

## **SHARING TACIT KNOWLEDGE BETWEEN A STUDENT TEACHER AND A TRAINING TEACHER IN THE COURSE OF PEDAGOGICAL PRACTICE**

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### **ABSTRACT**

One of the important sources of knowledge of the student teacher is not only the theoretical knowledge acquired in the theoretical preparation, but also the practical experience gained during practices. This practical student experience is used when educating without realizing it. Part of the knowledge has a hidden, tacit character. The definition of tacit knowledge is "tacit knowledge is capable of developing, initially not realised or less realised prerequisite to structuring the experience of the students or teachers, tacit knowledge is used to make decisions in situations (especially unexpected) showed when student educates (subjective theories) and interpreted during reflection". Sharing is based on the apprenticeship model.

The problem is that the student is not aware of his/her tacit knowledge during the process of education so the researcher and training teacher should help the student to make the tacit knowledge more explicit. The aim of the research is to identify the kind of tacit knowledge they share; the conditions under which they share, and how they share. Results will be illustrated on the data which is gained by an in-depth interview that is based on a method called "clean language". The reflection of student educating process with a training teacher and a researcher helps student to be more aware of his/her tacit knowledge.

**Keywords:** tacit knowledge, sharing tacit knowledge, apprenticeship, clean language

### **INTRODUCTION**

The problem of most of students is that they are not aware of the tacit knowledge they acquire during the process of education so the researcher and the training teacher should help the student to make that tacit knowledge more explicit, which means to be aware of. I work on the assumption that tacit knowledge as well as explicit knowledge are two poles of one continuum [14], [10]. I approach to sharing tacit knowledge through the model of collaborative apprenticeship [4].

During this collaboration the training teacher models his/her thoughts, i.e. uncovers his/her tacit background to the student teacher and gets closer to the student teacher who is not aware of thus acquired knowledge in most of the pedagogical situations. Modelling of the thoughts, i.e. previous experience, is usually provoked when the training teacher sees the student teacher in problematic (unexpected) situations, which sometimes the student teacher is not aware of. Students also reflect his/her problematic (unexpected)

situations with the training teacher who help him to be more aware of what happened and why. This happens on the background of Nonaka's conversion of tacit knowledge.

The research is qualitative and it is a case study of sharing tacit knowledge between the student teacher and the training teacher. The aims are to find what and how they share.

## **1. Tacit knowledge**

Tacit knowledge is connected with Polanyi's claim "We know more than we can tell" [11], by which he expresses the nature of tacit knowledge. Tacit knowledge is individual and it is formed by mutual interaction with surrounding and by searching for balance between subjects and surrounding. Tacit knowledge is hardly expressible, dynamic and hidden in contrast to explicit knowledge which is expressible by words, letters or symbols. Thus knowledge has two dimensions explicit and tacit, which are mutually connected and inseparable. It means that explicit dimension of knowledge depends on its tacit dimension. Explicit and tacit knowledge are two poles of one continuum. Consequently tacit knowledge is conceptualized in relation to explicit knowledge. [1], [14].

Tacit knowledge depends on the level of awareness and articulation. For the research, it is important to differentiate between those attributes of tacit knowledge which are hard to articulate and not realised or less realised, practically useful to the individual holding knowledge, and those learnt by experience. Similarly like Sternberg's et al our research uses a comparison of expert (training teacher) and novice (student teacher) responses, arguing that novices will have some explicit knowledge but little tacit knowledge. Thus the expert's knowledge, which is not known by novices, is likely to be tacit because the novices do not know the background of expert's knowledge, which is for novices hidden. However, the problematic (especially unexpected) situation triggers the restructuring of expert's experience that lies behind expert's knowledge [9].

Together with the literature [1], [14], it is possible to differentiate between the explicit and tacit knowledge. As tacit and explicit knowledge are two poles of one continuum, it is possible to differentiate in which part of continuum explicit and tacit knowledge is. Basically, the less realised knowledge, the closer to tacit part. It is differentiated three level of tacit knowledge: 1) completely inarticulable and not realised, 2) imperfectly articulated and less realised, 3) explicit and realised [1].

The first level is extremely difficult to access, and therefore unlikely to be explicitly transferable to other individuals, but can still be transferred in more implicit fashion by the method of apprenticeship or observation [10]. The second level is accessible through metaphor or analogy. The third level is explicit knowledge that has been made tacit. In our research it means that expert (training teacher), who base the evaluation of student's lesson, abstract expression or comments on the tacit assumption, thus not often explicitly discusses the background.

### **1.1.Acquiring tacit knowledge by conversion of tacit knowledge**

Acquiring tacit knowledge is possible by four possibilities of conversion of tacit knowledge to explicit and vice versa. The model is known as SECI: tacit to tacit

(socialization), tacit to explicit (externalization), explicit to explicit (combination), explicit to tacit (internalization) [10]. The conversion is cyclical. Tacit with explicit knowledge are mutually complementary. For our research is important socialization and externalization. Socialization leads to sharing tacit knowledge by the method of apprenticeship and observation. Implicit (tacit) learning takes place without conscious awareness and without necessarily any prior explicit learning by observation and imitating. Externalization leads to conversion of tacit knowledge to explicit by using metaphor or non-verbal language during reflection. The model of conversion helps acquire and shape tacit knowledge.

Consequently tacit knowledge is defined as capable of developing, initially not realised or less realised prerequisite to structuring the experience of the students or teachers' tacit knowledge, it is used to make decisions in situations showed when student educates and interpreted during reflecting.

## **2. Apprenticeship model**

The model of conversion of tacit knowledge is realised through an apprenticeship model. For this research, the apprenticeship is based on the collaborative apprenticeship [4], which is aimed at sharing tacit knowledge. One important task of expert is supporting the developments of student teachers' practical knowledge, which are connected with tacit knowledge, because it can only be learn in practice. The collaborative apprenticeship can help the student teacher gain access to everyday experience by modelling. Modelling enables the expert teacher to make these experiences accessible and supporting in developing of knowledge that is unlikely to learn alone [15].

The approach in the research is slightly different than [15], and it is based on three levels. The first: the student teacher observes the expert (training teacher) who models classroom routines and the student see his/her acting. The second: the student teacher takes the role of a classroom teacher. Together they prepare and reflect the lesson. The third, the student teacher takes the role of a classroom teacher as well as preparation and reflection of the lesson. Initially the student imitates the training teacher to a certain extent, because the student does not know the background of the observed practice of the training teacher and has little pedagogical experience. Gradually, the student will gain more experience. The student reflects his/her experience with the training teacher in the process of sharing and improves his/her tacit knowledge (by this he/she is approaching the background of the tacit knowledge of the training teacher. The student teacher does not copy the background, but develops it on the basis of his/her tacit knowledge).

Tacit knowledge is shaping in unexpected situations. In the context of the unexpected situations increases the chances that the tacit knowledge is detected, because learnt patterns of behaviour may fail in them and the student can express it in the reflection. He/she starts to express them by using metaphor, long pause, fillers or non-verbal expressions for example gesture, miming. Those are signals for detection of tacit knowledge. Unexpected situation will allow us to look into the student's conception of

teaching (subjective theories). Student's conception of teaching (subjective theory) is the base for pedagogical thinking and acting. Subjective theory consists of six parts: concept of pupils, content, teaching aims, the role of teacher, method of teaching and others surrounding influences [8].

### 3. Methodology

My aim is to detect tacit knowledge, which the student teacher and the training teacher share by answering questions:

*What kind of tacit knowledge they share?*

*How they share tacit knowledge?*

Research project was conducted for the period of two years with one student teacher and training teacher. Research methodology has a qualitative design - a case study of the process of sharing tacit knowledge between the student and the training teacher. The student is selected on the basis of interest to participate in research. The research follows the ethical side as a consequence the student sign up an official university ethical codex and in order to be anonymous student performs under a fictitious name Milada. Milada is a student of the Pedagogical Faculty of Masaryk University in Brno. Content of research interviews followed her course of practice, which is divided into three semesters. Her training teacher has twenty years of practice so according to model of skill acquisition is an expert [2].

#### 3.1. Acquiring data

There were ten interviews over the time span of two years (see figure 1). It follows the course of student teacher practice. Interviews have different focus. Before interviews start, the student teacher is introduced the method and the course of prepared interviews. The data is acquired by using the following methods: in-depth interview with the use of “clean language” [7]; student and training teacher discussions, observation of students and training teacher lessons; student’s reflective diary; student teacher writes an essay aimed at “Me and teaching”; video - recording the student teacher’s lesson.

The interviews are focused on: 1. Subjective theory of the student (after the student teacher lesson), the lesson is observed. 2. and 6. Unexpected situation of the student (after the student teacher lesson), the lesson is observed. 3. - 5. Discussion of the student with the training teacher after the student teacher teaching lessons, the discussion is observed. It is followed by the interview facilitated by the researcher. 7. – 9. Subjective theory of the student teacher and the training teacher without the lesson observation. 10. Final interview based on the previous nine.

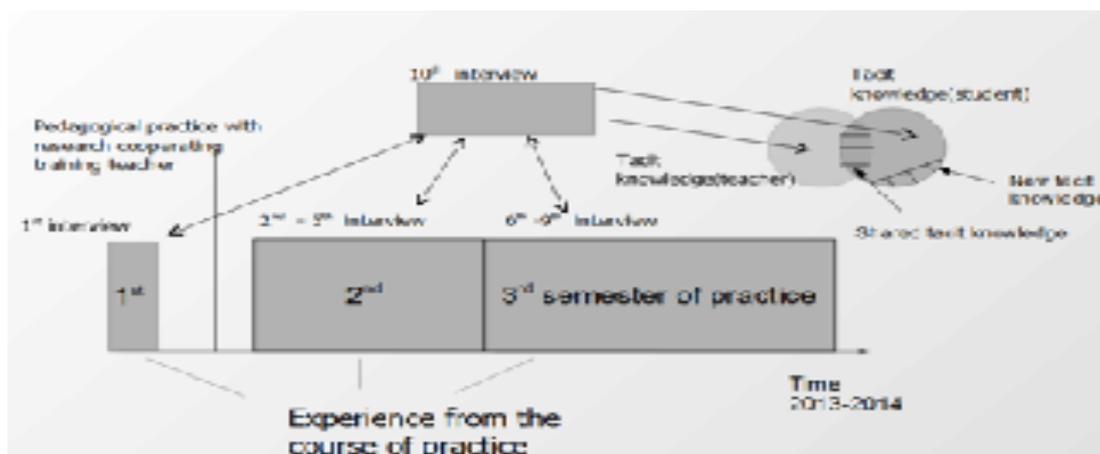


Figure 1. Methodology design of the research

### **3.2.Clean language as a method for facilitating the interview**

This method of querying is based on three principles: 1) the exact repetition of student's word - (verbal and non-verbal) language and 2) using “clean questions“, which do not contain any personal assumptions of the researcher. Questions are based on the research question. The researcher focuses on the process of interview itself. The researcher facilitates the interview with the help of two guides: a) the exact content itself and what the informant says or does, even non-verbal language, e.g., gestures, and b) a research question in the background of the researcher’s mind. Individuals often express metaphorically with gestures or other non-verbal expressions. Clean language is a tool which can facilitate internal landscapes self-organizing system, which helps students realize and possibly change their own patterns of behaviour. It is possible to put into the light tacit knowledge as a part of experience (metaphorical gestalt). It is possible to work with it and transform it into meaningful form or facilitate it in the scheme, or even to subjective theory [6].

### **3.3.Analysing the data**

The data is analysed by open coding to find the categories, which are connected with sharing tacit knowledge. After it is controlled what kind of tacit knowledge is only announced and what kind is announced as well as acquired.

## **4. Findings**

The methodology of the research was designed to find the kind of tacit knowledge they share, and how they share. The interviews aimed at subjective theories answer the question about kind of tacit knowledge student teacher acquires, and interviews aimed at their interaction answer the question how they share.

Training teacher's tacit knowledge is detected by modelling training teacher's thinking (previous experience) with the use of clean language. By them student can improve own tacit knowledge when using it in teaching process. However student teacher acquires it in its newly learnt behavioural formula. I also detect student's tacit knowledge by using clean language.

Research reveals different kinds of tacit knowledge. The first which student teacher acquires and is evident in her teaching, the second which student teacher wants to acquire, it means that student teacher thinks about it but cannot use it in during teaching, and the third which student teacher does not want to acquire.

In this paper I would like to mention how Milada’s training teacher gives her feedback and then I will focus on only one category of her acquired tacit knowledge, which is made explicit by her training teacher and then acquired, it means it is used not only in her thinking but also in her acting.

### **4.1.How Milada's training teacher gives her feedback (sharing tacit knowledge)**

First it is important to say, how her training teacher gives her feedback with respect to training teacher's previous experience including teacher's tacit knowledge. Training teacher sees not only the student performance but also student's position on the pedagogical practice, and through the vision of this position and student future prospection also gives feedback to student's performance in the lesson and hence its tacit knowledge. Training teacher tunes on peculiarities and (prospective) options of the student. Training teacher usually reacts on student's performance and starts to model its thoughts. Modelling happens on the basis of the previous acquired experience (learnt patterns of formula) [15].

An example illustrates how training teacher gives feedback to student teacher. The situation happened at Milada's teaching lesson when most of the pupils have nothing to do because they have everything done. – This triggers modelling of training teacher thoughts which are based on her previous experience, of course for student teacher remains tacit until training teacher uncovers them. After the lesson training teacher says:

*The big group of pupils did not work, this was a weaker moment because pupils were not exploit....You prepared tasks for those who are quicker in solving that is good, but you can also bid **pupils, who have everything done to help the weaker one**. They are proud of being addressed to help the weaker one. Another effect is that they can explain it in "pupil's" words that can be sometime more useful than ours explanation and it really works.*

*Later on in the discussion*

*Student teacher: ...something I do not realise until training teacher says it. Until the problem ...*

*Training teacher: I am sorry. The thing is that some of the things I start to do later on for example to make use of **pupils who have everything done to help the weaker one**. Before I used to give them additional work but in some cases it did not work than the idea came.. (taken from the student teacher and training teacher discussion)*

#### **4.2.Tacit knowledge that Milada acquires from her training teacher**

From observation of the lessons and also from interviews especially those that are focused on Milada's subjective theory are evident acquired tacit knowledge. Milada acquires what training teacher makes explicit but with different background. The acquired tacit knowledge is also evident in her acting. I would like to show the example that relates to previous interview in which training teacher models her thoughts [15]. The example shows Milada's acquired tacit knowledge from her training teacher but with her background. Milada models her thinking based on her previous experience. The example shows her background on which she builds up understanding the cooperation of pupils **who have everything done to help the weaker one** which her training teacher makes explicit in discussion. This **cooperation of pupils who have everything done to help the weaker one** is not only in her thinking but also in her teaching. Milada says:

*I like when pupils explain to each other. For me it is more natural maybe I think some of*

*pupils, who have a problem with teacher and are afraid of asking so it is better for them that they explain it to each other.*

*in different part of interview she again says:*

*I must communicate more with the pupils and ask them to be able to answer me, because I was surprised when once I asked the girls and they suddenly got quiet they even were not able answer my question. Personally, I would like to put pupils the question in a way so that they would not be afraid of answering. (taken from the interview focused on student's subjective theory)*

The example shows that Milada's background is connected with pupils' fear of answering, and is different to her training teacher's that is more connected with effect of helping. Milada's background, which means tacit knowledge based on her previous experience, on which "**pupils who have everything done to help the weaker one**" is built up, and it would not have been revealed until I had asked her. The question is why she acquires one kind of tacit knowledge and the others not. It seems to have some connection with her subjective theory. Metaphors shape subjective theories of teaching and can open or close active learning [13]. It is possible to find the relationship between the subjective theory and the acquired tacit knowledge. I would like to outline her subjective theory.

Milada's approach to teaching (subjective theory) is to find the good relationship with the pupils and thus create good atmosphere in lessons to move pupils' knowledge to their future carrier. Pupils are centre of her thinking about teaching. She says: *I help them to build up pupils' mosaic, which heads for their future aims.* This central metaphor leads her thinking about teaching and her acting it is also connected with embodiment [3]. She reaches the good relationship by knowing pupils how behave and react not only at school environment but also outside the school, mutual cooperation, being enthusiastic to the teaching subject and being always fair to them. Good relationship with the pupils is reflected in all parts of her subjective theory and create meaningful complex. For example, if this happens, she will be able to manage to transform easily the content via pupils' interests, and she will become respected; she will be able to reach her teaching aims. One of her teaching aims is to make up mathematical tasks which pupil uses in its future practical life.

*Researcher: How you make up the tasks for the mathematical lesson with respect to practical uses in their future?*

*Student teacher: I think if I create them based on their interest or hobbies and I shift myself on their interest and make up the task which is connected with their hobbies, I think it will be better for remembering, and interest to solve the problem increases. I can also get round pupils for learning subject.*

Her subjective theory is created on the base of her previous life experience [5]. She revealed it in reflection during interview. When she goes back to explain her experience she often uses metaphors, gestures, fillers, long pauses. This kind of experience is

connected with tacit knowledge. Creating a good relationship with pupils is not only in her thinking but also is evident in her acting when she teaches. Not only I see it but also her training teacher often reflects it.

Training teacher reflection: *In the introduction of the lesson I like the existing relationship among you and children. I like the question at the beginning about their last work, it means that you show your attention to pupils and you are interested in their positive tuning in. I appreciate it.* (taken from the student teacher and training teacher discussion).

Presumably the acquired tacit knowledge is the one that is connected with her subjective theory, but it must be proved by further analysis.

## **5. Discussion and conclusion**

This research is still in progress. One conclusion is that the training teacher models her thinking (previous experience) [15], but it happens only if her training teacher is considered an expert [2]. The research shows that Milada's acquired tacit knowledge probably has a connection with her subjective theory [13]. This is for a discussion whether there is a connection between acquired tacit knowledge and subjective theory. It also reveals that the student teacher's teaching aims are functionally important for pedagogical thinking about teaching and acting [12]. Milada's tacit knowledge has three categories: the first she acquires and is evident in her teaching, the second she wants to acquire, i.e. she is aware of it but cannot use it in her teaching, and the third she does not intend to use in her teaching. This could be followed by a discussion why she acquires one category and the other not.

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