start right after Christmas, because 'it's too much right now'. We had our first meeting on 20 January 2015. The report from the meeting was e-mailed to the principal to keep him updated.

The ICT-responsible teacher[4] had no time to install Minecraft, and he was the only person who could do it. I told Mr Todd that I might have a solution and asked for a meeting among the three of us. Unfortunately, Mr Todd had to be elsewhere. Nevertheless, the ICT-responsible teacher accepted my suggestion that I could relieve him for some of his lessons so he could find time to install Minecraft, writing:

> Hi, I am sorry that I did not answer you earlier; the reason is that I had to do some rearranging. Counting up for installing Minecraft: 16×20 minutes = 320 minutes = 5 hours and 20 minutes. It could be suitable for me if you have the possibility to take lessons Thursday, week 15. Friday is also possible. If you want to come and say hello to the class before Easter, it can be done Thursday this week. Just send me the time that suits you!

Thus, to resolve the issue concerning the necessary installation of the game, I presented six lessons in the ICT teacher's class so he could complete the installation.

This second phase also deals with organising and conducting the introductory lesson. In the beginning, we planned to have this introductory lesson during week 17, but after some correspondence, Mr Todd wrote that 'it's very busy, but maybe week 22 is the most feasible?'

I provided Mr Todd with information about the possibilities connected to the national curriculum[5] and Minecraft. I also made suggestions concerning the tasks, and I suggested that Mr Todd, who had not tried Minecraft earlier, could work

3. I am a teacher educator in pedagogy with a special interest in the use of media/ICT in schools.
4. This is the same ICT-responsible teacher about whom the principal was talking earlier.
5. Directorate of Education (2015).

together with one student, meaning that he could be a student himself. Mr Todd wrote back:

> You have been working very well in planning what we can do in Minecraft. I am sorry that I have not been 'on' so much lately. The plan looks nice and we shall use the special multimedia room. Our time is from 08:00 to 10:00. I am looking forward to being a student! I understand that you have been in contact with the ICT-responsible teacher and received our password.

The same day, I wrote back the following:

> Yes, I have the password. If you don't wish to make changes to my suggestions, then we can just try the tasks as they are. I have completed all of them myself, and I think that most of the students will be quicker than I am. It will be exciting! It could be nice to have an evaluation after the lesson tomorrow or at least this week when it is fresh in mind. Can you make it?

The third phase, 25 e-mails

Minecraft had to be upgraded, and new worlds had to be installed. I asked in connection to this whether Mr Todd could look at two attached tasks. Mr Todd wrote, 'Very good tasks, I like them. We have to organise the classroom before Monday; can you come today at 14:30?'

In December 2015, Mr Marvin, who replaced Mr Todd, joined the intervention. Our first meeting was about what the class had done and how the intervention could proceed. Mr Marvin wrote that he was short of time: 'I am sorry about my late response, a lot is happening right now. We can have a meeting on Monday at 14:00'. After the meeting, Mr Marvin wrote that the students had started with fractions, but he did not have time to think about this yet. It sounded good if I (the researcher) could have suggestions. After receiving suggestions from me about fractions and the area for our first lesson together, Mr Marvin answered, 'Both suggestions to the tasks look reasonable. This week, we have been through fractions, both how to abbreviate and expand fractions, so it should not be any problem. They [students] are also familiar with the area now'.

The e-mail correspondence is frequent and reveals suggestions from me about the tasks, positive feedback from the teacher and further planning regarding meetings and interviews. When we were about to start planning our last session in May 2016,[6] I wrote:

6. This is the follow-up session in week 24, as mentioned earlier.

> It has been a while since we had Minecraft. Students had a break and that might be a good thing. Does it suit you to have a lesson during one of the following weeks: 22, 23 or their last week in school, week 24? What do you think is appropriate to do with the class now at the end of the school year? You know best what they need.

During this correspondence, I also expressed that I had to interview some students and Mr Marvin after the lesson. Mr Marvin wrote back:

> Yes, it was a good idea to wait, especially when the oldest students have exams and the priority to use the computers. In addition, the ICT-responsible teacher has been busy. We can schedule the lesson and the interviews in week 24. It suits us well to have something alternatively to do when the students have to return their books and are tidying their classroom.

In a later e-mail, I suggested tasks about volume, which we used in the last session.

Discussion

To investigate how the beginning of an intervention can create a meeting place between educational research and educational practice, I asked the following research question: *How does initial collaboration between a researcher and practitioners create a meeting place, and what implications can be drawn from this?*

After the process on the 'transparent roof' (Postholm & Moen, 2011) and after discovering that e-mails were discursively related (Virkkunen & Newnham, 2013, p. 113) to most of the other elements, I moved forward with the e-mail analysis. It must be remembered that while the e-mail correspondence was not the only form of communication, it structures the various actions that were taken in connection to the intervention. This is shown in the right column in Figure 2. Three phases containing these actions were identified, as shown to the left in Figure 2. In addition, the contradictions (Engeström & Sannino, 2011) that emerged are outlined in this phase. The first phase was about gaining admittance from the principal. Furthermore, in the first phase, the principal mentions several possible impacts, such as whether teachers will find such a collaboration beneficial, and this might have presented a dilemma. When I asked about teachers' needs, he wanted me to concretise what I had in mind, writing, 'We could hope that someone would join this collaboration'. This could be a beginning expression of helplessness, such as in double binds (Engeström & Sannino, 2011, p. 375). However, I will not draw a conclusion because the tone in the e-mail was rather encouraging. This situation was resolved with Mr Todd having a clear purpose for collaboration.

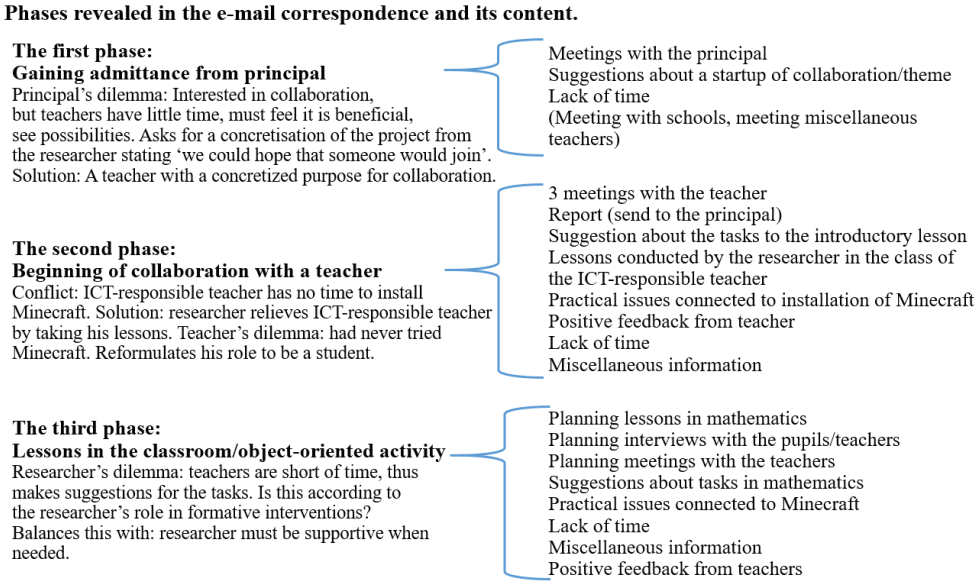

Figure 2: Unwrapped information about activities connected to the three respective phases revealed throughout the analysis of the e-mail correspondence.

The beginning of the collaboration with Mr Todd started in the second phase. A continuous dialogue is maintained using e-mail planning activities. One conflict started to emerge when the ICT-responsible teacher had no time to install Minecraft. As I see it, if the e-mail correspondence had stopped, particularly about this matter, further activity in the intervention would be difficult. To secure the installation of the game, we entered into a compromise where I offered to lead lessons in his class. Mr Todd also had one dilemma: he did not know how to use Minecraft, but he had no problem with reformulating his role in the introductory lesson and becoming a student.

In the third phase, I was obliged to design the tasks to facilitate the collaboration. The e-mails from the third phase show that both teachers had positive responses to the received tasks, but they also demonstrated that they did not make many suggestions themselves. Due to lack of time, it seems the teachers were expecting the researcher to make the suggestions.

These phases show that the researcher needs to provide various solutions that do not necessarily seem to be part of the researcher's role in formative Change Laboratory interventions (Engeström & Sannino, 2010; Virkkunen & Newnham, 2013). An explanation was that the researcher must be flexible and supportive when needed (Aas, 2011, p. 281). Looking at this from another angle, the teachers could have ended the collaboration if it did not add anything useful (Postholm, 2008). It was challenging to find time to collaborate; however, the collaboration had enough relevance and continued despite busy workdays. Thus, I think this collaboration was worth more than the sum of its costs, contributing to expanding the teachers' practice (Postholm, 2015, p. 48).

The implication is that the researcher has an explicit practical impact on the collaboration activity by moving across boundaries (Engeström & Sannino, 2010) and overcoming conflicts and dilemmas. In this way, the researcher moves into the practitioner's world, not only informing with academic knowledge, but also securing further teaching activities in mathematics using Minecraft. For the researcher, this kind of intervention is time-consuming from the beginning. That said, if the researcher did not make this a priority, this could have contributed to a separation of these two worlds (Biesta, 2007; Rønbeck & Germeten, 2014). Instead, from a gestalt viewpoint (Clarke, 2015), the researcher and the practitioner accomplished an object-oriented activity (Virkkunen & Newnham, 2013) by collaborating in using Minecraft as an educational tool in mathematics.

The e-mails show dialogue continuity, which was essential for the intervention to proceed and for the object-oriented activity to be achieved (Sannino et al., 2016) in the third phase. Dialogue can be understood as essential for creating and expanding, with further actions, a meeting place between the researcher and the practitioners. Conversely, withdrawing from or closing the dialogue would end the collaboration.

Concretising the expansive dialogue

Virkkunen and Newnham (2013) defined an intervention as a 'purposeful action by a human agent to support the redirection of ongoing change' (Virkkunen & Newnham, 2013, p. 3). In an attempt to concretise the experience with a continuous dialogue creating a meeting place where change could be realised, I developed a model, as depicted in Figure 3.

The spiral shown in Figure 3 refers to the dialogue, and some, but not all, of it is captured by the e-mail correspondence. Not all of the activities could be documented by e-mails, as Figure 1 shows. Nevertheless, e-mail correspondence is understood as the timeline, visualised as an arrow, which continues throughout the dialogue process as the intervention proceeds. The e-mails as mediating artifacts were used to facilitate a meeting place between the researcher's world and the practitioner's world, where dialogue was manifested. In Figure 3, the spiral gradually widens because the dialogue, as I see it, had to expand (Engeström, 2016, p. 9) and become spacious enough for any object-oriented activity to be realised (Engeström & Toiviainen, 2011). The model presented in Figure 3 is an abstraction that aims to grasp the essence of the study (Engeström, 2016, p. 42). It represents the continuation and expansion of a dialogue through a mediating artifact facilitating a meeting place that works towards realising an object-oriented activity, that is, from words to practical actions, as emphasised in a Change Laboratory (Sanninno, 2008, p. 237).

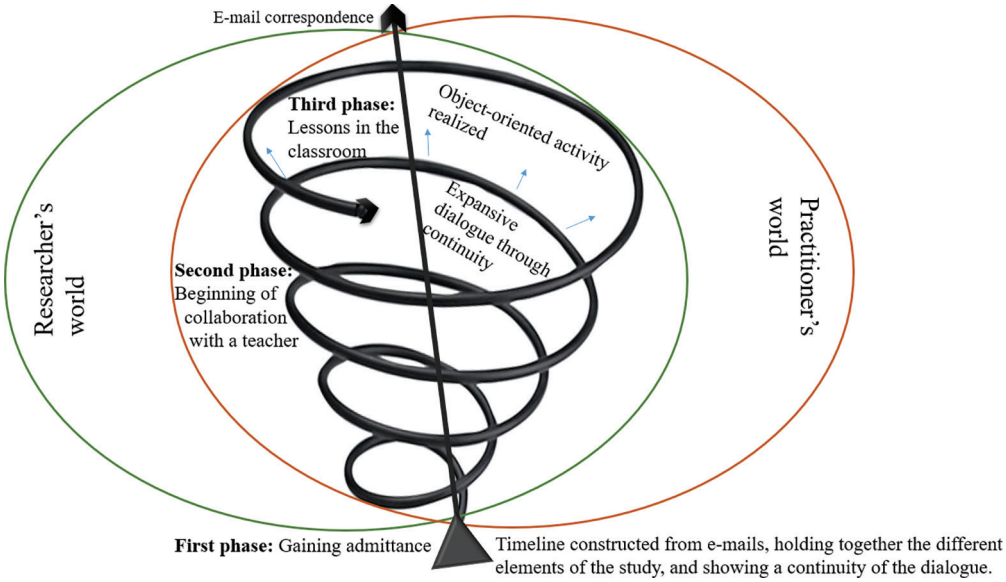

Figure 3: Model of expansive dialogue between the researcher's world and the practitioner's world.

Conclusion

This article points to the need for research that aims to clarify the importance of initial phases in a formative Change Laboratory intervention. Based on research from the field of education, I developed a model to demonstrate how to map the initial phases of a collaboration. Further empirical studies are needed to question and refine phases that may appear in transformative studies, especially with a focus on the initial phases and to what they may lead or not lead when it comes to the creation of a meeting place and an object-oriented activity. The limitation of these findings is that only the content from the e-mails is examined. Other sources of evidence would be helpful to strengthen the findings. Practical implications from this study may be that detected phases in other studies can be compared to or analysed with the help of the phases that emerged during this intervention.

Contradictions are interesting to explore when it comes to the initial phases, especially with a focus on how they appear and may be resolved, as they can have a crucial impact on how a formative Change Laboratory intervention is brought into being by a researcher and a practitioner.

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