

## Online Proactive Reviews

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# ONLINE PROACTIVE REVIEWS

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## ABSTRACT

The aim of this study is to explore online, collaborative learning when it takes place in the context of work. The study is based on an educational design of collaborative learning called Proactive Reviews (PR). A PR is the point of departure for an organisational learning process involving circuits of learning and knowledge creation including the past, the present and the future. The research question is how to improve learning and innovation in the context of work when collaborating online.

## KEYWORDS

Organisational learning, CSCL, learning spiral, online collaboration, design-based research

## 1. ORGANISATIONAL LEARNING

Why bother about organisational learning? Nonaka and Takeuchi (1995) claimed that the ability to learn at all levels in Japanese organisations increased their competitiveness with American companies. According to Pålshaugen (2000), companies need to increase productivity in order to survive in a competitive environment. How to increase productivity is quite an open question, but an answer may be to do things differently and to do them quickly in order to increase competitive advantages. Improvements in technology and working processes may be seen as innovation (Pålshaugen 2000).

The competitive advantage may be achieved when an organisation creates new knowledge, disseminates it throughout the organisation and embodies it in products, services and systems (Nonaka & Takeuchi 1995) as well as work processes (Elkjaer 2003). Learning in organisations may be seen as a continuous process of development in which the individuals and the organisations interact and the learning embraces work practice (Elkjaer 2003) and leads to changes in cognition and behaviour (Vera & Crossan 2000).

It is critical that learning is integrated into the strategy of the organisation to ensure a positive impact of the learning efforts (Nonaka & Takeuchi 1995, Vera & Crossan 2000).

As an organisation cannot create knowledge on its own, its individuals need to be involved (Nonaka & Takeuchi 1995). All kinds of workers have the ability to contribute; consequently, it may be beneficial to invite them to participate in processes that generate learning and innovation (Pålshaugen 2000; Elkjaer 2003).

A circuit of knowledge appears when somebody runs into a problem: the employee will use his or her *experience* that includes thinking, knowledge, sensations, emotions and intuition. Furthermore, the employee will utilise reflection to solve the problem, which gives new experience and new insights—the employee learns (Elkjaer 2003).

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All of the theorists above agree that learning is created through social interaction between the employees. None of these theorists provide suggestions for the organisational learning processes, but Nonaka and Takeuchi (1995) base their research into learning in the context of work on Polanyi's 'tacit' and 'explicit' knowledge. Tacit knowledge is personal and context-specific, embodied in a way that makes it difficult to communicate. Explicit knowledge is to be communicated. Consequently, it is very important to utilise tacit knowledge, and conversation is the means for making the tacit knowledge explicit. The terms 'conversation' and 'dialogue' are often used interchangeably (Nonaka & Takeuchi 1995). However, the term 'dialogue' should be specified when used for learning in the work context.

According to Bohm, the process of dialogue includes sharing points of view that lead to the creation of something new; the result of dialogue is changes in the participants' minds and behaviour (Bohm 1996).

*Equality* is a prerequisite for dialogue, meaning that everybody has a say, and everybody contributes on an equal basis (Bohm 1996).

When the participants in dialogues are supposed to share experience, exchange points of view and explore unknown areas, a caring *atmosphere* is needed (Von Krogh 2005).

The participants should be able to *trust* others, at least to some extent (Bohm 1996). Trust enables the participants to be brave enough 'not to know' (Wegerif 2007), and to change point of view in order to change opinion and behaviour (Von Krogh et al. 2000).

## **2. ONLINE COLLABORATION AND LEARNING**

Questions of online collaboration and learning are dealt with in the tradition of computer-supported collaborative learning (CSCL). The CSCL tradition is a problem-driven, multidisciplinary field that deals with how people can learn together, supported by computers. Focus is not necessarily on the technology as a learning tool itself, but rather on how interactions and dialogic learning among students may be facilitated by technology (Wegerif 2007).

In the development of CSCL, technology allowed designers new means of influencing the complex interactions of collaboration and learning as well as allowing researchers ways of studying them (Stahl et al. 2006). Hoadley (2010) sees such a combination of designing, studying, and redesigning processes as leading on to the tradition of design-based research (Hoadley 2010).

## **3. PROACTIVE REVIEW**

Proactive Review (PR) is an established method for organisational learning, developed from 2005 to 2012 in a world-class IT company and employed in that organisation in Europe, Middle East and Africa (EMEA). In 2005, the top management initiated the development of a process to learn from experience in order to improve competitive advantages. The process ought to be simple and applicable to all lines of business in all countries in EMEA. When PR was developed, it became an integrated part of a three-

year strategy, and new requirements grew, for example, running PR online. This paper will investigate how PRs may be conducted online with the purpose of improving collaborative learning and innovation in the context of work.

Proactive Review is a process for employees to learn and innovate in a competitive environment. PR is based on the participants' individual experiences and collaborative idea generation, and it is an inexpensive, simple, and systematic process that enables the participants to discuss a shared past and create an improved future. The participants in a PR have solved a task together, a manager has asked them to learn from the experience or to solve an issue and a trained facilitator leads the participants through seven open questions within a given time slot, normally three hours. Collaboratively, the participants create a common understanding of the past, innovate solutions to issues they have identified and decide what to act upon and how. A PR may involve employees at any level to develop products, services, systems or work processes (Nonaka & Takeuchi 1995; Elkjaer 2003).

The backbone of PR is dialogue between the participants. The dialogue is initiated and maintained by seven open questions asked in a specific sequence (Kolbaek 2012):

### **3.1 Agenda of a PR**

1. What is the purpose of this PR?
2. What was our goal?
3. What happened and why?
4. What should we do next time?
5. What should we report, to whom, when, and how?
6. What management challenge might be addressed from this PR?
7. What was your personal highlight from this PR?

A Proactive Review includes four roles. The sponsor initiates the Proactive Review and follows up on the results of the PR. The participants in the PR have solved a task together. The trained facilitator conducts the PR, keeping the time, maintaining the caring atmosphere and leading the participants through the seven questions. The top management decides upon organisational changes caused by the identified management challenges. An online PR may also have a technical facilitator to maintain the technology.

### **3.2 The Organisational Learning Spiral**

The Proactive Review includes circuits of knowledge. When a manager becomes aware of the need for learning from experience, he may initiate a Proactive Review. He knows the result produces requirements for changes, but he does not know *what* changes—those are new knowledge.

The participants in the Proactive Review have solved a task together. By doing the job, they have thought, sensed, felt and probably used their intuition—in other words, they have developed experience (Elkjaer 2003). The invitation for the Proactive Review asks the participants to consider obstacles and enablers that led to the result achieved, whether good or not. This initiates individual reflections of the past.

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In figure 1, the squares show the learning in different areas of the organisation. The phases show the activities that lead to learning at the next level. The flow in the learning spiral is generated by dialogue.

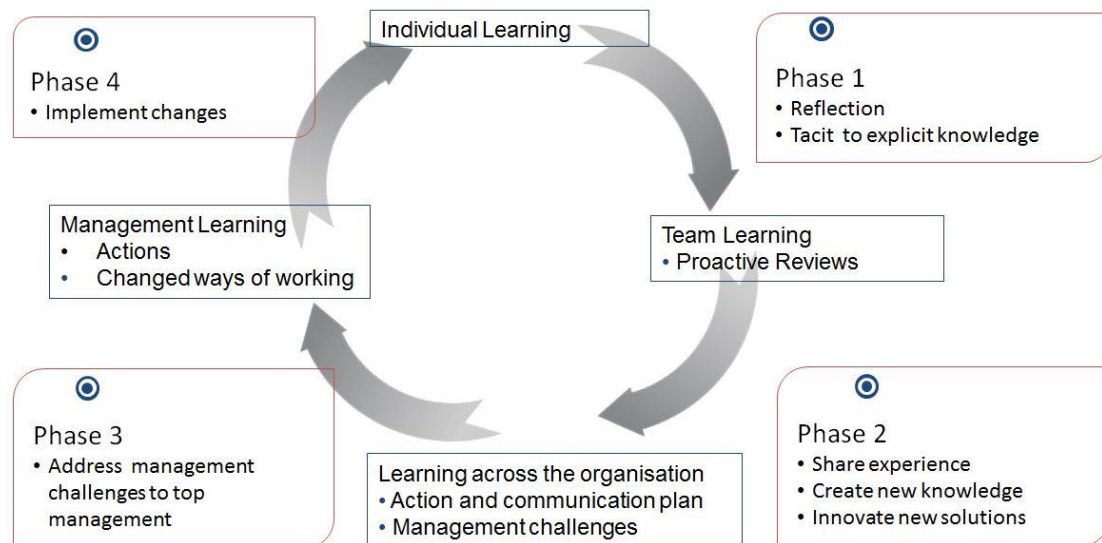


Figure 1. *The organisational learning spiral (Kolbaek 2012)*

Phase 1: The individual employee experiences and shares the way of doing things while solving a task collaboratively with colleagues. Through the collaboration, socialisation takes place, and the knowledge may be tacit or explicit (Nonaka & Takeuchi 1996). The learning spiral calls this ‘individual learning’. When the participants prepare for the Proactive Review, they reflect on the experience of solving the task, and the Proactive Review gives them the opportunity to formulate enablers and obstacles for achieving the task. According to Nonaka and Takeuchi, the employees externalise some of the individual knowledge, making some of the tacit knowledge explicit.

Phase 2: Sharing the experience, the participants mix their individual knowledge, and the dialogue leads to a common understanding of the past—what was good and what needs improvement according to the question, ‘What happened and why?’ The circuit of learning continues from the focus on the past to a focus on the future in the question, ‘What should we do next time?’ The participants mix new knowledge with ‘old knowledge’ such as expertise and experience, to create solutions to the problems identified. The dialogue in the PR makes the participants share their explicit knowledge (Nonaka & Takeuchi 1996). This is an innovative process where the participants suggest changes in order to develop products, services, systems or work processes. The tangible results of the Proactive Review are action and communication plans and one or two management challenges (Kolbaek 2012).

Phase 3: The management challenges are addressed to the top management. If the content of the management challenge is new to the top manager, the circuit of knowledge may be said to be continuing from the participants in the PR upwards in the organisation to the top manager, who learns about an issue that he is required to solve. This is a starting point for organisational changes and development, as the top manager decides how to solve the management challenge. The solution may involve changed

work processes, improved services, changed systems or new products. Sometimes the top management decides to reorganise or to develop internal policies because of the addressed management challenges. In these cases, the Proactive Review affects internal politics or power in the organisation.

Phase 4: The changes and developments need to be communicated and implemented in the organisation. The circuit of learning continues from the top management to the employees, and the spiral starts over. This organisational spiral ensures that the learning from the single Proactive Review is spread to relevant persons in the organisation and that issues are addressed to management, who decides and implements the necessary changes (Kolbaek 2012). The employees need to internalise the new processes, services, systems or products in order to align with the organisational requirements—they make the explicit knowledge tacit (Nonaka & Takeuchi 1995). The Proactive Review initiates a learning spiral that ensures that individual knowledge expands to organisational learning.

### 3.3 Suggestions for Technology to Mediate Online PR

Above we covered the theory behind Proactive Reviews. Now the focus will change, and you will see how the theory works in practice in a real online PR. Figure 2 shows the seven questions in the PR and the timing for each question. Additionally you find a suggestion for the technology to mediate the on-line PR.

Question	Minutes	Technology
1. Icebreaker & What is the purpose of the PR?	15	Web conference and Phone conference
2. What was our goal?	5	Chat
3. What happened and why?	45	Alchemy or chat
4. What should we do next time?	55	Web conf, Phone conf
5. What to report?	45	Slide in the web conf
6. What management challenges might be addressed?	10	Do
7. What was your personal highlight?	5	Web conf, Phone conf, chat

Figure 2. *Tools for online Proactive Review*

The *web conference* showed the slides on all participants' screens. Alongside the web conference, a *phone conference* (Intercall) was activated in order for all participants to talk and listen. The phone conference allowed the participants to talk in smaller groups (so-called break-out sessions) and to come back into the plenum when required.

The *chat* was placed in the lower right corner of the web conference, and the participants and the facilitator could write their comments there while all the other participants and the facilitator could read the inputs.

*Alchemy* was an internal discussion forum where the participants could start up and follow the threads they needed.

The ideas from 'What should we do next time?' were concretised in 'What to report?'



The report was named the ‘Action and Communication Plan’ and had a specific format which was presented and filled out as a slide in the web conference during the online Proactive Review. After the online PR, the sponsor was responsible for the implementation of this plan, and the management challenge was addressed to top management. The online PR finished off with individual reflections on the personal benefits from participating.

#### **4. METHODOLOGY: Design-Based Research**

The development of the educational design of Proactive Review was initially not a research project, and it was not planned as scientific research. However, its success was founded on the feedback from participants, decision-makers and end users of the results. Research methodologies were utilised for receiving the crucial feedback from users spread over EMEA.

This study investigates organisational learning from a learning perspective. Consequently, the methodology should mirror this approach. Design-based research (DBR) was developed for researching classical classroom training. In this study, DBR will be utilised for researching collaborative learning and innovation in the context of work. DBR allows active involvement of the participants and includes a number of iterations for improving the design of the Proactive Review. The development took advantage of the participants’ expertise (Barab & Squire 2009) and high involvement (Collins et al. 2004), and the researcher collaborated with the researched people, investigating known and unknown aspects of practice. The researcher influenced practice due to the research itself. The researcher is aware of this ‘un-neutral’ role (Pedersen et al. 2012).

Dede (2004) is critical of DBR and highlights the fact that DBR sometimes lacks a strong theoretical foundation and lacks of standards for concluding when to cancel a design approach as unpromising. Dede suggests that the design of the research is differentiated from its conditions for success and that these conditions should not be changed from one iteration of the DBR to the next. Inspired by Dede’s thoughts, this study points out the areas to be looked into, based on the theoretical foundation, and the following areas will serve as conditions for success (Dede 2004).

- The individuals and the organisations interact (Elkjaer 2003).
- The online PR embraces work practice (Elkjaer 2003).
- More kinds of employees are invited to online PRs (Pålshaugen 2000; Elkjaer 2003).
- The employee will use his or her *experience*, which includes thinking, knowledge, sensations, emotions and intuition (Elkjaer 2003).
- The online PR leads to changes in cognition and behaviour (Vera & Crossan 2000).

The study explores online collaborative learning as it thrives in online Proactive Reviews. The development of PR is based on a number of iterations, and the development of online PR is to be seen as a new iteration. The new educational design includes information and communication technology (ICT), and the study captures problems identified by practitioners and participants (Engeström 2011) who may uncover how to improve the dialogue in online PRs.

According to Collins et al. (2004), it is critical to analyse various aspects of an educational design in order to improve it. To understand how to improve learning and innovation in the context of work when working online, it is interesting to look into how the understanding of the participants in the PR changes, how the group dynamics unfold during the online PRs and how the technology influences the interaction within the group of participants.

Various aspects of an analysis could be interesting, according to Collins et al. (2004). This study will focus on only the following three aspects:

- The *Cognitive level* explores how the understanding of the participants changes as a function of their participation in the online PR. This aspect is important for exploring the participants' ability to learn (Nonaka & Takeuchi (1995); Elkjaer (2003); Vera & Crossan (2000)).
- The *Group dynamics* uncovers the interactions within the group and group dynamics like authority or domination. Group dynamics is a mix of the so-called 'Interpersonal level' and the 'Group level' which Collins et al. describe as intertwined (Collins et al. 2004). This aspect is important for exploring the complex interactions of collaborative learning (Stahl et al. 2006).
- The *Resource level* deals with material available for the participants and how easy it is for the participants to find and use it (Collins et al. 2004). This aspect is important for exploring the impact of the technology on the interactions in the PRs.

## 5. EMPIRICAL SETTING

The researched company is a world-class IT company delivering hardware, middleware and software to market leaders of banking, transportation, healthcare etc., only working business to business (Rao 2003). In 2011, the company had about 108,000 employees and revenue of 36.7 billion US dollars over 12 months. The same year, the IT company in EMEA had approximately 30,000 employees in more than 40 countries. From 2005 to 2011, the strategy changed from being a multinational company with local organisational entities in the countries to being a global company with global lines of business, where the employees worked in teams with members from more countries, managed online. During the same period, more than 60 companies were merged into the IT company, including a vast number of new employees. It became increasingly important to collaborate online, to learn from experience and to collaboratively learn online.

The author had the role of Manager of Organisational Learning (EMEA) from 2005 to 2012, with the responsibility of developing and implementing an educational design for learning from experience and innovation; the result was PR. Her role enabled her to engage in PR from the very beginning through a number of development iterations over eight years, including the development of an educational design for running PRs online.



## 5.1 Empirical Data

This study includes more data types and data sources to establish more credibility (Tracy 2010). The qualitative data may show three perspectives (Schraube 2010). The first person perspective explores the inner life of the researched person, the second person perspective unfolds the inner life of the researched person based on interaction with the researcher and the third person perspective keeps a distance from the researched people as the researcher ‘neutrally’ observes the researched field. Here, the empirical data sources include two online PRs and experience from two facilitators.

According to Engeström (2011), the unit of analysis in DBR is sometimes vague. Consequently, this study includes an argumentation for the choice of PRs.

The study includes two online PRs:

A1: A lost sales bid in East Europe (EE), which was the first online PR in 2009. The PR was conducted as a consequence of the loss. This online PR is interesting because it was initiated *after* something had happened, and it was initiated on an event perceived to be negative by the participants, the sponsor and the top management. Additionally, it was the first online PR; consequently, the ICT mediation was new to everybody including the facilitator.

A2: Establishing an EMEA strategy for 100% growth for a new product in 2011. This online PR is interesting because it was initiated *before* something should happen, and it was initiated to innovate solutions for a task perceived as difficult by the sponsor and the participants. Additionally, the sponsor attended the online PR. In 2011 the ICT mediation was well known to both the participants and the facilitator.

The experience from the two facilitators originates from two interviews: B for Bangalore and E for Spain.

B. A facilitator from Bangalore, India, spoke about his experience from the latest three online Proactive Reviews that included two lines of business, the support centre and consulting. This data source is important, because the Indian facilitator was amongst the first to be trained, and he had several years of experience. Furthermore, the collaboration between the office in Bangalore and the EMEA offices developed a need for online PRs at a very early stage.

E. A facilitator from Spain shared her experience with online PRs. This data source is interesting, because she, as a very experienced facilitator, had experimented with different kinds of ICT, ending up in valuable proposals for the technology to be used in online PRs, and she presented rich reflections on group dynamics.

## 5.2 Data and Analysis

The data from A1, a lost bid in EE, includes observations and an online chat between the seven participants situated in four countries and a country manager who was the sponsor of the online PR.

The data from A2, establishing an EMEA strategy, includes observations, an interview with the sponsor, who was a senior vice president, and an online chat between twelve participants, who were high level managers placed in nine countries.

B. The experience of a facilitator in Bangalore is gathered in an interview.

E. The experience of a facilitator in Spain is gathered in an interview.

The first person perspective is gathered through direct feedback from end users and stems from online chats, discussions in the internal discussion forum called Alchemy and the action and communication plan from the two PRs. The second person perspective is explored in interviews with sponsors of the online PRs and with experienced online PR facilitators. The third person perspectives come in as observations of online PRs that are facilitated or co-facilitated by the researcher, who captured the observations in handwritten notes throughout the PR. Some of the notes were transformed into blog stories and were published internally in the IT company. Additionally, slides from the two online PRs deliver data to this study. Below is an overview of the data types and areas of analysis.

<b>Data Type</b>	<b>Analysis to find enablers and obstacles</b>	<b>1<sup>st</sup> person perspective</b>	<b>2<sup>nd</sup> person perspective</b>	<b>3<sup>rd</sup> person perspective</b>
<b>Analysis (DBR)</b>				
<b>Cognitive level</b>	Individual learning	Chat Action and communication plan	Interview with sponsor who participated	Slides from PR
<b>Group dynamics</b>	Interaction between the facilitator and the participants, and between the participants  Concord or Conflict	Chat Alchemy	Interview with B Interview with facilitator E	Observations
<b>Resource level</b>	Technology	Chat	Interview with B Interview with facilitator E	Observations

Figure 3. *Areas of analysis (DBR) and data types*

The purpose of the Proactive Review is to create innovation and learning based on work experience. According to the learning spiral, the results of the PR should provide learning in four areas: individual learning, team learning, management learning and learning across the organisation.

The analysis below is structured according to the three aspects described above: the cognitive level, the group dynamics and the resource level.

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### 5.2.1 *The cognitive level*

#### *Does the individual learn in online PRs?*

The participants were invited to the online PR to learn and innovate. They had shared a task, and the online PR enabled them to identify enablers and obstacles for achieving this task. The dialogue in the online PR allowed them to share experience, thinking and reflections, which provided each of them, and the team as a whole, with new experience and new insights (Elkjaer 2003).

A1 Actions: Assign a lead for the project, assign a bid team, assign high-level sponsor, improve presales, a few persons to meet the customer, create plan for competitors (Action and Communication plan A1).

A2 Actions: Define ownership and responsibility, team up with HW, create application for XX, innovation with ABC, make XX standard platform, upgrade migration path, define partner strategy for XX, deal with internal competition (Action and Communication plan A2).

‘I saw some conflicting interests which need to be handled—most likely by myself’. (A1 Chat, the sponsor)

‘We have made a standard process for working with third party’. (A2, interview with sponsor)

The action and communication plans showed a number of changes to be initiated as a result of the online PR. A1 documented new insights of the participants: they decided new initiatives in order to solve common tasks more efficiently, for example, the assignment of a lead for the project or the creation of a plan to counter competitors. A2 documented awareness of the new tasks, for example, the issue about ownership and responsibility within the team, and they innovated by coming up with new suggestions for an application and for making XX a new standard platform.

The interviews included new insights, for example, conflicting interest in A1 and an innovation being a standard process for working with a third party in A2.

The data indicate that the participants gained new insights on an individual and on a team basis. It seems as though the online PRs enabled the participants to learn from experience.

### 5.2.2. *The group dynamics*

#### *How is the interaction between the participants and the interaction between the facilitator and the participants?*

The participants in an online Proactive Review should be encouraged to speak their minds, as everybody has a say, and everybody is expected to contribute on an equal basis (Bohm 1996).

All participants were invited to the chat, but the sponsor did not contribute. (Observation, A1 chat)

All participants showed up in the web conference on time. 100% participation in the poll, ‘How did the sales process go?’ Lively discussions in the break-out sessions, (Observations, A2)

The data indicates that the facilitator encouraged everybody to speak their minds by contributing to the chat, the poll and the break-out sessions in both online PRs. The data shows that the facilitator enabled a high level of participant activity in A2, whereas the facilitator did not succeed to the same extent in A1. Here, the sponsor did not participate in the chat. The data do not say why he decided to stay silent, but by staying silent, he did not attend on an equal basis. Either he was modest and would not interfere, or he kept the formal hierarchical distance by observing instead of contributing.

*Does the team run into concord or conflict?*

The participants identified the causes and created solutions to the problems they identified through the question, 'What happened and why?' In order to do so, the participants needed to explore unknown areas, where they needed to be brave enough not to know (Wegerif 2007). The dialogue caused by the question, 'What should we do next time?' made the participants exchange points of view that may have caused changes in opinions. According to Von Krogh (2005), the participants rarely perceive this type of conversation as 'a safe area', and the facilitator is responsible for creating a caring atmosphere in order for the participants to build trust, support concord and avoid conflicts.

'Lack of leadership throughout the project.'

'Lack of top management engagement.'

'Too many faces in front of the customer.'

'The demo did not meet the customer's expectations.'

'**Conclusion:** We need to manage the customer's expectation and agree on them. Assign an owner of the demo. We need to create a demo program, and the presentation needs to be a shared task between relevant LOBs [Line of Business]/ right people in the project.' (Participants in Alchemy A1)

A and S offended Y by saying that the presentation to the customer was poor. After this utterance, Y withdrew himself from the conversation. (Observation, A1)

Y: 'Hard to see the point of a PR.' (Chat A1)

The data indicate that the participants identified specific issues that made them strongly involved. They showed negative emotions by using the words 'lack of leadership', 'lack of top management engagement', 'too many faces' and 'the demo did not meet the customers' expectation', which offended Y, according to the observation. They started formulating a number of issues, and the action and communication plan from A1 showed that they finished by providing solutions (see 5.2.1). The dialogue within the online PR enabled the participants to exchange points of view and achieve a common opinion on what to do (the action and communication plan).

The facilitator may not have maintained a caring atmosphere for all participants, as Y withdrew himself from the conversation and stated that it was 'hard to see the point in the PR' at the end of the PR. A and S confronted Y by using the words 'poor demo', and the conclusion included solutions for improving demos. Maybe A and S dominated the meeting, and Y did not go into a discussion with A and S. The dominance of A and S may have prevented Y from being brave enough not to know. In any case, Y stayed silent during the rest of the PR. Consequently, the participants did not know the background for creating the demo, and the solution did not include comments or commitment from Y.

The conflict between Y on the one side and A and S on the other side seems not to have been solved. This leads to the consideration of a facilitator's point of view.

If a conflict is to occur in a face-to-face PR, I can prevent it, or I can easily calm down the participants. This is not an option in an online PR. My only 'tool' is to mute all lines and keep talking to calm down the participants. But you really don't know the emotions online. (Interviewee E)

The utterance from E indicates that negative emotions are not easily changed in an online PR.

Virtual PRs are a poor substitute for face-to-face PRs, where the project team is able to sit in a room together and discuss the PR questions. In a virtual environment, neither the facilitator nor the participants are able to pick up cues from body language and expressions of the participants. It is much more difficult to encourage participation, since being silent means being invisible—a facilitator is not able to understand if a participant is silent because he/she is listening or because he/she does not agree with the discussions and is on a silent strike. (Interviewee B)

Face-to-face PRs are easier than remote PRs, because I am quite good in reading body language. (Interview with E)

The facilitator from Bangalore (B) raised awareness on the difficulties of creating a safe atmosphere and building trust in online PRs. As neither the facilitator nor the fellow participants can pick up cues from body language, the communication becomes limited, with the consequence that silence is perceived as absence. And this absence causes worries about the causes of the absence. Compared to face-to-face PRs, they miss the ability to ensure commitment or to discover disagreement from the body language. Both the Spanish and the Indian facilitator found it more difficult to conduct online PRs compared to face-to-face PRs, as they sometimes didn't know what was going on in the group.

A1 was an online PR on a lost bid, while A2 was an online PR on developing a strategy. A1 began with disappointed participants, whereas A2 began with expectant participants. The emotional starting point may have affected the atmosphere.

In both cases, the facilitator tried to create a caring atmosphere. The facilitator was successful in A2 and less successful in A1.

Starting on a positive note seems to enable the participants to contribute on an equal basis, leaving out the formal hierarchy. A caring atmosphere seems easier to maintain when the online PR begins with a case with a positive result or positive expectations.

### 5.2.3 *Resource level*

*How easy is it for the participants to use the technology?*

The ICT-mediated PR had the purpose of finding out how the technology supports learning or prevents learning from occurring. Here, the focus is less on the technology itself and more on how the technology facilitates the interactions and learning among the participants (Wegerif 2007).

- A, Too long, I cannot keep concentrated.
- S, My ears hurt, we should have had an official break.

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- Mi, Interesting process, but too long. (Chat, A1)

Delay caused by technical obstacles. Noise on the lines caused by an awful echo. The noise on the line was caused by participants who tapped on their computer. (Observation A1)

The utterance, 'My ears hurt', indicates that the online PR is physically demanding. The impression that the online PR is too long and that it is hard to maintain concentration indicate that it is also too demanding mentally. This impression is supported by the fact that the online PR was disturbed by the technology. First, the start was delayed; second, the echo made it difficult to hear what was said. Above, we saw that the facilitators found the online PR more demanding than face-to-face PR, because of the lack of body language. The data indicates that the technology may be seen as an obstacle to learning in online PRs. When the technology mediates the online PR in this way, as for A1 and A2, we may perceive the technology as an obstacle to the collaborative learning.

In online PRs, my only 'tool' is to mute all lines and keep talking to calm down the Delegates. (Interview with E)

If a participant tried to dominate the phone conference, the facilitator could mute all phone lines so that only one participant was to be heard.

But the technology, consisting of the phone conference, the web conference, chat and Alchemy, seems to encourage the participants to speak their minds in the online PR. The chat and Alchemy showed that everybody got the opportunity to have a say.

### 5.3 The Results from the Online PRs

The learning spiral implies learning in various areas in the organisation: individual learning, team learning, management learning and learning across the organisation. The interviews with the sponsors for A1 and A2 showed that they learned on an individual basis. One of them realised that there was conflicting interests within the team (A1), while the other mentioned 'a new standard for working with third parties' (A2).

A1 included the development of new work processes (assign lead, bid team and high level sponsor), whereas A2 delivered the development of a new product (an application), new services (partner strategy) and new work processes (upgrade migration path). The latter signals that the participants had changed cognition and in the future, may change behaviour. According to Vera and Crossan (2000), the online PR made them learn. The participants identified important problems and created solutions. They utilised their experience, thinking and reflection to solve the problems, which gave them new experience and new insights—new knowledge (Elkjaer 2003).

The agreed-upon action and communication plans for A1 and A2 indicate that the teams learned from the online PR as they achieved a common understanding of important issues and agreed upon how to solve them.

Receiving the action and communication plans, the sponsors learned about the enablers for and the obstacles to achieving success. Both online PRs delivered management challenges to the top management in the IT company.

Set up a leadership matrix (Management Challenge A1)

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From the two online PRs, the top management learned about important issues they needed to handle. The action and communication plan and the addressed management challenges may change the managers' cognition and their behaviour when the management challenges are solved and implemented. The management seems to have learned (Vera & Crossan 2000).

The action and communication plans are communicated to peers both on the employee level and on the management level and make more employees learn from the online PR.

A leadership matrix includes organisational changes, and a new escalation process includes changes in workflow and possibly organisational changes as well. When the management challenges are solved and when they are being implemented, it will affect the employees across the organisation, as they must learn the new leadership matrix or the new escalation process.

The results of the online PR are learning in more organisational areas: the individual participants, the group of participants, sponsors and top management and employees across the organisation.

## **6. FINDINGS**

The results of the online PRs were the development of new products, new services and new work processes. By sharing experience, the participants learned individually and innovated as a team, whereas managers learned from the action and communication plans as well as from the addressed management challenges, and the learning from the online PR spread across the organisation.

The sponsor participated in both online PRs, which may have influenced the equality. In order to achieve equality, all the participants have a say, everybody contributes to the dialogue and dominance should be lacking. In A1, we saw that the sponsor stayed silent, not contributing to the dialogue. This may be seen as a sign of maintaining formal power during the online PR, and his silence may undermine the equality amongst the participants and emphasise the formal hierarchy.

An experienced facilitator explained that the lack of body language in the online PR made it harder to manage. Negative emotions are hard to change in an online PR, maybe because it is easy for a participant to drop out—he only needs to place the phone on the table and work on other matters—and maybe because the facilitator has limited interventions at hand online.

Conflicts between the participants may cause dominance and defence. Dominance may exclude fellow participants from the dialogue or prevent participants from being brave enough not to know or to explore unknown areas. The consequence may be that the solutions may lack important experience, insights and innovation.

The technology may be an obstacle in itself, because of the noise, delays and lack of body language and maybe because of a lack of skills in utilising the technology.

Additionally, it is physically as well as mentally demanding to participate in a computer-mediated dialogue of over three or four hours.

The study provided new theoretical inventions by presenting a theoretically founded and tested educational design for collaborative learning in the context of work. The seven questions in the online PR as well as the organisational learning spiral are new inventions developed over several iterations (Kolbaek 2014).

The study provided new methodological inventions, as it utilises CSCL and DBR in the context of work, which is outside the traditional domain of the educational environment.

## **7. FOLLOW-UP ON THE CONDITIONS FOR SUCCESS**

The individuals and the organisations interact (Elkjaer 2003) when the participants are invited for the online PR, when they involve peers in the implementation of the action and communication plan and when they address the management challenges to the top management, who react by developing and implementing changes in the organisation.

The online PR takes its departure from a task that has been or is to be solved by a team. Work practice (Elkjaer 2003) is the foundation of a PR.

In this study, more kinds of employees were invited to online PRs (Pålshaugen 2000; Elkjaer 2003). A1 included seven employees from four countries as well as a manager. A2 included twelve high level managers and a senior vice president.

The action and communication plans from A1 and A2 indicate that the participants used their experience, including thinking and knowledge. A1 involved negative emotions. The data do not inform about the sensations or intuitions of the participants (Elkjaer 2003).

The online PR led to changes in cognition and behaviour (Vera & Crossan 2000) when new services and work processes were developed and implemented.

## **8. CONCLUSION**

Though the technology made the online Proactive Review quite demanding for the participants, the results of the PR showed that the technology enabled the participants to engage in dialogues that let them innovate and create solutions to complex problems. Despite the obstacles, the online Proactive Review improved learning and innovation in the context of work and enabled the participants to collaborate online. The feedback from the facilitators and the participants and the observations suggested that it is difficult to create a caring atmosphere and to build trust in online PRs, especially if the PR is started due to a task with a negative outcome.

Online Proactive Reviews lead to circuits of knowledge; by attending the online PR, the participants collaboratively create new knowledge. This team knowledge is shared through the action and communication plan, and the circuit of knowledge expands to the colleagues who are close to the participants. When the management challenge is addressed, the circuit of knowledge includes the top management, who continues the

circuit of knowledge back to the employees when implementing the changes caused by the management challenge.

## 9. FUTURE RESEARCH

The ITC utilised in the online Proactive Reviews showed some negative consequences due to the lack of body language. Future research may include video conferences as a means of solving this issue.

As the context has an impact on learning, future research may compare the processes and results from online and face-to-face Proactive Reviews to explore whether one of the types is more superficial than the other.

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