



Universiteit
Leiden
The Netherlands

The learning portfolio as a tool for stimulating reflection by student teachers

Mansvelder-Longayroux, D.D.

Citation

Mansvelder-Longayroux, D. D. (2006, December 6). *The learning portfolio as a tool for stimulating reflection by student teachers. ICLON PhD Dissertation Series*. Retrieved from <https://hdl.handle.net/1887/5430>

Version: Corrected Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/5430>

Note: To cite this publication please use the final published version (if applicable).

4

Reflection in the learning portfolio geared to the understanding of experiences¹

Abstract

Results from recent research into the portfolio as a tool for reflection indicate that student teachers do not automatically make sense of their experiences by reflecting on their learning process as a result of working on a portfolio. We explored in which portfolio themes the reflection of student teachers is geared to the understanding of experiences and how this reflection manifests itself. We operationalised reflection geared to the understanding of experiences in terms of the meaning-oriented learning activities 'analysis', 'critical processing', 'diagnosis', and 'reflection'. We distinguished these meaning-oriented learning activities from the action-oriented learning activities 'recollection' and 'evaluation', which are geared to (the improvement of) action in teaching. Based on the content analysis of 39 portfolios, we distinguished four theme clusters in which we found meaning-oriented learning activities, about problems experienced, the educational reform, teaching and testing, and development and functioning. The meaning-oriented learning activities generally played a small part next to the action-oriented learning activities 'recollection' and 'evaluation' in the portfolio themes. Personal involvement with the portfolio themes seemed to be an important condition for undertaking meaning-oriented learning activities in a portfolio theme.

¹ This chapter is submitted as: Mansvelder-Longayroux, D.D., Beijaard, D., & Verloop, N. Do producing a learning portfolio and reflecting go hand in hand? Manuscript submitted for publication.

4.1 Introduction

The learning portfolio is a current instrument in teacher education. Producing a learning portfolio requires student teachers to make a selection of experiences and materials from practice gathered over a set period from different sources and contexts, and to relate these experiences and materials to each other. The instrument, therefore, makes it possible for student teachers to visualise the complexity of their learning processes in concrete terms (product function), and to think about their learning in a focused and structured way (process function) (Barton & Collins, 1993; Wolf & Dietz, 1998). The process function of the learning portfolio is generally seen as the main purpose of the learning portfolio in which reflection plays a central role (Darling, 2001; Loughran & Corrigan, 1995, Richert, 1990).

Up to now it was assumed that in working on their portfolios student teachers are stimulated automatically to reflect on their own learning processes and to reach a better understanding of teaching. Results from recent research into the portfolio as a tool for reflection seem to indicate that producing a portfolio does not cause student teachers naturally to make sense of their experiences. Factors linked in the literature to reflection in the portfolio are ownership, experience in producing a portfolio, instruction and supervision, perception of purpose, and the learning orientation of student teachers (Borko, Michalec, Timmons, & Siddle, 1997; Krause, 1996; Lyons, 1998^b; Meyer & Tusin, 1999; Wade & Yarbrough, 1996). In the portfolio literature it is mentioned more and more often that the quality and value of the portfolio should be brought up for debate (Breault, 2004; Delandshere & Arens, 2003; Zeichner & Wray, 2001).

To enter this debate, research should be done not only into factors that can influence reflection in the portfolio, but also on the nature of reflection in the portfolio (Delandshere & Arens, 2003; Zeichner & Wray, 2001). In a previous study (Mansveldt-Longayroux, Beijaard, & Verloop, *in press*), we investigated how student teachers reflect when producing their portfolios. Reflection was conceived of as mental learning activities that student teachers undertake when they work on their portfolios. From the content analysis of the portfolios it appeared that the student teachers demonstrated in their portfolio themes mostly action-oriented learning activities geared to (the improvement of) teaching in practice. Examples are a description of how you approached a situation, examining what you have learned, or drawing conclusions about your own development. Meaning-oriented learning activities, geared to the understanding of underlying processes

that can play a role in action in teaching practice, did not often appear in the portfolio themes. Examples of meaning-oriented learning activities are examining what factors played a role in a situation, examining why a particular approach did not work, or examining what you found difficult and the consequences of this.

These meaning-oriented learning activities are important for the building up, structuring, and restructuring of student teachers' own practical knowledge (Oosterheert & Vermunt, 2001; Vermunt & Verloop, 1999). They lead, like action-oriented learning activities, not only to *consciousness-raising* of what the student knows and is capable of, but also to *understanding* of experiences in teaching and learning. We elaborate on meaning-oriented learning activities below. The purpose of this study was to find out when and how student teachers undertake meaning-oriented learning activities when working on their portfolios. Using an analysis of the content of student teachers' portfolios, we investigated which portfolio themes showed meaning-oriented learning activities and in what way the meaning-oriented learning activities manifested themselves within these portfolio themes. An understanding of the nature of meaning-oriented learning activities in the production of portfolios could provide more insight into the concept of reflection in relation to working on a portfolio. This would be a valuable contribution to the discussion about the value of the portfolio for student teachers' learning processes, and could assist portfolio supervisors in finding ways to stimulate student teachers to undertake meaning-oriented learning activities in working on their portfolios, and to take a more differentiated approach to thinking about what they intend to achieve with the portfolio.

4.2 Theoretical background

Understanding teaching and learning

In learning from experiences, giving meaning to experiences is central. Student teachers must understand their experiences if they are to build up practical knowledge (Korthagen, 2001). Reflection is the means by which student teachers can reach an understanding of their experiences. Vermunt and Vermetten (2004) describe this as follows: *"Learning is not a passive, knowledge-consuming and externally directed process, but an active, constructive and self-directed process in which learners build up internal knowledge representations that are personal interpretations of their learning experiences. These representations change constantly on the basis of the*

meaning people attach to their experiences” (p. 258).

Reflection in the portfolio concerns the process of interpreting experiences during the production of the portfolio and is geared to the understanding of underlying processes that can play a role in the actions of the student teachers in practice. Reflection in the portfolio can be operationalised in terms of the mental learning activities that student teachers undertake when producing their portfolios (Mansvelder-Longayroux, Beijaard, & Verloop, in press). The learning activities student teachers engage in largely determine the quality of the learning outcomes they attain (see Vermunt & Verloop, 1999). In research on students’ learning, learning with the aim of understanding is also indicated as deep-level learning or deep processing (Lonka, Olkinuora, & Mäkinen, 2004). Deep processing requires certain thinking activities, such as searching for connections between new information and one’s own beliefs, seeking points of agreement and differences between experiences (relating); integrating newly acquired knowledge with existing knowledge, bringing different experiences together into an organised whole (structuring); forming judgements about whether the views of others are correct, interpreting a situation for oneself and comparing this with the interpretations of others (critical processing) (Vermunt & Verloop, 1999).

In our previous study (Mansvelder-Longayroux, Beijaard, & Verloop, in press), we found six learning activities in the portfolios: ‘recollection’, ‘evaluation’, ‘analysis’, ‘critical processing’, ‘diagnosis’, and ‘reflection’ (see Table 4.1). ‘Recollection’ and ‘evaluation’ are action-oriented learning activities geared to (the improvement of) action in teaching practice. Undertaking these learning activities leads to *consciousness-raising* of what one has done, of what one knows and is able to do. ‘Analysis’, ‘critical processing’, ‘diagnosis’, and ‘reflection’ are meaning-oriented learning activities geared to the *understanding* of underlying processes that can play a role in action in teaching practice. These learning activities can be considered forms of deep processing. They are geared to making sense of experiences and are important for the building up and structuring of practical knowledge.

4.2.1 Research question

The aim of the present study was to gain more insight into the meaning-oriented learning activities that student teachers undertook as they produced their portfolios. The following questions were addressed: (a) What themes do student teachers incorporate in their portfolios? (b) Which portfolio themes show meaning-oriented learning activities? and (c) How do the meaning-

oriented learning activities manifest themselves within a theme (e.g., in relation to the other learning activities that appear from the theme)?

Table 4.1. Definition of learning activities involved in producing portfolios and subcategories of each learning activity

(adapted from Mansvelder-Longayroux, Beijaard, & Verloop, in press)

Action-oriented learning activities

Recollection

Recollecting / recalling from memory situations, events, and activities that happened in the past. Recollection is not only retrospective, it also has a forward-looking side, in the sense of describing future activities and expectations. The subcategories of recollection were

- notes for the reader
- adoption of the views of others or of theory
- description of the situation
- description of what you did or plan to do (and why)
- description of how you approached a situation or plan to approach a situation in the future (and why)
- expectations, expressing hopes for how it will go in the future

Evaluation

Evaluation of your experiences and your own development as a teacher. The subcategories of evaluation were

- giving an opinion
- examining what you have learned
- drawing conclusions about your own development
- evaluating your knowledge or functioning
- investigating whether you have achieved your learning objective
- examining what you found difficult
- formulating a plan or learning objective
- investigating whether a particular approach worked

Meaning-oriented learning activities

Analysis

Examining what different aspects of an experience, event, or development can be distinguished, and what underlying processes played a role in an experience, event, or development. The subcategories of analysis were

- examining what factors played a role or are playing a role in a situation
 - examining similarities and differences between situations, experiences, and beliefs
-

Table 4.1 (continued)

Critical processing

Comparing your own opinion with the opinions or beliefs of others (theory, mentor, fellow student, university supervisor, etc.); formulating your own opinions on the basis of different arguments (evaluation); and looking at which arguments are more credible than others and why (analysis). Critical processing always includes an evaluation and an analysis.

- critical processing

Diagnosis

Determining the weaknesses in your own thinking and actions (evaluation) and investigating possible causes of positive and negative experiences during one's development as a teacher (analysis). Diagnosis always includes an evaluation and an analysis. The subcategories of diagnosis were

- examining what you found difficult and why
- examining what you found difficult and what factors played a role in this; why a problem occurred
- examining what you found difficult and what consequences this had
- examining why you did not achieve a particular learning objective
- examining how you functioned and what factors played a role in this
- examining how you functioned and what consequences this had

Reflection¹

Thinking about everything that took place during a particular learning event or over a period of learning; evaluating your own development (evaluation); and examining what factors are connected with this (analysis). Reflection, like diagnosis, consists of a combination of evaluation and analysis. However, diagnosis focuses on what the student teacher can do, reflection focuses on the learning event or period of learning. The subcategories of reflection were

- examining whether a particular approach worked or not, and why
 - examining what you have learned and what factors played a role in the points you have learned
 - examining the progress you have made in your development
 - examining what areas you have made progress in and what factors played a role in your development: what you have learned and how
 - examining what areas you made progress in and what the consequences were
-

¹ Owing to the specific operationalisation of reflection in terms of learning activities in this research, the 'broad' concept of reflection includes a number of learning activities, including reflection in the narrower sense as used in educational psychology. The latter is meant here.

4.3 Method

4.3.1 Context

The student teachers who participated in this study attended a one-year postgraduate teacher-training course at Leiden University in the Netherlands in the 1998/1999 academic year. During their training year, the student teachers attended weekly classes at the university, whilst also doing teaching practice in a school. They were being trained to teach at the senior general and pre-university levels of secondary education (pupils aged 12-18) in a specific language (Dutch, German, English, or the classics) or science subject (biology, maths, or chemistry). They produced two learning portfolios during the year, one each semester, on experiences that were important to them in the practical training at the school and during the theoretical module at the teacher education institute.

4.3.2 The learning portfolio

The portfolio was used during the course as an instrument to encourage student teachers to reflect on themselves as beginning teachers, on how they were progressing in their professional development, and on their own part in that development. The student teachers had to include the following elements in their portfolio: (a) a vision on learning and teaching; (b) five to eight themes that they had chosen themselves that were important in their development; (c) a conclusion about their learning process during the semester; (d) their experiences in compiling the portfolio; and (e) appendices containing illustrative material to accompany the themes. In their vision on learning and teaching, the student teachers described the kind of teacher they were (or were becoming); what they considered to be important in their teaching and why; and how they expressed this in their own teaching practice. The themes that the students chose themselves made up the core of the portfolio. A theme was defined as a topic that is or has been important in the student teacher's development. It was a cover-all term that linked the different learning experiences. Examples of themes were interaction with pupils; use of a specific teaching method; myself as a teacher; conversation skills in the senior years at secondary school; and motivating pupils. The intention was that the student teachers would examine their learning experiences in more depth by working on the themes. They had to examine what experiences were important to them and why, and what the essential aspects of those

experiences were. They also had to make connections between different experiences over a period of time and in different contexts, and to think about what they had learned, how they were developing, and what had contributed to that. Based on the various themes, the student teachers wrote a conclusion on their learning process over the past semester, discussed their strengths and weaknesses, and formulated new learning objectives for the future. They concluded the portfolio with a section on their experiences in producing the portfolio itself (portfolio-evaluation report). They used the appendix to the portfolio to present materials to illustrate and clarify the development described in the portfolio themes, such as quotations from logbooks; lesson materials they had produced themselves; pupils' work; fragments of video recordings of lessons; feedback from their mentor or pupils; and university assignments.

As most of the student teachers had never produced a portfolio before, they were given help with their first portfolio in the form of a portfolio manual and five exercises in the production of a portfolio. The purpose of the portfolio exercises was to give the student teachers practice working with concepts that played an important role in the portfolio, such as 'theme', 'reflection', 'development', and 'illustration material'. They produced their second portfolio more independently. The second portfolio was a continuation of the first. The student teachers had to include varied themes in this second portfolio, so they were encouraged to reflect on different aspects that could play a role in learning and teaching. Some of the themes for the second portfolio were allowed to follow on from themes in the first portfolio. Throughout their training year, meetings with their university supervisors and school mentors, intervision meetings with fellow students, keeping logbooks, and gathering material from their teaching practice were tools used to help the student teachers to clarify problems and practical issues in their portfolios; to take a structured approach to gaining new insights and making new plans for action; to understand experiences that were important to them; and to examine how they functioned as teachers and their own personal style of teaching. At the end of each semester, the portfolio was used as the basis for a meeting with their university supervisor and their school mentor, in which they discussed their individual development over the past semester and drew up learning objectives for the future.

4.3.3 Participants

All 25 full-time student teachers of languages and the exact sciences were

willing to take part in the research: 18 (72%) student language teachers and 7 (28%) student science teachers. The sample contained 5 men (20%) and 20 women (80%). The average age of the participants was 27. Sixteen (64%) of the student teachers had a job and 9 (36%) were on teaching-practice placements. The student teachers were supervised by eight supervisors from among the university staff as they produced their portfolios. They were all given the portfolio manual and the five portfolio exercises to work through with their supervisors, but after that it was more or less left up to the individuals concerned how to supervise the portfolio work and how often to meet to discuss it. Four of the 25 student teachers had not completed the course when the research project came to an end, and so they were not included in the research findings.

A total of 39 portfolios (21 first and 18 second portfolios) were gathered and analysed for the research. Although it was intended that each student teacher should produce two portfolios, 3 students produced only 1 portfolio during the course year. The 39 portfolios contained in total 310 themes, an average of 15 portfolio themes per student teacher for the first and second portfolios together.

4.3.4 Data analysis

The portfolio data were analysed in two stages. Firstly, categories describing the content of the portfolio themes were developed systematically in response to the data. The student teachers' themes in both the first and second portfolios were compared for similarities and differences across individuals. This comparison led to the formulation of six categories (theme clusters) containing aspects of their learning processes as beginning teachers that they worked on in the themes of their portfolios. The categories were discussed with another researcher (*peer debriefing*; Denzin & Lincoln, 1994), resulting in a more accurate description of the categories. All data were coded using the category system. The procedure for coding the portfolios was as follows. Each portfolio theme formed a coding unit and became one code. The coded portfolio themes were discussed with another researcher. The assigned codes were examined. In some cases, the researchers differed in the categories they ascribed to a particular portfolio theme. After the differences were discussed, agreement was reached on all portfolio themes.

Secondly, the categories for the content of the portfolios (theme clusters) were related to the learning activities that occurred in the portfolio themes. Together with another researcher, we examined how the meaning-oriented

learning activities manifested themselves within the portfolio themes in relation to the other learning activities that occurred within these themes. This stage resulted in a description of the meaning-oriented learning activities and their place within the portfolio themes.

4.4 Results

4.4.1 Portfolio theme clusters

On the basis of the analysis of the portfolios, we identified six theme clusters, about

1. problems experienced
2. the educational reform (*Studiehuis*, a new approach to learning at upper secondary level that emphasises independent study)
3. teaching and testing
4. activities other than teaching
5. oneself as a teacher
6. development and functioning

The first cluster contained themes about problems that the student teachers experienced during and in relation to teaching a class. The problems that student teachers work on in their portfolios are mostly in the areas of interaction with pupils and testing, but didactics and pupils' learning can also be brought up. Examples are problems with discipline, uncertainty about one's own position in the class, and having difficulties with setting limits and being consistent, with thinking up questions for a test and assessing presentations and reports, with motivating pupils for the subject matter, with explaining the subject matter, and with working with the method of the school.

The second theme cluster that student teachers work on in their portfolios contains themes related to the educational reform that will be introduced in upper secondary level and emphasises independent study (*Studiehuis*). Themes in this cluster are about experiments with this new approach to teaching and learning. Didactics, pupils' learning, and oneself as a teacher are the main aspects of the teaching profession that are given attention in these portfolio themes. Examples are pupils' learning in the *Studiehuis*, stimulating independent study, the consequences of the educational reform for didactics, working with study planners, using different teaching methods that stimulate independent study, the teacher as a coach of learning processes,

and the connection of the ideas of the *Studiehuis* with the student's own vision on learning and teaching.

The third theme cluster contains themes about the development of and approach to lessons and tests on which the student teachers worked intensively and which they find interesting or important. The themes in this cluster concern didactics and testing. Examples are the development of assignments for writing and for speaking, the development of amusing extra assignments, giving a series of lessons about debating and about poetry, constructing and correcting tests, evaluating presentations or papers, and giving feedback on pupils' work.

The fourth cluster of themes on which student teachers work are themes about activities that they have undertaken apart from class teaching. These activities are in the area of school organisation and school context and of interaction with colleagues and parents. Examples are participation in staff meetings to discuss reports, meetings of the subject department, parents' evenings, attending study days for teachers, participation in extracurricular activities like trips, and collecting information about the policy of the school concerning bullying or dyslectic pupils.

The fifth cluster of themes contains themes in which the student teachers discuss their personal interpretations of teaching. Examples are vision on learning and good teaching, the tasks and required competences of a teacher, motivation for the teaching profession, and the influence of the home situation on performance in teaching practice.

The sixth theme cluster contains themes in which the development and functioning of the student teachers as teachers is central. These are themes in which the student teachers look back on their development as a whole and discuss their capacities as teachers, their strong points, and the aspects that need to be developed further. These are mostly the final conclusions in the portfolios, which connect the different themes.

4.4.2 Themes and meaning-oriented learning activities

We found meaning-oriented learning activities in 122 of the 310 portfolio themes. There were great differences between the student teachers in the number of themes with meaning-oriented learning activities ($\bar{x}=6$, $sd=3$). All but one of the student teachers had one or more themes in the portfolio in which meaning-oriented learning activities occurred.

We found themes with meaning-oriented learning activities in four of the six theme clusters distinguished; they were not found in themes about

activities other than class teaching and themes about oneself as a teacher. Most of the themes with meaning-oriented learning activities were found in the first theme cluster, which consisted of themes about problems that the student teachers experienced in their teaching (56) (see Table 4.2). In the theme clusters about teaching and testing and about development and functioning, 31 and 24 themes, respectively, with meaning-oriented learning activities were found. We found 11 portfolio themes with meaning-oriented learning activities about the educational reform.

Table 4.2. Frequency of theme clusters and themes with meaning-oriented learning activities

theme clusters	total number of themes	themes with meaning-oriented learning activities
problems experienced	78	56 (71,8%)
the educational reform	28	11 (39,3%)
teaching and testing	92	31 (33,7%)
activities other than teaching	28	-
oneself as a teacher	29	-
development and functioning	55	24 (43,6%)
	310	122 (39,4%)

4.4.3 Illustration of themes with meaning-oriented learning activities

Below we discuss how meaning-oriented learning activities manifest themselves within portfolio themes. We examined the place of meaning-oriented learning activities within a theme in relation to the other learning activities that come up in the theme. We give an example of a portfolio theme for each theme cluster. The learning activities arising from these example themes are indicated between brackets.

Problems experienced

A theme about problems experienced was usually composed as follows (basic form). The theme started with a description of the problem and the activities and measures that student teachers undertook to solve the problem (recollection), followed by an evaluation of the measures: what worked and what did not (evaluation). Alternatively, the theme may start with a description of what the student teachers found difficult (evaluation) and what

they did about it (recollection). Next, the student teachers examined how they functioned in comparison with their functioning in an earlier period, what they had learned, and what areas they still had to work on (evaluation). This basic form can be extended with meaning-oriented learning activities. A number of meaning-oriented learning activities were found in the portfolio analysis. We found meaning-oriented learning activities in

- the description of the problem, when the student teachers went deeper into the problem situation and examined what factors played a role in the situation (analysis of problem situation).
- the evaluation of the measures, when the student teachers examined what worked and what did not, and considered why (reflection on approach).
- the description of their problems, when the student teachers examined what they found difficult, and considered what factors played a role and what the consequences were (diagnosis of functioning).
- the evaluation of their development, when they examined in what areas they had developed, and considered what factors played a role in their development and in the points they had learned (reflection on development).

Issues with discipline in 3b

Karen started her theme with a description of the difficulties she had with this class:

In the course of the past months I have had a lot of difficulties keeping order in this class. From the first lesson it was clear to me that it would not be easy to keep this class under control. When I called out the list of names, I noticed that a group of ten boys did not mention their own names but their neighbours'. That caused a lot of laughter in the class (recollection: description of situation). [...] In the following lessons the class became more and more busy and annoying and I had more and more difficulties keeping order. When I wanted to explain something to the whole class, it sometimes took ten minutes before the whole class was quiet. Pupils sometimes took different seats, did not bring their books, and did not do their homework (recollection: description of situation). Because I am responsible for my lessons, I believe that I am responsible for solving these problems. However, I know that being strict and showing high-status behaviour are not my strong points (evaluation: examine how you functioned).

Karen indicates that she tried in several ways to change the behaviour of the pupils and to create a calmer atmosphere:

In the first instance, I did that entirely by myself without informing others of the problems I had with this class. I gave lines several times and I also sent some pupils out of the classroom (recollection: description of approach). This did not produce the result I wished; these measures made little impression on the other pupils and in the next lesson those who had been punished did not change their behaviour (evaluation: examining if the approach works). I also marked the assignments the pupils had to work on in class several times (recollection: description of approach). The effect of this measure was that they started to work, but that almost all of them received a very good extra grade. This was also not regarded as a punishment (evaluation: examine if the approach works).

At a certain point she had had enough of it and she decided to inform the class mentor and the deputy headmaster:

As a result of that conversation I decided to discuss their behaviour with the class the next day and to make some agreements together. The pupils were also allowed to criticise my lessons and to indicate what they found had to be changed (recollection: description of approach). The conversation with the class went reasonably well: the class listened carefully and agreed with me. But the pupils did not dare to be frank with me in saying what they wanted to be changed or why they behaved as they did. Anyhow, the following lessons went a lot better (evaluation: examine whether an approach works).

In the continuation of the theme, Karen describes the hurdles that she still faced, how she handled various problems, and how that went. She concludes the theme with a conclusion about her own functioning during that period:

As can be seen from the above, class 3b is a class that causes much trouble to many teachers, also to more experienced teachers than me. Nevertheless, I think that I could have prevented some of the problems by handling things differently. The past few months it became clear to me that pupils need structure and clarity. That concerns the content of the lessons, but mostly the rules that must be observed. Looking

back on the beginning of this year I realise that in the first lessons I was mostly concerned that pupils would accept me as a teacher and enjoy my lessons. Posing rules moved to the background and only in later lessons did it come up, when the situation demanded it. I also noticed that I find it difficult to pose limits and be consistent with certain things (diagnosis: examine how you functioned and what factors played a role in this). [...] Something I am content with is that in most of the lessons the atmosphere was good. I must be more consistent and clear in posing rules, but besides that I think that the ambience is an important element in my lessons (evaluation: examine how you functioned).

The educational reform

The themes about the educational reform tend to relate to the new approach to the lessons. The structure of the themes was as follows. The themes started with a description of the lessons in the *Studiehuis*: how they looked, and what assignments and teaching methods were used (recollection). The student teachers then evaluated the *Studiehuis* approach: how the pupils worked, what worked and what did not (evaluation); or they evaluated their own functioning: what they found difficult in those lessons (evaluation). On the basis of their experiences, the student teachers gave their opinions about the *Studiehuis*: what the benefits and disadvantages for pupils' learning are, the consequences for the role of the teacher, and how the *Studiehuis* ideas went together with their own visions on learning and teaching (evaluation). We found meaning-oriented learning activities in

- the description of the approach, when the student teachers examined the differences between the *Studiehuis* approach and the old one (analysis of differences).
- the evaluation of the new approach, when the student teachers examined what worked and what did not, and why (reflection on approach).
- the discussion of their own functioning, when the student teachers examined what they found difficult, and why (diagnosis of functioning).
- their opinion about the *Studiehuis*, when the student teachers indicated their views on the value of the *Studiehuis*, and considered the arguments for their opinions and compared their opinions with the opinions of others (critical processing).

Independent work in H3

Sam started her theme about the educational reform with a description of what she had done and why (recollection):

Next year the Tweede Fase (= other indication for Studiehuis) will be introduced. That means that pupils from Havo 3 (Year 10, US: ninth grade senior general secondary class) will start working independently with study planners next year. To prepare the pupils for that and to see myself how that works, I gave class H3b simple study planners and looked at how they worked with that. [...] The pupils had to make a plan themselves for doing assignments. It was the intention that at the end of the series of lessons, consisting of about eight lessons, the pupils would have finished all the assignments. During the lessons they could correct their assignments. The pupils knew how many lessons they had to work on the assignments. When there was not enough time left in the lessons, they had to work on their assignments at home (recollection: description of situation).

Next, Sam discussed working with the study planners:

During the lessons that the pupils were allowed to work on the assignments, I noticed that different pupils worked at a different pace. When I told a pupil that I found that he or she was not keeping up, he or she answered that he or she was right on schedule. It was, therefore, difficult to call the pupils to account. Other pupils worked very hard and were faster than the others. They became bored (evaluation: examine what you found difficult). I found it hard to give order to the lessons as a teacher. Because the pupils had planned on the basis of the lessons available, I could not vary the schedule. I could not put a video on. Because I did not explain the subject matter in front of the whole class, I had the feeling that I did not have much of a grip on the learning processes of the pupils and I also did not have much of an idea of whether they understood the subject matter and could develop a view. The pupils had few questions when they worked on their assignments. When I asked the pupils what they were working on and if they could explain to me what the answer was, they mostly gave the right answer. But I did not see how to fit the subject matter in with pupils' everyday lives by stories. It was just the book. That gave me a sense of dissatisfaction (diagnosis: examine

what you found difficult and what factors played a role in this).

She concluded her theme with learning points for the future:

I learned from this that it is useful for the class and for me as a teacher to structure the programme and not to let the pupils work fully by themselves (evaluation: examine what you have learned). Looking back I would say that during the series of lessons I could have explained the subject matter in front of the whole class, but I did not realise that at that time (evaluation: examine how you functioned). I have also learned that when working with a study planner like this, it is important that you take your time to explain the study planner well. Otherwise you do not achieve your aims and it can cause a lot of confusion among the pupils (evaluation: examine what you have learned). I think it is very important to prepare the pupils slowly for working independently and planning their own work. At this moment there are just a few subjects for which the pupils must learn to work independently or work with a study planner. Next year they must work like that for every subject (evaluation: give an opinion).

Teaching and testing

The third cluster of themes in which there were meaning-oriented learning activities was the cluster of themes about teaching and testing. These themes were generally ordered as follows. The student teachers described their lessons or tests: what they looked like, and what approach they followed and why (recollection). Next, they evaluated their lessons or tests: how the pupils worked, what went well, and what went wrong (evaluation). They evaluated their functioning: what they found difficult (evaluation); and gave their opinions (evaluation). They often described the approach they planned to use in the future (recollection). We found meaning-oriented learning activities in

- the description of the approach of the lessons, when the student teachers described the lessons and examined what others thought about that and how their own opinions related to that (critical processing).
- the evaluation of the approach, when the student teachers investigated what went well and what did not, and examined why (reflection on approach).
- the evaluation of what they found difficult, when the student teachers also indicated why that was (diagnosis of functioning).

Debating in class 4

Mary started her theme with a description of the background of this project:

The Dutch section of our school has introduced a 'debating' item into our curriculum for Year 11 to practice skills such as speaking, listening, looking, reading, and writing at the same time (recollection: description of situation).

Next, she described how she discussed the project with the class:

First the pupils were given a hand-out in which it was explained how a debate works and what rules are applied. I spent an hour on this. First, I discussed the hand-out with the whole class, next the pupils could ask questions, and for the rest of the lesson they formed groups to work with and thought about a debating subject. [...] I explained in this lesson how the debates would be evaluated. I think it is important that the class be involved in the assessment procedure. I appointed a jury for each debate, which would evaluate both pairs. They were given an evaluation form and after a debate took place they had to consult about their judgment. Next, they suggested a grade; the final grade was my decision. The members of the jury then had to work out their judgment at home. They were also given a grade for this (recollection: description of approach).

Next, Mary described how the debates went:

The different groups had very different debating subjects: 'The stream of asylum-seekers must be put to a stop', 'Schiphol must expand in the North Sea', 'Unqualified teachers should not be allowed to teach', and 'Teachers in difficult schools should be given higher salaries than teachers in easy schools' are some examples (recollection: description of situation). Most of the groups had prepared well for their subjects by reading the literature, researching the backgrounds, and taking cuttings from papers. It was hard for the pupils to use the full five minutes; most had written down some arguments on paper, read them, and gave a little information about that. I noticed that they were enthusiastic about this form of education; those who were debating enjoyed doing it, and the other classmates enjoyed listening to them.

The pupils appeared to find it difficult to react to arguments suggested by the other pairs. They stuck mainly to the story they had prepared at home and were hardly capable of improvising. For this reason, most of the debates were static and there were no fierce debates. Of course we must not forget that it was the first time that they had to do something like this (reflection: examine whether an approach works or not and why). What I found a pity was that the discussions with the whole class rarely got into stride. The other pupils had mostly just a few questions and so the discussion was mainly between the pupils who participated in the debate (evaluation: examine whether an approach works). I am pleased with the method of evaluating the debates. The members of the jury generally took their task seriously and they often gave useful criticism during the subsequent discussion. I noticed how well the pupils could analyse and assess the debates: the positive and negative points often corresponded fully with my own points. They also worked out their evaluations very well (evaluation: examine whether an approach works). It was a valuable experience for me to assess the debates (evaluation: give an opinion). I also had no previous experience with this form of education and after the first debates I found it difficult to explain what I found good and what not (evaluation: examine what you found difficult). But with the help of the extensive evaluation form it went better and I could clearly indicate what my points of criticism were (evaluation: draw conclusions about your development).

Mary concluded her theme with her judgment of the project:

I had a very positive experience of this form of education. I enjoyed seeing the pupils working so actively and I enjoyed listening to the different arguments and opinions. I noticed how convincingly some pupils can express their opinions about certain subjects and how well they thought about certain issues. This form of education was also received positively by the pupils. Also, I find it a useful way of training pupils in the skills mentioned above (evaluation: give an opinion).

Development and functioning

The last cluster of themes in which we found meaning-oriented learning activities was the theme cluster about development and functioning. The basic form of these themes was generally as follows. The student teachers examined

their development: they examined how things went at the beginning of the course and how they were going at present, what they had learned, and what they still had to work on (evaluation). They examined how they functioned as teachers and investigated whether they had achieved their learning goals (evaluation). We found meaning-oriented learning activities in

- the description of their development, when the student teachers examined on what points they had developed and considered how that had happened (reflection on development).
- the evaluation of their functioning as teachers, when the student teachers examined what factors played a role in their functioning and what consequences this had, or when they examined why they did not achieve their learning goals (diagnosis of functioning).

My changing view of teaching

Pauline used different metaphors in her portfolio theme “My changing view of teaching” to describe her development in interacting with pupils and the part her ideas about her role as a teacher and her confidence in her own capacities played in that. She started by giving the reason for her choice of the theme (recollection: note for the reader):

At the beginning of the course we were given the task of drawing a metaphor of our idea of teaching. I have included this theme because I feel that my view of teaching has changed during the year as I have gained more practical experience, and I feel that the different metaphors that I have thought of reflect the process of my development.

Next, she explained the different metaphors that she used during the year:

My first metaphor, which I drew fairly near the beginning of the course, compares teaching to tending a fire. I first thought of this metaphor because fire often begins by itself, it is not always necessary for someone to start it, and under the right conditions it can also burn by itself. The presence of the teacher can be compared with someone tending a fire; he or she has to provide the right kind of fuel in the right quantities, and at the right time, and also be ready to control the fire if it seems likely to get out of control, but without putting it out (evaluation: give an opinion). [...] A later metaphor was that of an octopus trying to escape, which represented the class

for me, while the teacher tried to keep it in the basket. This for me represented the feeling that it is necessary for a teacher to pay attention to many things at the same time. The class was something I had to control, and I didn't always succeed in doing so (evaluation: evaluation of functioning). Another metaphor was that of the teacher pouring water out of a container over other containers, some of which are filled while others remain empty. This represented the feeling that I sometimes had that what I was teaching the class didn't reach all of them (evaluation: evaluation of functioning). [...] My final metaphor compares the class to a garden, and the teacher to a gardener. This shows that I have come to understand that a class is made up of individual pupils, and they often have to be treated in different ways. This shows progression from the previous metaphor because I feel more capable of reaching more of the pupils in the class (reflection: examine how you have developed). [...] One aspect of my changing view of teaching that is reflected in the metaphors is my idea of the class. The first shows the class as one entity, the fire and the octopus; and also as something that can be threatening. The third shows an awareness of the difficulties of the work, but the members of the class are seen as separate entities. Finally the last metaphor shows again that the class is made up of individuals but I feel more confident of my ability to deal with this (reflection: examine how you have developed).

4.5 Conclusions and discussion

The nature of the portfolio themes with meaning-oriented learning activities was central to this study. From the analysis of the portfolios six clusters of themes emerged that student teachers included in their portfolios. These are clusters of themes about problems experienced, the educational reform, teaching and testing, activities other than teaching, oneself as a teacher, and development and functioning. We found themes with meaning-oriented learning activities in four of the six theme clusters: themes about problems experienced, the educational reform, teaching and testing, and development and functioning. The meaning-oriented learning activities were generally a small part of these themes next to the action-oriented learning activities, 'recollection' and 'evaluation'.

Themes that matter

The clusters of themes in which the student teachers showed meaning-oriented learning activities seemed to relate to each other in the *personal involvement* of the student teachers with the themes in these clusters. These results correspond to the finding from research into student learning that personal interest in subjects stimulates deep processing (Desforges, 1995; Vermunt & Vermetten, 2004). The personal involvement in the theme clusters that showed meaning-oriented learning activities arose from problems that were perceived as urgent or from personal interest in certain teaching activities that the student teachers enjoyed very much or found important, or both.

In the first theme cluster, about problems experienced, the student teachers felt a need to work on the theme, because their problems hindered them from good functioning as teachers in direct contact with the class and they experienced the problems each time in teaching. Problems such as having no discipline in the classroom and having difficulties with being strict or with explaining certain subject matter are often not solved using a single measure. To be able to solve these problems well, the student teachers must examine why a problem is a problem, what factors play a role in that, why an approach does not work, etc. In other words, the solving of the problem requires first that the student teacher can see the problem clearly and can define the problem. Undertaking meaning-oriented learning activities is a necessary condition for that.

For the themes about the educational reform, the student teachers were probably motivated to work on the theme because it was something new and different. They were educated in the 'old' system and are among the first teachers to give form to this new method. Furthermore, the student teachers were stimulated by the attention given by the school, the teacher education institute, and media to the *Studiehuis* to profoundly examine the new approach to lessons and to critically form opinions about the value of the *Studiehuis*.

The themes about teaching and testing concerned lesson activities that the student teachers enjoyed, interesting, or important. These themes were often about activities (a series of lessons, assignments, new forms of testing and assessment) that the student teachers undertook on their own initiative or to the development of which they made a large contribution and on which they worked intensively for a relatively long period of time. This personal interest probably brings with it a certain curiosity, as a result of which the student teachers are more inclined to ask themselves questions about the

approach followed and its value.

Finally, the theme cluster about development and functioning contained themes in which the student teachers looked back on their whole development as teachers. Meaning-oriented learning activities in these themes were mostly concerned with those aspects of the teaching profession that posed problems for the student teachers, and to which they had to pay much attention with a view to their functioning as teachers. Like the themes in the cluster about problems experienced, these themes require that the student teachers pay attention to the problem, because it is too complex to be solved quickly.

The theme cluster about activities other than teaching did not contain any meaning-oriented learning activities. A possible explanation for this is that the student teachers did not feel involved with the themes in this cluster and, therefore, chose for the easy way, to describe only what they had done. It is possible that they used these themes as 'filling' for the portfolio in order to meet the requirements of the course to do justice to the breadth of the teaching profession. Another explanation may be that the student teachers had not gained enough experience with these activities to distinguish for themselves the important experiences and learning moments and where there were still questions and a lack of clarity (see Kagan, 1992).

Surprisingly, the theme cluster about oneself as a teacher did not show any meaning-oriented learning activities either. This theme cluster is the only cluster that was not only about acting in teaching practice, but that especially concerned the beliefs of student teachers about learning and teaching and their role as teachers. A possible explanation for the lack of meaning-oriented learning activities is that it was (too) difficult for the student teachers to analyse their own beliefs (frame of reference) and to examine how these beliefs influenced their actions as teachers. Do student teachers not always need others to be able to ask questions about things that go without saying and to see that a situation can also be interpreted in other ways (Freidus, 1998; Oosterheert, 2001; Orland-Barak & Kremer-Hayon, 2001)? Furthermore, it is unclear whether meaning-oriented learning activities with regard to action and meaning-oriented learning activities with regard to beliefs are two different things. Several researchers (e.g., Bengtsson, 1995; Von Wright, 1992) indicate that reflection on one's own actions does not automatically lead to reflection on one's own beliefs about learning and teaching.

Implications and questions

As mentioned above, we found meaning-oriented learning activities in

themes about problems that student teachers experienced and activities that they enjoyed doing and found interesting. When it is the aim of a course that student teachers undertake meaning-oriented learning activities by working on their portfolio themes and in this way developing practical knowledge, the *selection* of themes is possibly a first step. Student teachers seem more willing to undertake meaning-oriented learning activities when the themes are relevant to them and personally important and when they are intrinsically motivated to work on the themes. This means that when promoting meaning-oriented learning activities, a *free choice* of themes for the portfolios can be important. Because undertaking meaning-oriented learning activities takes much time and energy (Newton, 2000), the *number* of themes that student teachers have to include in their portfolios must not be too high. Five to eight themes per portfolio is a lot and it is possible that some themes are included in the portfolio only because of the requirement to include a certain number of themes, as a result of which the student teachers undertake only action-oriented learning activities.

For undertaking meaning-oriented learning activities, a selection of personally important themes is not enough. We found meaning-oriented learning activities especially in themes about classroom management, teaching, and testing; but even in these themes they were scanty. The question is whether student teachers can be stimulated to undertake more meaning-oriented learning activities than they do already by working on their portfolios, and also in other aspects of their teaching. It is clear that the supervision of the portfolio is crucial for this. Supervision must be directed towards asking questions about things that are taken for granted by the student teachers, shaped in 'why' questions and giving feedback (Freidus, 1998; Orland-Barak & Kremer-Hayon, 2001). Sample themes with meaning-oriented learning activities could perhaps serve as illustrations to show student teachers in what ways they can think about their experiences and what the aims of the course are with reflection in the portfolio (see also Krause, 1996; Ward & McCotter, 2004). It is known from research into the learning of student teachers that they differ in the ways they learn from their experiences. Some student teachers are more willing than others to relate problems or situations that arise to their actions in teaching practice, and to examine what underlying factors can play a role in that (Kubler LaBoskey, 1993; Oosterheert & Vermunt, 2001). This was also clear in our study. The student teachers varied in the extent to which they showed meaning-oriented learning activities in their themes. The findings of Vermetten, Vermunt, and Lodewijks (2002) show that students use instructional measures in different

ways. The way students 'use' their learning environment corresponds to their own views on learning. This may imply that student teachers' conceptions of learning and their learning styles also must be given attention in supervision of the portfolio, and not only the portfolio themes.

