Qualifying online teachers—Communicative skills and their impact on e-learning quality

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Abstract Worldwide there is an increasing demand for educational institutions to offer part of their educations online and mixed mode. For institutions to comply with these demands, it is necessary to prepare teachers (and other members of the staff), to fulfil their responsibilities within the virtual environment. Teachers must be able to organize their courses pedagogically according to different conditions, i.e., subject domains, group sizes, variations within communication and interaction. Teachers must acquire knowledge and skills in handling Information and Communication Techniques (ICT) as well as pedagogical possibilities and constraints inherited in the software available. Several studies demonstrate that technical obstacles are easier to overcome than lack of communication skills. Also the consequenses of communication breakdowns tend to create serious problems that technology cannot solve. These problems concern how teachers function satisfactory as mediators and coaches in collaborative, knowledge sharing virtual environments. For example, how teachers support their students in becoming online-students and how they facilitate complex discussions on difficult topics. This is a big challenge for everybody involved in e-learning, and the challenge is not met by offering introductory courses for university teachers. Based on basis of a recent examination of concrete actions and strategies for the future within 11 Danish universities, the auther argues that there exists a severe mismatch between the organisational expectations and strategies and the competence-evolving activities that the same organisations offer to their staff. A recent case study of a university pedagogy course on e-learning for university teachers demonstrates and identifies some of the consequences of the mismatch. Finally the author suggests strategies to meet the demands of the future online university.

Keywords Virtual environments · Collaborative learning · Teachers' competencies · Online pedagogy · Communication skills

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1 Introduction

In online educations using synchronous video or speech, the participants can still benefit from the decoding skills they are used to employ in face-to-face situations. When participants have become familiar with the technique, most of them find it relatively easy to communicate under these circumstances (Bang, 2000). In general, it turns out that technology itself is seldom the dominating obstacle within online education (Shapiro & Thomasen, 2003; Sorensen, 2002). However, when dealing with what Feltovich et.al. classify as ill-structured and complex subject domains (P. J. Feltovich, Spiro, Coulson, & J. Feltovich, 1996) in combination with group-orientated pedagogies situated in virtual environments based on written communication, the absence of body language and the lack of compensation within the online environment tend to create serious problems (Dirckinck-Holmfeld, 2002; Fjuk, 1998; Hara & Kling, 2000; Laurillard, 2002; Orngreen & Levinsen, 2004; Salmon, 2002; Sorensen, 2002). These problems have been observed in online pedagogical setups such as:

• Collaborative distributed learning
• Case based learning
• Project and product orientated group work.

It has been demonstrated that the consequences of communication problems decrease the quality of learning processes (Laurillard, 2002): students lose their motivation (Salmon, 2002), students become stressed (Lawless and Allen, 2003) and, in the worst case, students drop out (Lindh & Soames, 2003).

2 Meeting the challenge of e-learning on the organisational level

A search in the summer 2003 on 11 out of 13 Danish university websites demonstrated, that most institutions have not yet planned sufficient in-service courses for 2003 or 2004 for teachers who would be in charge of the quality of future online educations. This applies to in-service courses when we look at their duration, their content and how the institutions prioritise them. The situation might course problems in the near future, as a dominating part of the collaborative online teaching in Denmark will be limited to online environments based on writing. Especially subject domains within humanities and social science are vulnerable, as they are typically ill-structured and complex.

Apart from the universities shown in Table 1, no other universities offered in-service courses on online teaching or university pedagogy related to online teaching. The majority of in-service courses at Danish universities prioritise the introduction to the technique and software while neglecting the pedagogic and didactic issues related to online teaching. Even if recent research has demonstrated that the challenge is pedagogical rather than technical or economic, this is still the case (Bang, 2000; Christensen, 2001; Sorensen, 2002).

Training of communication skills in relation to online teaching has a very low priority even though research has shown that online communication skills constitute a critical parameter for the quality of online teaching (Dirckinck-Holmfeld, 2000; Laurillard, 2002; Levinsen, 2004; Salmon, 2002; Sorensen, 2002). The only Danish university with a conscious and all round strategy is Aalborg University. Aalborg University is a young (founded in 1972) front running institution hosting leading capacities as the developers of the concept of *Computer Supported distributed Collaborative Learning* (CSdCL; Fjuk & Dirckinck-Holmfeld, 1999).

3 Case "virtual teaching in practice"

The in-service courses favour technology rather than pedagogy and communication, which novice ICT-teachers also appear to do. When a group of teachers who followed an in-service course of ICT pedagogy at Copenhagen Business School (CBS) in the autumn of 2002 was asked about their needs and expectations, technological skills and insight in different software programs rated high on their list of expectations. In this paper the course 'Virtual teaching in practice,' offered by CBS LearningLab (CBS-ll) is the study case.

3.1 Case description—the course setup

The course 'Virtual teaching in practice' had 12 participants who were expected to work 60 h during 2 months. The course was designed as mixed mode: one seminar day of introduction; a 2-week online course where the participants should act as online students; a halfway seminar day followed by a 4-week online course where the participants should prepare a written assignment. The course concluded with one final seminar day.

The teachers from CBS-ll had planned a course where the participants—who were teachers at CBS—were supposed:

- To try to act as online students
- To try to teach online
- To write a small assignment about developing an online course for their teaching at CBS. This assignment was aimed at strengthening the teachers' own practice.

Communication and communicative skills were a through-going theme of the course. The course was planned to expose the participants to communication breakdowns in the first online period. The aim was to confront the participants with the necessity of designing a didactic frame around an online course and of constantly staying in touch with the course development. The first online period also focused on communication in relation to information and collaboration.

Table 1 Shows the status at Danish universities regarding ICT-related in-service courses offered in the autumn 2003

Name of university	Type of in-service courses for teachers
Aalborg University	Nine full day in-service courses. Technical competences, ICT-genres, pedagogy, teaching in practice. Three days run as online course.
Copenhagen Business School	Volunteer courses of longer duration—aimed at online teaching pedagogy in practice. Too few teachers volunteer for these courses.
University of Copenhagen	Two half days of IT-supported teaching. Knowledge of how to use hardware (projector etc.) and software (PowerPoint). No courses in IT related pedagogy
University of Southern Denmark	Courses primarily in the use of Blackboard. Plans of developing pedagogic courses
Århus University	Courses in use of software and hardware and courses in search procedures. Pedagogic courses in the use of synchronic video conferences
Roskilde University	In-service courses are aimed at administration within learning management systems and technical skills.
Royal Vetenary School	In-service courses are aimed at technical skills.

3.2 The first seminar day

On the first seminar day, the participants were asked what they expected from the course. They pointed at knowledge related to technique, software, use of digital media and exemplary pedagogy. Only one participant was interested in the communicative aspect, and her research area was online collaboration and awareness.

However, the course was designed around communication issues. As an introduction to acting as online students, the teachers gave a lecture on how and why to negotiate norms of collaboration and netiquette. After the lecture, the group was divided into three smaller collaborative groups and given an assignment. The assignment was a comparative culture analysis of different social surroundings in a famous Danish TV-serial. With this end in view, the participants could access video clips in their virtual learning space. In the learning space, each group had an area for collaboration via conferencing and chat. They could also share documents. The groups had 2 weeks to collaborate online to produce the cultural analysis.

3.3 Labour division vs. collaboration—a matter of communication

At the end of the first seminar day, the groups were to use the inputs from the lecture and work out their own set of norms of how to collaborate. They had to try to foresee problems and agree on how they should distribute responsibilities and roles of task manager, chairperson, whip etc. The lecture stressed that: 'It is important to negotiate consensus in the group about categories, organization, competences, roles and norms' (Field note from oral instruction of the assignment). In spite of this instruction, it turned out that the groups did not negotiate roles and norms. Neither did they negotiate procedures of how to act in case of conflict—e.g., exceeding deadlines and difference of opinions about the assignment. What the groups in fact did negotiate was a rational break down of the assignment into work packages and delegation of tasks. They arranged who was to do what and in which order, and they synchronized their calendars according to internal deadlines. That is, they negotiated division of labour instead of collaboration.

At the succeeding halfway seminar, all groups reported collaborative problems related to the lack of decisions on roles and norms of collaboration. Even though the teachers tried to point this out, the participants did not fully realise the consequence of the problems they might initiate at an online course, if norms, roles and frames of action had not been negotiated and lined out in advance. No matter how hard the teachers tried, the participants stayed in a practical, rational calendar mode: 'If we had made more precise appointments then...' Communication breakdowns can arise among students and between teacher and student(s). In both cases, it comes down to the communication skills of the teacher, as it is the teacher who will have to sort out the problems in the end. Even though communication had a high priority at this specific in-service course, it turned out to be difficult to make the participants realize the necessity of dealing with the basis of communication within an online environment.

3.4 Chat session—a matter of communication

The cultural analyses were delivered in the Learning Management System in a conference accessible for all groups. The idea was that each group should act as an opponent for another group in a chat-session, where a teacher would act as a moderator.

The teachers had imagined that the chat would present an opportunity for the participants to experience and deal with problems of online communication. The chat was run as three sessions of 20 min each. While one group acted as an opponent to another group's cultural analysis, the last group acted as observers. For each session, the groups changed roles. Without the knowledge of the participants, the moderator changed his communication strategy of each session: first, it was neutral, then thematic and persistent on dialogue and finally provocative.

During the chat, several participants had technical problems, and some of them had to log on more than once. All participants reported that the chat had been a bad experience leaving them irritated or even feeling low. However, when the chat was evaluated in plenum on the halfway seminar, all participants focused on technical problems as the major obstacle for chatting. They felt that the chat had been without coherence, and they claimed that 'if the Learning Management System had functioned better, then...' and 'if the online connection had been better, then...' However, an analysis of the threads in the chat shows that the problems are more differentiated than mere technical problems and disappointment in the system used for the chat. If we correlate time and individual statements in a diagram (Fig. 1), the threads demonstrate that the chat produced both coherent threads of dialogue and conversations, even though the participants did not have this experience. This epicture is corresponding with the content of the statements, which also display coherence. None of the participants noticed the moderator's change of strategy, even though all of them reacted on the change.
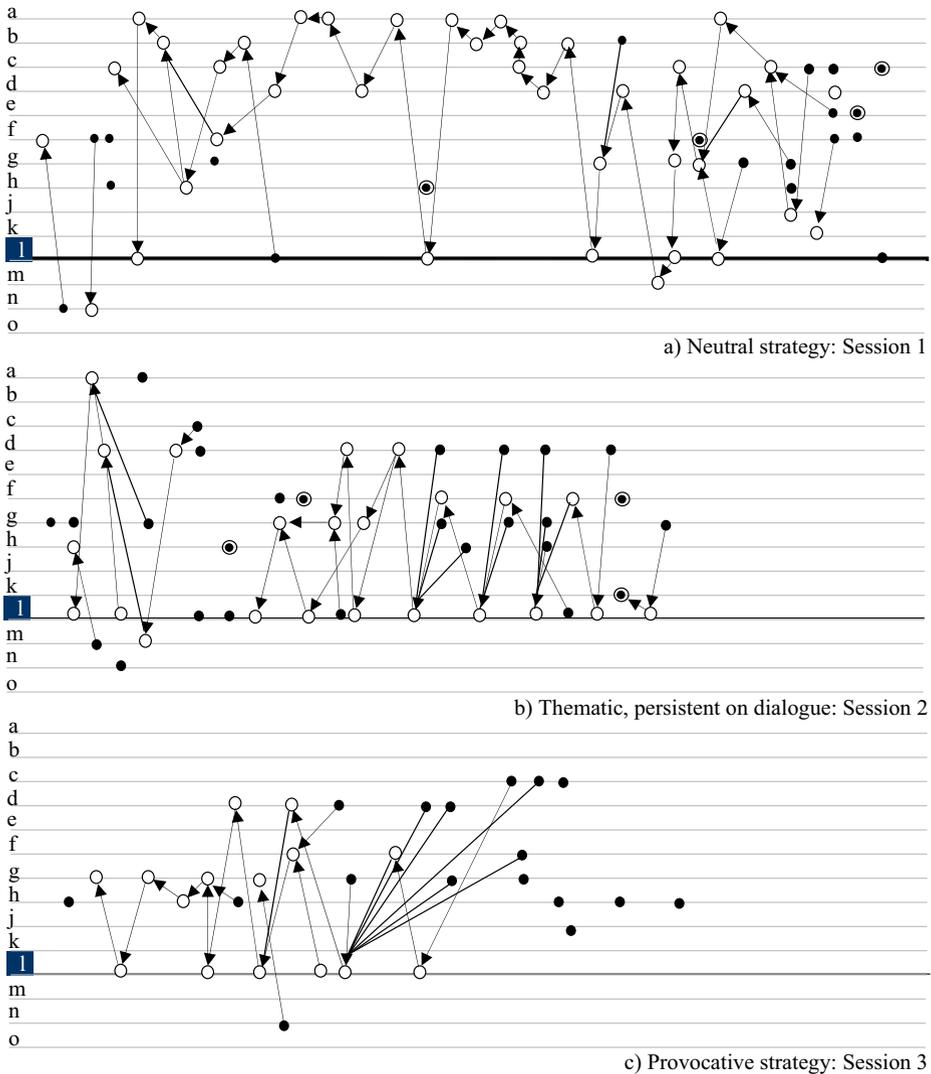
The neutral strategy in the first session produced a pattern that can be characterized as a relaxed round table discussion. Everybody participated and contributed to a sense of flow in the chat (see Fig. 1a). Even if the participants were not chatting together, they had the experience of getting response and being actively involved. The whole content if this session was small talk. In the second session (see Fig. 1b), the moderator was persistent and insisted on dialog with one participant at a time (d, g, d and then f). The moderator forced the participant to discuss the meaning of a concept while other statements were ignored regardless of their content. These statements floated alone without any responses and halfway into the second session all of the ignored participants tried to get the moderator's attention by arguing their viewpoints. None of them tried to address their co-participants. The content of the chat was on a higher theoretical level than in the first session. In the last session (see Fig. 1c), the moderator used a provoking strategy. He stated provoking assertions in relation to one participant's statements. All the participants reacted on what they perceived as an aggression from the mediator, but the moderator kept on provoking one participant at a time. There was no dialogue and in the end the communication dissolved.

These patterns demonstrate that the participants did not have an overview of the communication. They were often not aware of being ignored, and when somebody was *talking* they were not *listening*. The content of the statements shows that they kept on talking within their own train of thoughts. When somebody produced an assertion, they reacted with counterarguments instead of asking the person to elaborate the point. The participants did not see through the moderator's provocative strategy in the third session, and their own reactions destroyed any chance of restoring a dialogue.

The problems in the chat-sessions involved more than mere technical problems and the participants' unfamiliarity with chatting. The most serious problem was the participants' inability to understand that part of the discomfort was due to what would normally be called bad manners. Therefore, nobody was capable of acting construc-

tively, restoring a reasonable opponent–defence relation. Nobody proposed codes and
signs to control the discussion. Nobody tried to propose a directing role in order to
create a constructive dialogue.

As long as teachers in charge of online courses are unable to differentiate between
technical and communication problems, they might cause problems for themselves as well
as their students. Also, they might find it difficult to support their students in becoming
online students in a virtual environment.

a) Neutral strategy: Session 1

b) Thematic, persistent on dialogue: Session 2

c) Provocative strategy: Session 3

■1 Teacher   ○ Utterance with response   ● Utterance without response
◉ Utterances asking for help   ◄— Pointer from speaker to addressee

Fig. 1 The diagram displays the communication patterns of the three chat sessions

4 What can we learn from this?

The course demonstrates that the ICT-novice teachers became familiar with the functionality of the technology, but found it difficult to adopt online pedagogy and online communication competencies. Spontaneously, we might conclude that the CBS-ll teachers should have focused more on the participants' attitude towards online communication. The participants could have been forced to use their common sense and realize how to communicate in virtual environments. However, it makes more sense to understand the participants as novices according to Dreyfus and Dreyfus' phenomenological taxonomy (H. Dreyfus & S. Dreyfus, 1986). Dreyfus and Dreyfus define five steps in the learning process of acquiring practical knowledge based on experience: *novice, advanced beginner, competent, proficient* and *expert*.

As a novice, the individual confronts a certain problem in a concrete context for the first time. The novice can only relate to the rules and facts and act accordingly, and they are unable to relate to the context.

This is exactly what the participants at the course did. They acted according to rules they knew and failed to relate to the context. They used concepts from the 'real world' without reflecting on what it means to negotiate collaboration. Therefore, they negotiated division of labour instead of collaboration. They were used to a situation where people engage in division of labour when they are not together and collaboration when they are together. But the virtual environment has a tendency to turn familiar behaviour upside down, which is exactly what the participants did not master and which they must learn to reach the step of advanced beginners. In other words, people may collaborate without being together. The same thing happened in the chat where the participants lost track of the communication. As novices, they were at first too busy relating to the functionality of the chat-application. Therefore, they did not possess the energy to discover that they brought habits of communication into the chat, which needed modification in order to work in a virtual environment. However, later in the chat when they had become more familiar with the functionality, they still did not master the communication as a process of mutual responsibility. They kept reacting to provocations in a trial-and-error manner rather than try to change the conditions of the situation in a learning-by-doing manner.

According to Dreyfus and Dreyfus' taxonomy, the ability to act towards changing the premises of a situation rather than continuing to act within the premises belongs to the proficient level, which takes time to achieve. Dreyfus and Dreyfus stress that the only way to proceed is by gaining experience through training in practice, and such training takes time. To become an advanced beginner means to be able to handle typical context related situations. The advanced beginner still needs the context independent facts and rules as soon as the situation becomes complex or unfamiliar. The competent participant is able to plan and act goal-oriented manner, but is still restricted to sequential actions. All choices are made deliberately and after careful consideration. This takes time, and a competent person risks being run down when things happen too fast. Only at the fourth step—the proficient level—is the person able to act quickly and intuitively according to how situations emerge in practice.

None of the participants of this course reached beyond the level of an advanced beginner in terms of communication in virtual environments. The teachers concluded that the course was too short compared to the participants' starting point. Seen in relation to the in-service courses offered by Danish universities (see Table 1), a great

deal of work is obviously needed to bring teachers up to the following levels of competences:

- Competent level, where teachers are expected to master a course with a limited number of participants and/or a relatively uncomplicated communicative interaction
  or
- At the proficient level, where teachers are expected to master a larger group and/or complex and demanding communicative interaction.

5 Focus of in-service online teacher education

Owing to the difficulties in to university online teaching known from the literature and the observations from the case study, I suggest that the university pedagogy in-service courses for teachers should include three separate, but integrated and interrelated subject domains. In this specific context, the technological domain is well-structured and deals with acquiring the skills necessary to utilize the potential of educational technology. Pedagogy and communication are more ill-structured subject domains dealing with the theoretical and experiential competences necessary to prepare and perform online teaching in practice.

5.1 Technical skills

Technique is a well-structured subject domain and therefore it is not the most challenging barrier for teachers to overcome, unless the universities expects teachers to act as professional web designers producing their own interactive e-learning applications, including test modules, digital videos and multimedia. Introduction to technology on a competent user level and to the learning potentials of technology is not resource demanding. However, it is a necessary prerequisite for a technical in-service course that teachers are allowed hands-on access to the technology and various types of applications under supervision. Following how more experienced colleagues cope with the use of technology, learning management systems and e-learning applications may be highly effective. Also the universities must prioritise the teachers' need for support from a technical support department.

The consequences of technical breakdowns can be very annoying, but usually they are easy to cope with as long as the pedagogy and the contact to the students work well.

5.2 Pedagogical competencies

Online pedagogy includes both well- and ill-structured domains and presupposes theoretical and practical competences combined with some experience of how to organize and prepare courses. Therefore, it is much more demanding to acquire the pedagogical competencies. Most Danish universities do not have a long tradition of pedagogical training of their teachers. It is not yet generally accepted that in-service training of new staff is necessary, and the majority of older employees have never been introduced to pedagogic theory or methods (Gleerup, 1997). Many teachers are autodidact and have developed a practical, but not always reflective knowledge of teaching. Any novice of online teaching would need in-service pedagogy courses, and these

may be effectively combined with a coaching or mentoring relation to a more experienced colleague. Novices may learn a great deal by studying how colleagues have designed their courses. However, the best way to gain practice is to participate in an online course.

Pedagogic breakdowns will of course be an unpleasant experience for everybody involved. However, reflecting on evaluations and using them as an outset for redesign of a course concept may challenge future problems.

5.3 Communicative competencies

The most difficult part is to master the necessary communication competences in dealing with online environments. The reason is partly that communication among people is an ill-structured subject domain. Our knowledge of how to communicate is related to face-to-face situations, and the competences have become internalised as tacit knowledge. Suddenly, the conventions and signs we are used to employ are absent— both when it comes to interpreting others and expressing ourselves. To learn communication skills that can be used in an online environment presupposes a rediscovery and re-externalisation of the internalised and tacit knowledge. Otherwise, we cannot modify this knowledge according to the special conditions within an online environment. The process of learning communication competencies begins in early childhood. Therefore, the internalisation is very deep-rooted, and research has demonstrated that it is more difficult to change deeply rooted tacit knowledge than to acquire something entirely new (Bateson, 1998; Mezirow, 2000).

Learning to modify tacit communication competencies presupposes time to practice online communication combined with focused reflection and evaluation of the practice. This implies response from the partners in the communication process. It is not sufficient to look at how others are doing or study demos. We cannot seek advice after an online communication breakdown. In online communication, it is often impossible to point out when, how and why the problems began to emerge.

Communication skills are a prerequisite for online collaborative courses based on writing. Of course, we may exercise trial-and-error in real life, but first of all one would need feedback from others to comment on and make us aware of our mistakes. This is necessary if we want to learn to recognize our errors and react on them. Second, it is a personally demanding process to change from old and deeply rooted habits into new patterns of behaviour. According to Dreyfus and Dreyfus, the recognition and ability to accept mistakes is the first and most important change of competences, moving from the novice's unreflecting trial-and-error onto the advanced beginner's emerging reflective learning-by-doing (H. Dreyfus & S. Dreyfus, 1986).

This first part of the process should take place on a specially designed course with feedback and coaching. We can neither expect nor demand that real students in real educations should act as guinea pigs for novice teachers' trial-and-errors. In the worst case, such an approach might run a course off track and cause a lot of damage to the persons involved including the reputation of the institution. It is not until the teacher has proceeded to the advanced beginner's level—and is being able to recognize typical situations and has developed a repertoire of actions—which experience based learning-by-doing, becomes a responsible strategy. Supervision is a good support and many teachers are able to proceed alone from here practicing learning-by-doing. Being advanced beginner or competent, implies that the teacher is capable of asking for and using the support of more experienced colleagues.

When teachers meet students in written online interaction, the focus is on mastering the communication competences of the virtual environments within as different areas as:

- Producing clear factual information about assignments, procedures etc.
- Communicating information and content in relation to the topic
- Conducting a conversation about complex topics
- Negotiating and decision making
- Supervising students about projects and assignments
- Posing deepening questions about the students' work in progress
- Supporting the solution of conflicts
- Mastering the technique of mediation in discussion forums and chat
- Etc.

These competencies are necessary because the teacher needs to be able to communicate and support her/his students in the process of becoming online students. The challenges are great and demand skills and competencies that cannot be unfolded during a short introductory course.

6 Conclusions

What the participants at the course 'Virtual teaching in practice' have in common with many teachers at other universities is their inexperience in ICT and net supported teaching. There is no doubt that the participants are qualified teachers and able to reflect, analyse critically and use their common sense. The question is whether they differ from other university teachers in their way of handling the communication in a virtual environment, the point being that they are novices in this particular field and therefore act as novices usually do.

The progress of the course shows that the well-structured subject domain of technology was easily adopted, while it was very difficult to make the participants relate to the ill-structured subject domain of communication, even if the teachers of the course focused strongly on communication. If we look at the collaboration problems, the participants maintained a rational delegation strategy instead of making agreements about roles and norms. They were not able to distinguish between agreements on division of labour and agreements on forms of collaboration. In the chat situation, they blamed the poor technology and their lack of experience with the software in question for the poor communication, even if the chat analysis showed both coherent communication and examples of bad communicational habits.

Owing to the different challenges inherent in both well- and ill-structured subject domains, I suggest that in-service courses in ICT-university-pedagogy look at technology, pedagogy and communication as three different but interrelated subject domains. All three subject domains require distinctive pedagogical design and coaching approaches during the learning process and they also need different timeframes that will allow for the new knowledge to consolidate.

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