

Bridge between Theory and Practice

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Abstract: The gap between theory and practice in teacher education can be bridged by using the subjective theory of student teachers. This paper presents three interrelated components of a reflective learning process: Information, Subjective Theory and Practice. Reflection is oriented to each of the components: thinking about the essentials and structures of information, about one's own thoughts, ready knowledge, values, routines and emotions, and about the characteristics of practice.

An instrument is presented comprising these components as well as ten verbs that act as stations on didactical routes that teachers can design for their work with students. In doing so, constructivist learning processes are stimulated and guided.

1. Introduction

As in many other countries, the main problem in teacher education in the Netherlands is the relation between theory and practice. This problem is actually made up of three sub problems. The theory does not always facilitate an adequate performance in the school practicum. Student teachers are not always able to restructure the theory received into meaningful knowledge for their practical activities in the classroom. The everyday practice in schools is not always the right field of action for an elaborated theory, as instructed in teacher education.

The theory-practice problem, therefore, is essentially a 'theory – student' 'teacher – practice' problem. To deal with it I have developed a schedule, consisting of three components:

- the objective theories or, more in general, the information available;
- the subjective theories of student teachers;
- the everyday practice as experienced in schools.

To each component I have linked one or more characteristic activities as shown in the schedule below.

INFORMATION

to take in
to arrange/
prepare for use

SUBJECTIVE THEORY

to open up
to share

PRACTICE

to experience

to work through
(a situation)

to do/to perform
to make/to design

to reflect
to integrate

The assumption is that two inter-linked processes of adaptation between the three components will bridge the gap between theory and practice. The first process includes student teachers restructuring the theories that are instructed to them. As a result of this process student teachers have to formulate for themselves meaningful knowledge they can apply in the classroom. They have to be trained in skills to act in the classroom in accordance with their renewed knowledge base. In doing so, they develop their subjective theories about teaching.

The second process of adaptation is matching their subjective theories to the particular situation in the school in which the practical work takes place. After investigating and analysing the practice they can formulate a set of rules of thumb. These rules will help them to act adequately, i.e. in accordance with the essentials of their subjective theories and the underlying objective theories; in an adapted way for the school as an intervention in their 'zone of proximal development' (1) (Vygotsky 1978; Hausfather 1996).

The two processes of adaptation are guided by reflection. Matching the subjective theory to the practical work in a particular school is implemented by designing a didactical route for the activities to be undertaken. The aforementioned schedule functions as an instrument that monitors the two adaptive processes.

The following paragraphs explain the instrument.

2. Schedule

A number of questions arise when we look at the schedule. What is meant by information in respect to the teaching profession? What does a subjective theory look like? Which practice are we talking about and in what form? What are the verbs to share, to perform, to reflect, etc., for? How are they connected? In the next paragraphs I will elaborate on the three components of Information, Subjective Theory and Practice.

2.1. Information

In the information era knowledge and knowing how to deal with it are some of the key features that determine our influence on everyday life. At any given moment a great diversity of information is available. Who are the developers and who the initiators? How can we select the right information for our own purposes? How should we use the various means of transmission? How can we apply the information selected to our personal aims (and goals)? Is it allowed to play with information and to manipulate it? What about access to the information storage systems? Who manages and monitors the distribution of information? (Weggeman 1997)

Thinking about these questions is not only thinking about the function of teachers in today's society, but even more so in the future. Whatever the answers, the traditional role of a teacher has come to an end. Teachers are important links in the information chains that tie together the innumerable loose ends of modern society. Teachers must be aware of the diversity of information. They have to know about collecting, arranging, storing, retrieving, transmitting and managing information.

To become acquainted with this, they can start with the information that is essential for their activities as a teacher. Teachers have to be able to cope with at least the following types of information:

- theories: fundamental theories (e.g. about stages in the development of children) and practice-oriented theories (e.g. applied linguistics);

- educational and administrative policies;
- subject matter as a derivative of the scientific discipline;
- practical suggestions and instructions, such as manuals for textbooks and source material for subject matter (Borko and Putnam 1995).

Teachers must know where their information comes from. They have to account for their selection of information from the huge supply. They have to account for the information that is worthwhile for the learning of their students. Teachers must be able to structure the information transmitted according to the learning capacities of their students. Garrison and Archer (2000) speak about a learning strategy, called integrating substantive and semantic structures. Gathering, selecting and structuring information are the main activities to prepare and arrange the subject matter to be transmitted. However, this is not enough. The students are not blank. They carry with them their previous experiences, their ready knowledge and their views of the world. They have opinions and beliefs. They have developed certain values and have become acquainted with certain principles and rules for everyday life. They have reflected upon emotional key experiences in their lives. In short, they have their subjective theories about the subject matter under discussion.

What is stated here in general, should be transferred to the relation between teacher educators and their student teachers. The educators must model the right way of handling information. They must find an adequate adjustment of this information to the subjective theories of their student teachers (Korthagen and Lagerwerff 2001).

2.2. Subjective theory

To bridge the gap between theory and practice in teacher education we have to take into account what is already in the minds of the student teachers about the teaching profession. Each student teacher has been a student for a long time and most of them have a thorough experience with teaching in schools. This experience is mainly stored as images. Images of good and bad teachers, of dull and challenging situations in schools. Story-telling and role-playing are ways to explore these images. This results in metaphors and opinions about teaching (Nias 1989; Connelly & Clandinin 1990; Vreugdenhil 1992; Kelchtermans 1993; Joseph & Burnaford 1994; Nias 1996; Clements 2001; Butt 2003).

But there is more. Student teachers have developed their views of the world, their values, beliefs and opinions on several themes, issues and practices. Compared with the subjective theories of students in the elementary school, the theories of student teachers are more elaborated, albeit just as rigid. This means that the theories of student teachers do not automatically fit the more objective theories transmitted by the teacher educator. Teacher educators have to adjust their objective information to the subjective theories of the student teachers, while the latter must be conscious of their innate theories. They have to be prepared to criticise, correct and restructure (Garrison and Archer 2000) these theories. They must be willing to delete some stereotypes and to accept new information, opinions, views and principles. In doing so they first have to reflect on their emotions: What do I like most? Which situations do I fear? Which style of teaching makes me feel comfortable?

A second reflection has to do with the unconscious schemes of actions (Olson 2003): Are there stereotype actions I am not aware of? Have I developed routines that do not match the desired behaviour I have learned in the training sessions? Am I unconsciously acting like a former teacher I admired? What must I do to develop the right repertoire of

activities in the classroom in accordance with my restructured subjective theory?

When actually working as a teacher, they have to deal with their subjective theories in a critical and innovative way. Lifelong learning is a must, especially for teachers. They have to renew and enhance their subjective theories frequently and consistently. This must be done in order to teach in a modern and adjusted way in accordance with changes in their environment and in society.

Experienced teachers have a wealth of practical knowledge about teaching. During the last decade, these subjective theories about teaching have been explored by such researchers as Donald Schön in Canada, Jennifer Nias in England, Geert Kelchtermans in Belgium and myself in the Netherlands.

When activities in the classroom proceed as usual, an experienced subjective theory about teaching is a significant, although mainly unconscious, help for teachers. But when 'times are a-changin'', like Bob Dylan sang, teachers perceive that their subjective theories are no longer suitable for managing their behaviour in the classroom. They have to change and renew them. Student teachers have to learn to do so during their years in teacher education colleges, to become acquainted with this professional way of working and renewing oneself.

When they have mastered this, a frequently updated subjective theory on teaching is a conscious means of transforming information into meaningful knowledge, strong beliefs, clear principles and useful rules of thumb. With this knowledge base, student teachers will be able to practice what they have learned, that is if they understand the practice.

2.3. Practice

Teacher education is vocational education. The perspective must always be the professional practice in which teachers operate. Teaching is not merely a profession. It is an art and a craft, albeit a highly sophisticated type of craft (OECD 1990). A student teacher does not face the practice as a whole. He faces a certain practice on a particular location with distinguishing characteristics that are more or less unique. Being an artist and a craftsman he must adapt the designed programme to the situation he finds himself in (Goodlad 1990). For this reason, he has to inquire into this particular practice on the spot via the school practicum, or by analysing written cases, audio-visual cases and oral reports.

After the investigation the student teacher has to connect the selected information or the subject matter through the rearranged filter of his subjective theory with the characteristics of the real situation in which he will be teaching. In doing so, the gap between theory and practice can be bridged quite acceptably .

The schedule below outlines the main aspects of the three components.

INFORMATION	SUBJECTIVE THEORY	PRACTICE
Types of information include: - theories (fundamental and practice-oriented) - educational policies	Aspects of images about teaching - values and principles/ standards - personally arranged knowledge	Forms in which practice is represented: - real situations (e.g. in the school practice) - examples - written cases

<ul style="list-style-type: none"> - subject matter - practical instructions and suggestions 	<ul style="list-style-type: none"> - opinions, beliefs - strong, personal interests/ preferences - reflected emotions - routine schemes of activities in the practice 	<ul style="list-style-type: none"> - audio-visual cases - oral reports about experiences
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2.4. Metaphorical outline

The three components of the schedule above form the main aspects of teaching. The subjective theory functions as a command centre. It sorts out the input of information. It interprets the information in the perspective of the mission of the flight. It sweeps its radar beams all over the field of practice to plot the right place for landing. Every time the situation or the information changes, the command centre has to assimilate the new data and facts. New choices and decisions have to be made and new actions planned. The subjective theory as a command centre requires a reliable and powerful generator to be able to operate. This generator is called reflection. It keeps the command centre, i.e. the mind of the teacher, going steadily. Reflection functions as reflection for action, in action and on action (Schön 1991; Killion/Todnem 1991; Taggart/Wilson 1998; Korthagen/Koster/Melief/Tigchelaar 2002).

3. Reflection

When we look in a mirror we see ourselves in stereoscopic vision. The image proves to be three-dimensional. A foreground and a background are the setting in which we operate. These three dimensions are reflected in the mirror.

This common experience can be used figuratively to explain the function of reflection in the described schedule. The Information component is reflected in the foreground. Reflection of the Practice component takes place in the background, while the middle reflection is oriented to the Subjective Theory in teachers' minds.

Reflection has to do with a critical analysis of available information:

- Is this information reliable and valid?
- In what circumstances can it be useful?
- Are there any alternatives for this information?
- What is the essence of this information?
- How is this information conceptualised?

When reflecting on the background or practice in the schedule a student teacher thinks of his previous experiences in this practice:

- What are my strengths and weaknesses?
- What about my goals and satisfaction?
- He tries to build up images of professional teachers:
- How do they perform?
- How do they balance their instructional and counselling interventions?
- What can be said about the characteristics of pupils or students in their schools?
- What is the cultural environment of their schools like?
- Which implications could be deduced from this cultural environment, taken into account the instruction to be given and the educational atmosphere to be

created?

- What does his pedagogical tact look like and how does he convey this tact in his relation with students? (Van Manen 1993)

Questions like the ones above induce the teacher to become aware of the context in which he is working and of his own characteristics when coping with pupils or students. In the centre of the schedule we distinguished the component 'Subjective Theory'. Reflection on this theory firstly means that teachers try to think about the different aspects of this theory: the values, opinions, emotions, routines and preferences. These are reflected in relation to information and the actual situation in which it has to be applied.

Secondly, reflection aims at structuring and restructuring the mental material of which the Subjective Theory consists. This process of assimilating and structuring new information is essential for the teaching profession. The professional teacher is able to cope with permanent changes in the educational system as a whole (Garrison and Archer 2000).

Reflection can be carried out by various means and techniques, depending on the component which needs reflection. Reflection happens before, during and after the educational activity in the school or the college (Schön 1991). In doing so, teachers have to swing like a pendulum between the three components in the schedule: the Information, the Subjective Theory in their mind and the Practice in which they are working (Vreugdenhil 2000, Munnik/Vreugdenhil 2001).

Student teachers have to learn a designing technique to launch a meta-cognitively swinging pendulum in the heads of their students.

4. Static and dynamic

4.1. Inventory function

The schedule mentioned before is shown in its static form. In the hands of the teacher educator and his own planning, it can be used as a means to draw up an inventory of the various contents each component contains. The component Information is detailed in order to survey written material and to categorise it in several themes.

The component Subjective Theory can firstly be used to help teacher educators to realise and clarify the contents of his subjective theory for his own everyday work. Secondly, he should stimulate awareness in his student teachers of their subjective theories, encourage them to open them up to others and communicate their content. The component Practice enables the surveying and categorising of the materials which are used to prepare student teachers for school practicum training, workshops and lessons.

Bridging the gap between theory and practice means connecting the detailed components in such a way that a coherent study programme can be offered. Such a program consists of several stages or steps that have to be taken within one lesson or during several lessons and periods of self-study.

4.2. Designing function

Designing routes for a coherent programme means activating the dynamic function of the schedule. To do so, the schedule needs to be expanded to the lay-out shown in paragraph 1. This schedule consists of five gateways to a didactical route a teacher educator might design for his steps during a series of activities in his workshops:

1. He can start offering information, in order to allow his student teachers to take in this information. While doing so, he acts like a model to help the student teachers arrange the information given and prepare it for use in practical situations (to take in, to arrange, to prepare for use).
2. He can try to open up the subjective theories of the student teachers by stimulating them to reflect on the contents of their subjective theory. In doing so, he might challenge them to open up and share with others what they have been reflecting on (to open up and share).
3. He can invite the student teachers to carry out some concrete activities, such as role-playing, making music or dancing (to do).
4. He can ask them to develop useful means to improve a particular practice in a school that was a case of study and investigation (to make/to design).
5. He can organise an excursion to an inner city school and have the student teachers involved in what is going on in the classrooms or outside the school building. Alternatively, he can arrange a simulation in which his student teachers can learn to act in the right way (to work through a situation).

Each gateway is the start of a didactical route that differs markedly from the other routes. If the route, for instance, starts with an excursion (5), the next station can be the opening up of the subjective theories of the student teachers. The teacher educator asks them to work together in small groups to carry out the following task: compare the school setting you investigated during the excursion and the school you yourself attended several years ago. What are the similarities and what the differences? Try to find causes and reasons for your findings. The outcome will be shared by the whole group. As a next station in his didactical route, the teacher educator may think it wise to offer some theoretical information about inner city schools and their social, cultural and ethnic setting. Alternatively, he decides to go back into Practice and asks the student teachers to analyse the videotaped excursion (to work through a situation). And so on. While preparing and planning his workshops, the teacher educator can design a simple, one-way route along the stations he wants to visit with his student teachers. He can also design a more complex and open route, consisting of alternatives, whenever the situation in the workshop requires this. When he evaluates his route with the student teachers afterwards, he can discuss his initial assumptions with them and the reason for choosing an alternative route during a workshop. In this way he models an adequate preparation and planning of lessons by the student teachers.

Whatever the alternatives, each route has to swing between the three components. Each route has to activate reflection and integration. Integration refers to activities which help the student teachers construct their own knowledge and to connect it with other results of the total learning process.

Last, but not least, each route has to correspond with the characteristics of both teacher and students and with the previously stated goals.

5. Discussion

The elaborated version of the schedule as shown in paragraph 1 is called Scheme 'Learning and designing' and is used in about 50% of the forty Colleges for Primary

Teacher Education in the Netherlands. It is used by teacher educators to design programmes. Student teachers prepare their lessons in the primary schools with this scheme. The author of this paper has taught this to many primary schools teachers and teacher educators in the Netherlands, Belgium, Germany, the Czech Republic, Hungary, Rumania, Uganda and Canada.

I experienced an interesting difference between the adaptation of the schedule by teacher educators and primary school teachers. The latter ones do not bother too much with the key concepts in the schedule (Information, Subjective Theory and Practice): their theoretical embeddedness and their real meaning for designing programmes. A practice-oriented presentation with examples will do for their understanding and for using this instrument for designing purposes. They like to design interesting routes for their pupils, to discuss alternative routes and to design learning environments that are necessary for implementing a didactical route. They learn about the differences between the three components and between the ten stations by doing and reflecting upon it. Teacher educators always need a thorough explanation of the theoretical background of the scheme, and definitions of the components and the stations in as clear, exclusive and concise a way as possible. This is not quite possible. The components are not exclusively distinguished from one another. The difference between them is formulated as an agreement. This is not always easily accepted by these teacher educators. Furthermore, they like to reflect on the kind of learning processes that will occur on the basis of the didactical routes and usually question the relationship with constructivistic learning.

It may be concluded that teacher educators and primary school teachers react to the schedule with different subjective theories about this instrument and the use of it. As Vermunt (1996; 1998) said: the teacher educators demonstrate a learning style called 'meaning-oriented learning'; the primary school teachers show an 'application-oriented learning' style.

Note

1. The zone of proximal development: "The distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers." (Vygotsky, 1978, p. 86) This definition is formulated on the level of the student. We transferred the concept 'zone of proximal development' to the level of organisational development. In this case the student teacher in the school practice tries to act in the zone of proximal innovative development of the school.

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