Problem-oriented project studies – the role of the teacher as supervising / facilitating the study group in its learning processes

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Abstract

This contribution focuses on 'problem based learning' (however we prefer the notion of 'problem-oriented project studies') and the role of the teacher in such a context. The classic traditional role as an expert deciding the curriculum, providing lectures and seminars, giving assignments and marking papers / essays is complemented and in some way overruled by a new role as supervisor and facilitator for the group of students working with a research problem, they themselves have picked. However different dimensions of this new teacher role can be seen – from expert in an academic field (result-oriented focusing on how the final product demonstrates the students' 'correct' way to handle the academic aspects of the subject in mind) to a role more focusing on processes, methodological dimensions and stressing the importance of a reflexive approach. Some teachers may even tend to take on a role of a 'therapist', questioning and assisting the members of the group in the complex task of acting together with fellow students in an uncertain and volatile context and environment.

Keywords

Problem-oriented project studies, problem based learning (PBL), networked learning, the roles of supervisors, the roles of teacher

Introduction

The paper stands on the shoulders of the literature on problem-oriented project studies / problem based learning and builds on and is a reflection of the experiences we have gained through decades of work with PBL / problem-oriented project pedagogy. Our primary focus will be on the Master program in ICT and learning (MIL) where students from all over Denmark within a networked learning arrangement are studying in groups combining on-site seminars (4 during a study year) with independent and challenging virtually organized project periods, which call on a teacher role that is flexible and aware of the different challenges in the new surroundings.

Problem-oriented project studies

The educational approach implemented by MIL goes back to the first half of the 1970's where the new reform universities Roskilde and Aalborg University were founded. The approach can be called problem-oriented project pedagogy. It has certain characteristics together with Problem Based Learning but it also differs from this approach. Problem Based Learning – PBL goes back to the beginning of the 1970's primarily in US and Canada. The teacher is the one to find and decide the questions and themes the students can work with.

Problem oriented project studies is characterized by collaborative project work in groups, an active kind of learning, participatory directed in a dialogue between students and the teacher as a facilitator / supervisor. Furthermore it is interdisciplinary in gaining knowledge ideas from different kinds of academic fields.

The starting point for the groups of students is to investigate something, a problem area, that the group does not know, but for them represents a challenge. With such a research question as a starting point, the group members embark on a dialogically organized process, in which they collect relevant material and data and information; analyse it and guided by relevant theories and methods work and try to transform this material with the goal to identify and clarify the problem field / research question.

They draw conclusions, which represent the range of differences in understanding among them; and produce a product through which they can communicate their collective divergent insights to others.

It is the group members, which jointly and in dialogue with the group supervisor discuss the formulation of an operative research question, the choice of theory and concepts, and decide which methods to be applied and which practice field to be analyzed. That project work should be exemplary, implies that the applied project method, analytical and methodical 'grip', and work with the theories and concepts goes beyond the specific project and thus helping to build and consolidate the students broader study competence.

Through the acquisition and application of theory and method is achieved ideally an understanding of important aspects of the academic subject, the group of students are working with. The idea of the problem-oriented pedagogy is that students also incorporate their insights to their former experiences and hence through the study process construct new valuable skills and experiences.

The responsibility of the students

In the problem-oriented project work the students themselves are responsible to identify the problem, to work with, and the very act of formulating a problem actually to work on is a large part of the learning process. To work jointly in a group means that students must learn to work together to take common decisions and figure out how to share and coordinate work among them. The students learn through these study processes how to plan, manage and evaluate projects. We see this as part of the development of their study competence, which also must involve the ability to handle large amounts of information, which is within easy reach via the library, databases and the Internet. In such a situation it is crucial that students learn to be information literate. It implies that students can't only find and locate data and information, but also in a critical way are able to select among this huge body of information, and judge and evaluate the use of this, and eventually succeed in letting relevant dimensions of this contribute to the knowledge construction of the group.

This understanding goes back to the definition of American Library Association (ALA):

> "To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information […] information literate people are those who have learned how to learn." (ALA, American Library Association 1989).

In such a process, knowledge can be seen as the result of cooperating and collaborating actions in a situation where the students bring relevant information in connection with their experiences and previous knowledge. From this perspective, learning is not something that takes place exclusively in the individual's head in a special "clean" educational contexts detached from the practical and work-related contexts. Learning is understood as contextual, situational and dynamic, and is taking place when we as active persons become involved in social interactions with others in the specific social practices (Lave, J. and E. Wenger, 1991).

Negotiation among the participants

Our definition of problem-oriented learning is related to social constructivist theory of learning, where concepts such as collaboration, communication, dialogue, negotiation, and interpretation play an important role in constructing knowledge. And finally the evaluation, both as a self-reflexive process and feedback from other students and the teacher.

The approach sees meaningful learning as an active, self-regulated, constructive, cumulative, and goal-oriented process. Learning is situated in a particular context in which it occurs. Learning is fundamentally a social, cultural, and interpersonal process that takes place within a 'community of practice' or among a 'community of learners'. A process governed as much by social and situational factors as by cognitive factors (Lave, J. and E. Wenger, 1991, Wenger, E., 1998, Schrage, M., 1999).

The idea is that students should not just passively receive but be actively involved. Thus we can see students and teachers participating together in acquiring, constructing, and negotiating the meaning of knowledge. What kinds of problem are the students working with, what is the aim and how are they communicating, negotiating

and working together? What kinds of knowledge are they constructing? That's some of the dimensions, which can promote motivation and give meaning for the individual person and for the group as such.

The goal with this problem-oriented pedagogy is to make it possible for students to turn into autonomous, but collaborative and critically thinking students.

Education should not only focus on learning a specific subject and to be able to reproduce what is told by the professor. The real challenge is to open up for a personal meaningful process where new ways of thinking are made possible. Thus students may learn to embark into new cultural patterns and to get involved in quite demanding but enriching practices.

For teachers as well as for students this concept of knowledge and learning "involves significant change in underlying values and knowledge structure – is always the subject of an organizational predicament", according to Donald Schön (Schön, D., 1983 p. 328).

The Role of the teacher as supervisor for students doing project work

When students are doing their projects they are receiving supervision from a teacher. In this final part of the paper we are going to analyse how supervision takes place in the networked learning environment. We will further elaborate on the different roles that the supervisors take on as experts, facilitators and even as a kind of therapists, and how the different roles are supported and mediated by the learning infrastructure. The academically role as an expert can unfold with written communication of papers giving feedback and good advice within an asynchronously organized learning environment as a conference system. The other roles – especially that of a 'therapist' – demand synchronous communication, personal meeting or if not possible through the use of Skype.

The role of the supervisor is different from the role of the traditional teacher, who instructs, assigns works, finds texts and makes decisions regarding curriculum. The teacher makes evaluations of the contributions of the students. In problem oriented project studies the supervisor is expected to give feedback to the paper – up to 30 pages for each 'consultation-meeting' – from the student group. He / she offers his / her advice, discusses the various elements of the delivered paper, and asks stimulating questions. Acting as a facilitator, a supervisor is responsible for offering the group the necessary attention, draw on his own experience, being able to relate to the students', and thus helping the students to gain a deeper understanding of their own work.

In a net-organized learning environment, the supervisor is expected to be even more flexible and sensitive in relation to the needs of the students. We will take a look on some possible ways of filling out such a role.
1. As the academically focused teacher, acting as an *expert* on a specific subject,
2. As the *process oriented supervisor*, focusing on processes and methodological aspects
3. As a mediator, listening actively what kind of psychological dimensions are taking place among the group members – almost like a *'therapist'*

The teacher as an expert – product supervision

This kind of supervisor is teaching in relation to theories, methods, and to discussions within philosophy of science. For him it is essential that the writings of the group of students are thorough, coherent and live up to the supervisor's norms. The supervision mode can be called *instructive* – the students are primed / instructed in how to solve / give answer to the research question. The students may come up with questions such as: " can we" and "are we allowed". And this type of supervisor can use terms as "shall", "please do", "don't do", "right" or "wrong".

Donald Schön, discussing two different notions or contracts between the professional and the 'client', lines up this traditional expert role in contrast to that of a democratically oriented reflective practitioner. In our context these two types of attitudes can shed light on the relationship teacher – students.

Expert: I am presumed to know, and must claim to do so, regardless of my own uncertainty.
Reflective practitioner: I am presumed to know, but I am not the only one in the situation to have relevant and important knowledge. My uncertainties may be a source of learning for me and for them.
Expert: Keep my distance from the client, and hold onto the expert's role. Give the client a sense of my expertise, but convey a feeling of warmth and sympathy as a "sweetener".

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Reflective practitioner: Seek out connections to the client's thoughts and feelings. Allow his respect for my knowledge to emerge from his discovery of it in the situation.
Expert: Look for deference and status in the client's response to my professional persona.
Reflective practitioner: Look for the sense of freedom and of real connection to the client, as a consequence of no longer needing to maintain a professional facade (Schön, D., 1983, p. 300).

Process supervision – focus on methodological questions, epistemology – a learning and knowledge process

This kind of supervisor is focused on aspects related to the research questions, the whole learning process and continual evaluation of this knowledge process. The supervisor aims at guiding the group towards the final project through stimulating discussions, supporting the students' effort to reach to a fruitful integration of the empirical data produced by the students and relevant theoretical positions. Important in this type of supervision is the heightened awareness from the side of the students regarding their study and work style. The students should be able to constantly reflect on their way of acting and working with the material, what kind of choices they take, and what they are writing.

The teacher asks questions to clarify and further investigate in relation to the students' research question, theories and methods - indicates when working papers contain ambiguities and misunderstandings in relation to the study requirements.

Because this process supervisor has an open attitude, the students are using the supervisor as qualified 'opponent' - the supervisor makes 'cheeky' questions indicating there are no clear answers – not solutions totally "wrong" or "right". It all depends..

The students will inform the supervisor about their work – so to say use the supervisor as a "wall" to play ball up against. Thus this kind of supervision is aiming at facilitating the whole work process of the students.

Social mediator – a kind of therapist for the students

This kind of supervisor is focused on aspects related to the difficult and challenging sides of collaborative group work. When members of the group are talking at cross-purposes or even talking down to one another, then the 'therapist' will interact. When students have difficulties in making decisions, embarking on constructive dialogical processes, the 'therapist' will intervene. The method implied by this therapeutically oriented supervisor is mainly inquiring and questioning in order to facilitate students to engage in explorative dialogues. Very important in this context is the well-being of the group members.

The relationship student and supervisor

In order to experience a successful supervising process, the group must make sure that the teacher as a supervisor will be involved in the project study process.

The supervisor is a resource person that the group must learn to make use of (depending on what type of supervisor we have at hand and the students' learning styles). The students make their expectations to the supervision process explicit and make clear their purpose of the project study and the level of their ambitions.

As an example a problem will arise if the students want to work with a practical oriented problem in communications, make a booklet, or produce a video, and the supervisor will provide process oriented supervision. Such students may want concrete guidance in how to make productions.

If such students feel unsecure in relation to the requirements they must meet, they may be reluctant to expose their insecurity - consciously or unconsciously the may give their supervisor the impression that they are in possession of the competences and experiences that the supervisor wants

The supervisor in this situation may take on a supervision style that actually *overestimates* the students

In contrast if a supervisor is downplaying the academically oriented product supervision, students may consciously or unconsciously give the impression that they are less competent than they really are in order to motivate the supervisor to be more academic and 'professional'.

The supervisor can thereby in this situation take on a supervision style that actually *underestimates* the students.

In relation to this teacher-student relationship we can once more turn to the understanding revealed by Schön. This time it is viewed from the perspective of 'clients' – in our case students:

Traditional contract: I put myself into the professional's hands and, in doing this, I gain a sense of security based on faith.
Reflective contract: I join the professional in making sense of my case, and in doing this I gain a sense of increased involvement and action.
Traditional contract: I have the comfort of being in good hands. I need only comply with his advice and all will be well.
Reflective contract: I can exercise some control over the situation. I am not wholly dependent on him; he is also dependent on information and action that only I can undertake.
**Traditional contract**: I am pleased to be served by the best person available.
Reflective contract: I am pleased to be able to test my judgments about his competence. I enjoy the excitement of discovery about his knowledge, about the phenomena of his practice, and about myself. ((Schön, D., 1983, p. 302)

When practitioners are unaware of their frames for roles or problems, they do not experience the need to choose among them. They do not attend to the ways in which they construct the reality in which they function; for them, it is simply the given reality. (Schön, D., 1983 p. 310)

The learning process

A project study process has a variation of different phases, changing from Face-to-face meetings with the student group to communication through digital medias in virtual learning environments featuring written communication, audio and video.
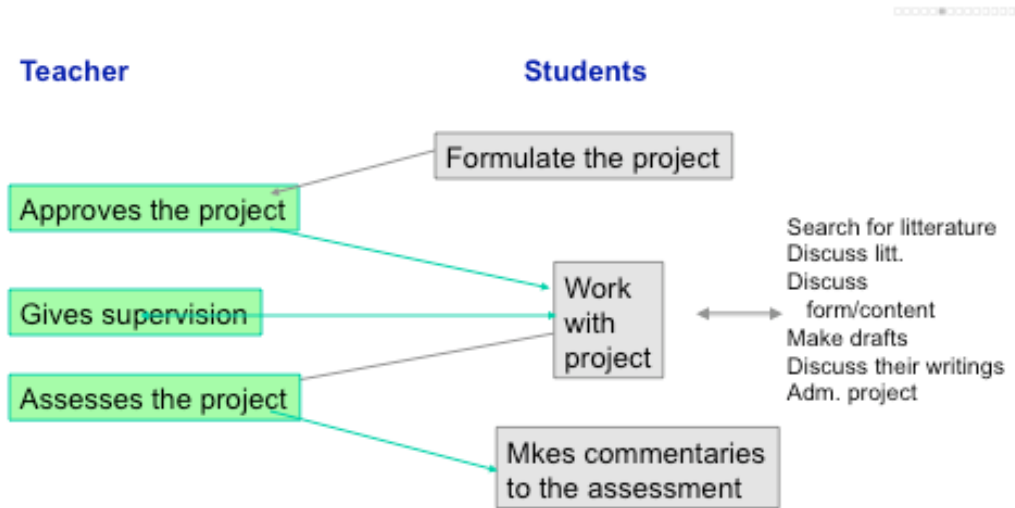
Thanks to our colleague Simon
Heilesen Roskilde University

A case: Phases of the project work and changing teacher roles

1)
The students identify the problem area they want to work with in the light of the ICT study declaration. They then continue to formulate a constructive problem formulation / research question by formulating one or two open-ended questions beginning with: Why, How and What ...

2)
The Group members continue to clarify which method and the specific kind of philosophy of science, the project must be based on.

THE TEACHER ROLE: The supervisor is relating in a dialogically way to the situation described above in 1)+2). His / her approach is a kind of 'joint inquiry' to make it possible for the students in a qualified way and on an informed basis to make the preliminary crucial choices in their study process - knowing that further delimitation will be necessary as part of the learning process. The ideal and best way is that the outset of the project-driven study process takes place in a face-to-face setting.

3)
Based on the group's independent work regarding literature search, the completion of a number of interviews, reading of relevant theory, the group will be able to present a comprehensive discussion paper covering 25-30 pages.
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THE TEACHER ROLE: The supervisor acts as a kind of an expert relating to the students in an evaluating way as a starting point: Does the content appear in a coherent way? In the following phase the teacher role will be more like a facilitator, helping to bring forward ideas for the continuing progress in the project work process. It may, for example, include assistance to the students in looking for supplemental references and additional literature.

The ability to write good papers is in focus in the phase of the work. The students' contributions can with advantage be uploaded to a conference system, where all participants have access to read, write and print from.
4)
Disagreements arise among the group members, leading to difficulties in cooperation, which may lead to disintegration in the project group. Consequently the group may split up into two smaller groups.

THE TEACHER ROLE: The supervisor comes through as a kind of 'therapist' for the students asking questions to the two new groups separately. The questions concern a) the participants' relation to the topic of the project work and b) the relationship between the group members personally. Agreement is made regarding how both groups particularly can benefit from the previous empirical work to implement and analyze the content of the interviews. The result is 'the division of property' as is the case in a 'regular' divorce.

In this situation the oral discussions unfold. Therefore face-to-face meetings must be arranged, however if not within reach it could be replaced by phone / Skype meeting.

5)
The work of the two groups are progressing separately and later they each present their new paper for the 'joint teacher role': academically focused expert / process oriented supervisor. It turns out that the two projects have evolved in different directions, demonstrating that the disagreement largely had been of an academical character and therefore not only relating to personal conflicts.

Feedback to the students can either take place through Skype or by written comments uploaded to the conference system - or a combination of the two forms of communication.

6)
The two groups of course examination separately. Both groups are in this situation experiencing their teacher in a *role as examiner* - teacher / expert - because the heart of the matter concerns the final evaluation. However there may be possibility for more inquiry oriented dialogues as part of the examination, which sometimes means that even at this occasion a genuine learning process among the participants may take place.

The inter-subjective basis for learning

From a perspective of Mead and Dewey the human subjectivity is constituted in an inter-subjective way. This is based on an understanding of learning as "[...] processes in inter-subjective fields, participation in activities within various communities of communication" – communities of learners, where meaning is negotiated and created (Vaage, 2003: p. 133).

Perspective and perspective construction

The ability to take another persons perspective can be said to constitute the basis for learning. "It is through such a perspective construction, the ability to put yourself in someone else's place that students can enable their reflective capability" (Bråten, 2000: p. 116).

"At the heart of Meads theory of sociality is what we might call the ability to take another person's perspective" (Vaage, 2003: p. 135). Fundamentally Mead used the term 'perspective' to describe the relationship between the experienced world and the experiencing subject. This means that the individual subject experiences his / her world /surroundings in a situational, contextual and a unique way. Perspective can moreover be understood as a person's performance images / way of conceiving the world that will guide the social practice for this person in a contextual way (Mead, 2005: p. 352).

Other persons can also be seen as a 'generalized other', understood as an abstraction: "[...] representing the general societal position "(Vaage, 2000: p. 103). The reflective capability is necessary in order that a person can take a new perspective, allowing this person to take into consideration other persons' wishes and life situations. Or in other words: "By taking over another person's role he or she can modify his / her attitude and actions towards such a person. A successful construction of perspective is thus a prerequisite for successful communication "(Bråten, 2000: p. 119).

It is in the inter-subjective perspective that construction of meaning is created. Mead explains it in this way: "Meanings are what can be communicated to others, while, in the very same process, communicated to the communicating individual self. [...] The fact that this is communicated from his / her own perspective, and since it is the same thing which is communicated, meaning does exist within different perspectives." (Mead, 2005: p. 119).

These understandings of imagination or understanding horizons (Vaage, 2003: p. 136) are constituted by the subject's experience, developed in an inter-subjective and processual way. As an example a teacher has a specific perception of reality regarding the process of a learning sequence. This subjective perception may undergo changes during the learning process due to the self-reflexion from the supervisor's side.

Mead introduces this concept 'to take another person's perspective' to describe the differentiation of experience in the common world of experience, which we as persons are part of (Mead, 2005: p. 353f). "With this he achieves to express both the individual and unique attached to the specific person as well as what is common to different groups of individuals" (Vaage, 2003: p. 136). To take other persons' perspective is thus a reflexive learning process, which also is described by Dewey.
Here we see a clear relationship between Meads and Dewey's thinking (Vaage, 2003: p. 137).

P. N. Dahl talks about student-tailored instruction (Dahl P. N., 2008). By this he means that the supervisor as a point of departure must go from the student's current zone of development and try to stimulate the zone of proximal development. The zone of proximal development (ZPD) is the gray area between the things the learner can do alone and the things the learner can with help from a more knowledgeable person or peer group

(Vygotsky, 1978). By examining students ZPD, so to say we have a window into possibilities such students can reach in the immediate future and thus we have a picture of the students' overall state of dynamic development.

In such processes with challenges and no clear-cut answers the supervisor must be able to cope with both his own and the students' uncertainty.

The supervisor as well as the students should during the whole learning process make explicit their specific perspective on supervising / guidance and ask into the other part's conception in order to be able to handle possible differences in their mutual expectations.

It is important to avoid defensive patterns by communicating openly and with respect for 'the other person's perspective.

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