Rupture and Innovation: Joint Instruction to Health Science Students in Tromsø, Norway

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Abstract: At the first-year Joint Course, supervisors from both Tromsø University College and the University of Tromsø participated. Supervisors represented two institutions with different educational outlooks and different approaches to the task at hand. In my view, deep-seated professional disagreement was allowed to affect the course throughout without being properly dealt with. The disagreement applied not only to the methods used, the themes and learning objectives, but to the very justification of the first-year Joint Course.

Key words: Joint instruction, health science students, collaboration, supervisor

Government White Paper no. 41 (1987-88) *Politics in the Health Sector towards the year 2000. National Health Plan* emphasises the value of cooperation and the importance of a holistic view in the public health service:

Health service is teamwork. If the goal is not a common one and if the professional groups within do not understand each others language, then there is little possibility that these will function together. Teamwork requires training—and this should start during education (p. 106/107).

The same White Paper makes reference to the fact that the opportunities for joint courses for several health science studies are especially good in Tromsø. It was therefore suggested that a pilot project should start, with joint courses for various health science studies. In 1989 the Stalsberg committee was formed to consider the proposal. In 1990 the committee presented their report "Education for cooperation in the health services" and the joint courses began in 1992.

During the years 1992-2000, Tromsø University College and the University of Tromsø offered two credits' worth of joint instruction to their health science students. The course was held early in the autumn semester for first-year students in the programmes: biomedical laboratory science, vocational therapy, pharmacy, physiotherapy, medicine, radiography, nursing and dentistry.

Communication, teamwork and ethics were key topics in the course, in addition to topics related to the theory of science, the subject "State and Municipality", communication theory, health science and social sciences. The emphasis was on the function of the health worker in general, rather than on the attributes of each profession. The ultimate goal of the course was to build common ground for students in their capacity as health workers, regardless of what profession they were preparing for.

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The objective of joint instruction was to promote a holistic perspective and stimulate collaboration amongst health workers.

In the autumn of 2001 this collaboration came to an end, and from now on, the university college and the university paradoxically enough organised joint instruction separately (Nilsen, 2003).

Background

The central working method is basic group work. The groups are comprised of 8-9 students from various studies, with a study supervisor. The part played by the study supervisor is different, demanding alternative skills than the teacher in the lecturing and communication role. The supervisor must support the students in their learning process and actively contribute to the creation of a group process in a confident learning environment that promotes self-activity and learning. The students do not merely memorise the information someone has given them or that which is printed in a book. The learning material must be adapted and processed, discussed, tested and be coupled together with existing knowledge and experiences. This leads to a deeper understanding of the material. The processing of the learned information takes place as a problem-solving process in seven stages (Lycke, 1995). In this context, "problem" does not necessarily mean the same thing as something that is difficult or negative; the concept really indicates a posed question or a hypothesis, something that should be considered, enlightened or analysed. Seminars were a part of the course. At the seminars, students were expected to present and discuss their conclusions to students from other study groups.

On the first year Joint Course the focus moved gradually away from problem-based learning as described above (although group work and individual activity in the learning process was still an important method of working). In 1994 the course became more project-oriented, in that the work within the base groups was concentrated on a concrete problem that was to be considered. In contrast to previous courses, in which group work began with a professional challenge in the form of an image, a quotation or description of a particular situation, the course guide in itself (1996) was defined as a challenge for learning and cooperation. In 1998 students were given concrete problems to address, based on a meeting with a client of the health service. In 1999 the seven-stage process in the problem solution was removed. In 2000 students were given project studies in the form of presentations and professional literature, and the production of posters was introduced as a working method.

The College continued with the Joint Course in 2001, eventually broadening the options. Joint Courses with a two study credit value were arranged for all health education studies at the college. Medicine and pharmacy students no longer took part in these studies.

Changes were initiated, of a professional and organisational character. However, even though the change in the method of working was gradual, supervised group work has always been a central method of working and has represented an important part of the educational foundation in this study. The courses were created with a good deal of self-activity, and interaction was practised in groups of 8, with students taken from the various courses. The courses were concluded with a seminar—this is in contrast to the first year Joint Course that contained three seminars during the course period.

Body language, eye movement and facial expressions are all central elements in non-verbal communication. For the first-year students on the college's Joint Course, practical interaction exercises were arranged in the gymnasium, as a part of the theme "communication and cooperation". This was a new method of working. It would help the students to become better acquainted and it

would also give the students training in interpreting non-verbal signals in communication with others. Physiotherapy students in their first year were responsible for these exercises.

Proficiency training in practical situations was introduced as a new working method on the Joint Course for second-year students at the college. Even though most of the students had previously undergone practical training in connection with their own courses, in 2002 a joint practical training period was introduced for these students. The students were to focus mainly on communication with clients in an institution or in the home care service. The students were to take part in daily activities with the elderly and thus gain proficiency in communication and cooperation. Training in eating exercises and physical training in connection with patient movement was arranged at the beginning of the course. By training in these situations in advance, the students could more easily manage the actual situations in practice. Their experiences from interaction with clients were later taken up and discussed in a group situation, something that contributed to reflection about their own practical experience.

In Retrospect

Looking back at the first-year's Joint Course, we find that it was burdened, year after year, by negative criticism and frustration even though the various course committees regularly tried to comply with recommendations after each previous year. The first-year's Joint Course came to be something about which anyone might proffer an opinion or criticism, without actually knowing much about then course's contents or organization. As a result, the learning ambiance was adversely affected and it was difficult to glean commitment from the students. The educational rationale for joint instruction stresses group work, and problem-based learning was the educational method used (Barrows et al, 1980, Pettersen, 1997). The method was adjusted to the education at the university college and the university in Tromsø, but had pedagogical elements from equivalent education at the University of McMaster, University of Maastricht (Schmidt, 1983) and Linköping University College (Silen et al, 1989).

The course demanded a high degree of individual activity while training participants to interact in supervised groups of eight students from the various disciplines. Each programme of study contributed with supervisors the number of which depended on the number of students from each programme: there was one supervisor for eight students.

In the 1996 evaluation report, it transpires that students, course supervisors, colleagues and the educational administration expressed negative views about the course. The report maintains that it proved difficult to exploit this frustration constructively. Although the evaluation report from 1998 states that the course had plenty of resources in the way of professional expertise, it questions the course's justification.

In the evaluation report from 2000, students direct severe criticism at their supervisors, adding that the part played by the supervisor is crucial for the outcome of the course. They point out that although some groups had well-functioning supervisors, many supervisors lacked enthusiasm, indicated negative attitudes and failed to show up when they should. Students also found that it was problematic when guidelines for the work were interpreted in different ways. Some groups found that the presence of their supervisor interfered with their work. The students stressed that the part played by a supervisor is pivotal for motivation, performance and the results of the course as a whole. The course committee eventually decided that there was hardly any point in evaluating the Joint Course or suggesting changes to its content or structure until something had been done with the matter of supervision.

Changes

In 2001, however, the college again provided a joint general module, and this module was subsequently taught to a growing number of its health science students. This was done so as to allow them to exercise interdisciplinary collaboration during their studies, in accordance with one of the objectives in the general framework for the programmes at the Department of Health Sciences (AFH). As of 2002, joint instruction was organized for all years of study, in all the basic programmes at AFH. Now, several year-groups from the programmes of nursing, biomedical laboratory science, vocational therapy, dental health, physiotherapy and radiography participated.

Based on past experience, there was reason to fear that prevalent negative attitudes would rub off on the joint courses offered by the college. However, this did not happen. Instead, the Course Committee could ascertain that student attitudes to joint instruction had changed. Supervisors commented that many students had expressed satisfaction about the joint course, and they maintained that opinions had been reversed during the course itself.

In 2002, a total of 240 first-year students were enrolled in the college's Joint Course. A study (Nilsen, 2004) indicates that 72 percent of the students felt they had benefited academically "well" or "very well" from the instruction. Virtually all of them believed that working in groups with other students had been a valuable experience and that insight into other disciplines of health science had been instructive.

The students were asked to what extent they felt the supervisor's attitudes to joint classes—positive as well as negative attitudes—had affected their own. Approximately 70 percent of the students believed that the supervisor's positive attitudes to joint classes had a favourable effect on their own, to "some" or to a "large" degree, and 70 percent believed the supervisor's negative attitudes to joint classes had affected their own only to a limited degree or not at all. Only 5 percent believed the supervisor's negative attitude to joint classes had affected their own attitude unfavourably to a "large" degree.

My point of departure will be a question which I wish to examine by means of data based on interviews with six experienced supervisors of joint instruction. The question is: in what way did the supervisor's role in joint instruction change after the rupture between the university and the university college?

Method

I chose the qualitative research interview as the method with which to approach my problem, and I interviewed six supervisors from the university college. My informants were from the departments of nursing, biomedical laboratory science, vocational therapy, dental health, vocational therapy, physiotherapy and radiography. They had all had considerable experience as supervisors, both from the joint instruction offered by the University College and the University together, and also from the University College's joint instruction after the rupture. At this stage, there seemed little reason to interview supervisors from the university, since they did not share the same experience. The sample was chosen in view of my needing to analyse changes implemented to the joint instruction after the rupture in 2001, about which only supervisors from the university college can reasonably contribute informed opinions.

There may be a price to pay for making such choices. Geir Lundby (2000) uses a metaphor in which he compares our stories with a projector on a stage; that which is in the projector beam is clear and sharp, but that which is outside the beam is blurred, vague or impossible to recognise. The parts of

the stage that are outside the illuminated area are no less real than those that are not—they are just not as brightly lit. Therefore, it may be that I, in using information sources from the college only and not the university - which also took part in the Joint Courses—am not able to see the other side of the story. However the choices I made were meant to give me the opportunity to reflect upon the changes that occurred to the Joint Course after the separation in 2001. Only the supervisors from the college are qualified to say anything about that. At the same time I can see that it may give incomplete information, especially in regard to the second question in the problem to be addressed.

The interview is a meeting between two persons that communicate on several levels, sending a number of messages to one another with physical gestures and words. According to Kirsti Malterud (2003) the question is not *whether* the researcher influences the process, but *how*. Malterud discusses the interview effect, and claims that the researcher's personal position, motives, attitudes and prejudices will influence the interview object, as well as the perspective employed.

As a researcher I am not outside the project. In some way, I am also my own interview object with my own experiences, both as an instructor and administrative coordinator for the Joint Course.

My emotional engagement in the Joint Course is strong. I am genuinely sorry that the Joint Course between the Tromsø College and Tromsø University was closed. My experience is that many students experienced a professional and personal growth during the first year Joint Course. As a supervisor for the Joint Course I formed good relationships with supervisors from other study disciplines, something that gave me a wider perspective on my own profession. Even though I was the coordinator for the first year Joint Course in 2000 when the course broke down, I am very proud of the fact that Tromsø College has developed a common study system for health education students that is worth continuing. For my own part, these issues are an important driving force to discover what really happened to the first year Joint Course, and why it developed as it did. In this respect my feelings for the Joint Course exist not only in my empirical material and in the analysis, but also when I shall finally share my insight with others. I accept the feelings are there. At the same time that I see that my emotional investment in the Joint Course can cloud this examination, I also see that my own participation and strong involvement in the Joint Course as an important premise for gaining insight into this theme.

With this in mind, and with the thought that the interview should reflect the interview object's experiences and opinions in the best possible way, I tried to keep myself in the background in the interview situation in order not to drown out the interview object's information.

All names are aliases, but the quotes are authentic.

The Spoken Word vs. Written Text

Transcribed interviews make up the main body of my text. Jette Fog (1994) describes a process in which an actual conversation, via a tape recorder, becomes a transcription. From being a dialogue between two persons, based on a common condition in the interview situation, the transcription is a kind of fixed version of a former living process. This can be a problem, according to the author. The interview object's words are separated from their origin, and live a separate existence. The words are stored within a tape recorder. In this way the words themselves and their content have more meaning than the context and way they have been spoken.

The words in the transcribed interviews are identical to the original conversations. However it is in any case important, according to Fog, to realise that a written text has another status completely to that of the spoken word. We place emphasis on other matters in a written text than we do in an oral one in regard to our choice of words, syntax, rhythm and grammar. When we speak we repeat ourselves, break off and use half-sentences. Therefore a transcribed conversation may appear imprecise and faltering. This may be the reason that only one of our interview objects felt the desire to read the transcription of the interview later, even though all were offered the opportunity to do so.

Being a Supervisor

The informants express frustration about how negative attitudes to many of the supervisors was expressed and how these attitudes rubbed off on the students. The situation affected the implementation of the first-year Joint Course and obstructed the work of the supervisors so that they had to devote extra effort to the task of handling student frustration in the groups. When the university college started organising the joint instruction on its own, after the rupture with the university, all this changed, and joint instruction could proceed with fewer disturbances. The informants point out that negative talk about joint instruction has subsided somewhat and that the students do not hear it referred to in very deprecating terms. Jane's illustration may serve as an example:

There used to be more moaning and groaning...

Some of the informants resort to metaphors when describing how the task of supervising changed after the rupture between the university and the university college. A metaphor does not render an exact description, but can generate new significance, thus providing an image of something that is real.

Anne: I don't have to devote so much effort to bracing myself with a lot of good arguments about why this is such a good thing, why it's so great to join.

Lisa: that's what I meant when I said there are fewer hurdles.

Jane: Yes, you might say you don't have to arm yourself anymore before you go in. I mean, as a supervisor I don't always have to sit down and make an effort to explain that joint instruction is a good thing, that it is important for students.

It is interesting that the metaphors used relate to the body. Lakoff and Johnson (2003) establish the fact that metaphors compose an important part of our daily function. These informants felt, "physically", what it meant to be a supervisor of the first-years Joint Course at the time. The statements indicate a connection between physical experience and the condition in which the informants find themselves. Their expressions demonstrate that the rumours and the negative talk about joint instruction was a strain on them.

In the following sequence we will hear how the informants experience their relations to the other supervisors.

In Medias Res

Anne: You asked me what kind of attitude the students had to this, are you gong to ask me what kind of attitude the study supervisors had to the Joint Course? Can I just say something about that? I have to say that I am not convinced that the study supervisors that take part are as enthusiastic in regard to the Joint Course. That may be many different reasons for that. Some may feel that they have been coerced into that role, in

which they are not so confident themselves and feel therefore vulnerable, whilst others are possibly against the whole concept - they feel we do not need a Joint Course. It is difficult to say exactly. As for the situation in regard to supervisors, I really think that at an earlier stage, when we cooperated with the medicine department, that is to say the medical and pharmacy students, I really think that I experienced the situation as very problematic. Many of the supervisors were very clear about the fact that they did not like being in that situation, this was not the kind of work they wanted to do. They did not understand what the purpose of the Joint Course was, and they made that obvious.

There is a switching of roles here, the interview object takes over my role as interviewer. She begins to speak and maintains the foreground, engaged, as if she is afraid that the tape recorder will be switched off before she can say all she has to say. It is fascinating that the interviewee so spontaneously and openly describes the problem. Anne determines that many of the study supervisors (at the college's Joint Courses) continue to lack the same enthusiasm that she herself has as a supervisor. At the same time, Anne describes how problematic her experience was, the obvious dissatisfaction with the first year Joint Course, as many of the supervisors from the university openly admitted. Wenche described it with a humorous metaphor:

And these doctors, spluttering the whole time....

Wenche's humorous expression in a way sums up what Anne says. However, no problem is made of this during the remainder of the conversation. The confidence that Wenche has in the role of study supervisor gives her greater skills to act in regard to group processes and conflicts within the group, and so she does not experience any problem with that. Wenche says that she, as a study supervisor, has played a part in bringing a degree of enthusiasm for the Joint Course into the group. For Vera and Jane the relationship with the other supervisors on the Joint Course has functioned "just fine" (Jane) or "OK" (Vera). We shall now hear that Eva has mostly positive experiences in regard to the supervisors' attitude to the Joint Course:

There was I believe probably some.... I will call it lack of loyalty, there were some episodes when we had larger classes where everyone discussed how things had gone, there was a degree of support, but also some opposition to the Joint Course. It seemed that there were study supervisors that had to perform this kind of work and that they felt this was beneath them, more or less. These were first year students and I think this was in collision with their ambitions and how they felt about the whole thing. But on the whole I think that the supervisors have been very positive and have been a great group of people to work with.

Eva describes here how she, on the first year Joint Course, experienced opposition to the course, and the disloyalty shown by other supervisors.

Lisa describes her first meeting in the group of supervisors for the first-year Joint Course, where two of the staff from the university's Faculty of Medicine were sharing a supervisor's post:

Yes, that's right. We met the supervisors from the Faculty of Medicine who didn't even care to show up. We tried to argue with them. There were actually two of us from Health Sciences and one supervisor post was shared by two people. But they quite simply refused to attend the seminar. So we were alone there. I'd forgotten about that. Lisa is referring to the seminar, a forum where students and supervisors from three groups come together to present the assignments they have been dealing with. After discussing the changes in joint instruction (Nilsen, 2004), the informant touches upon student attitudes to it and to supervisors as role models:

Lisa: There are fewer hurdles now. Because I do think it's not only about the supervisor's role. I remember that those medical students had a certain air, that they wanted the group to regard them in a certain way. And they had certain opinions too. Although I, as a supervisor, was able to subdue it, to some extent, there was something there. So now that I don't have medical students in the group, it's easier to take on the task of being convincing: Now we're going to do something really exciting, creative and instructive.

Me: How do you think those students got their attitudes?

Lisa: I believe, and think, that all those anecdotes are connected with what I say about their supervisors. How should I be able to convince my people in the group, when their supervisor models, you know, role models, decided not to show up?

The informant is saying that the two supervisors from the Faculty of Medicine were poor role models by staying away from the seminar and thus transferring their attitudes to the students. Judging from Lisa's statement, this affected interaction in the group adversely and obstructed her own role as a supervisor in the group.

It is not without sorrow I part from Thee

Henrik Ibsen, Collective Works

Even though we have heard that the role of the study supervisor changed for the positive when the College and the University parted, we shall also hear that the changes that took place in the Joint Course were not solely positive. The desire for a greater community, and not least, the lack of other professional groups, comes clearly to the fore among those interviewed.

The interviewees missed the medical and pharmacy students and the community aspect of studying with these groups on the course. Wenches enthusiasm for the first year Joint Course, and her disappointment at the loss of the medical students, is clear in the expressions in the quote that follows:

I enjoyed the concept tremendously. I liked it very much. I was actually very disappointed when we lost the medical students.

Anne thought it was "fun" and "interesting", being on a Joint Course with the medical and pharmacy students, and maintains that it is important for health education students to gain a good relationship to the professions they will be working with later. Eva also feels that there is something missing, however she has a slightly different perspective:

I think it is very disappointing that the medical students are no longer here - and the pharmacy students. I think it was a total miss on the idea and the thought behind it, for the very reason that medical people have so much control of the culture all around.

Longing and sorrow are the pains of the soul. Ingrid Lauridsen (1994) maintains that that sorrow can be experienced in all major changes that place new demands upon us. Each time we let something go that we have held on to, the feeling returns, often accompanied by angst and an uncertainty about what the new situation will bring. However this is also, according to the author, an important part of a person's life that will be part of a learning experience and bring renewal.

Discussion

I see that my choice of informants may have skewed the study, since opinions from other supervisors, particularly from the University of Tromsø are left out. Perhaps they have a different view of what happened? However, the informants' perception of the supervisor role in the first-year Joint Course and how this role changed after the rupture between the university and the university college remains unaltered.

New teaching methods may generate frustration and a sense of insecurity, for supervisors and students alike. At the first-year Joint Course, supervisors from both university and University C ollege participated. Supervisors represented two institutions with different educational outlooks and different approaches to the task at hand. In universities, the lecturing tradition is deeply entrenched. Relinquishing the role of an expert educator in order to embark on an educational enterprise demanding that students take an active part in their own learning may generate a sense of insecurity and feel alarming.

This sense of insecurity is apparent to the students, and it affects the process of learning and interaction in the group.

In the evaluation reports about the first-year Joint Course, it transpires that the quality and professionalism of supervision varied too much. The students maintain that the supervisor role is crucial for motivation and for the implementation and results of the course as a whole. Most of the supervisors of the joint instruction provided by the University College in 2002 were from AFH, a department where several programmes rely on problem-based learning as an educational method, so that many of the supervisors are familiar with tit. Such experience may thus have lent self-confidence to supervisors from AFH in this role and affected inter-action in the group favourably

According to Bø et al (2002), expectations to supervisors as role models, and norms, form a significant underlying element in students' behavioural patterns. When supervisors fail to turn up for classes, as was described by Lisa, they were signalling that joint instruction is unimportant, thus possibly influencing the students' attitudes to this instruction. This particularly applied to medical students, since the absent supervisors were from the Faculty of Medicine. One tends to identify with one's profession, since professional identification contributes to self-confidence and a sense of belonging, according to Bø. On the other hand, the purpose of the first-year Joint Course was precisely to counter this particular tendency by focusing on the function of health workers in general, rather than on the attributes of each profession.

Was it merely the physical proximity between institutions, which share teaching facilities, and new curriculum, that brought the university and the university college together? Was joint instruction a forced marriage, an undesirable situation? Last but not least, how do you perform as a role model for the students when you cannot cooperate about joint instruction?

In my view, deep-seated professional disagreement was allowed to affect the course throughout without being properly dealt with. The disagreement applied not only to the methods used, the themes and learning objectives, but to the very justification of the first-year Joint Course. Supervisors were motivated, as I see it, by force exerted by their institutions and based on the white paper about "health policies for 2000; national health plan" [Report to the *Storting* no. 41(1987-88)]. This white paper points out that Tromsø is particularly well suited for joint instruction within several programmes of health studies.

Special professional interests were rampant. In the matter of joint instruction and collaborative exercise described in the white paper, the University of Tromsø and Tromsø University College proved incapable of complying with policy goals for the education of health workers. A dream about a brotherhood of future health workers was shattered and, with it, ideas about developing awareness about health professionals' common ground.

References

- Barrows, H. S., and Tamblyn, R. M. (1980). *Problem-based learning. An approach to medical education*. New York: Springer.
- Bø, I., and Helle, L. (2002). Pedagogisk ordbok (Dictionary of pedagogy). Oslo: Universitetsforlaget.
- Fog, J. (1994). *Med samtalen som utgangspunkt* (Using the conversation as starting point). København: Akademisk Forlag.
- Fagplan for Felles innholdsdel grunnutdanning (Syllabus for Common Core Subjects). Tromsø College, Faculty of Health Sciences.
- Lakoff, G., and Johnson, M. (2003). Hverdagens metaforer (Metaphors we live by). Fagernes: Valdres Trykkeri.
- Lauridsen, I. (1994). *Sorg--Livets trofaste følesvenn* (Sorrow--The Faithful Squire of Life). København: Frydenlund Grafisk.
- Lundby, G. (2000). Narrativ terapi (Narrative Therapy). København: Nordisk Forlag.

- Lycke, K. H. (1995). Problembasert læring--Dokumenterte effekter og teoretisk forankring (Problem-based learning--ducumented effects and theoretical anchor). *Tidsskrift Norsk Lægeforening 115*(6), 718-20.
- Malterud, K. (2003). Kvalitative metoder i medisinsk forskning—en innføring i 2. utg (Qualitative methods in medical research: An introduction, 2nd ed.). Oslo: Universitetsforlaget.

Nilsen, R. (2004). Bedre enn sitt rykte (Better than its reputation). UNIPED 27(3), 32-38.

- Nilsen, R. (2003). Utrygghet i veilederrollen skapte problemer for helsefagstudentene (Insecurity in the role as supervisors generated problems for the health science students). *UNIPED 26*(1), 43-46.
- Pettersen, R. (1997). *Problembasert læring som pedagogisk ide og strategi* (Problem-based learning as scholastic idea and strategy). Olso: Tano Aschehoug.

Schmidt H. G. (1983). Problem-based learning: Rationale and description. Medical Education 17, 11(6).

Silèn, C., Normann, S., and Sandèn, I. (1989) *Problembaserad inlärning: En beskrivelse av ideologi och pedagogisk referensram (*Problem-based learning: A description of ideology and scholastic frame of reference). Linköping: Hälsouniversitetet.

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