REFLECTION ON TEACHING: FACTORS AFFECTING CHANGES IN THE COGNITIONS AND PRACTICE OF STUDENT TEACHERS

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Abstract
Teacher education programs frequently advocate reflection as a way of learning, without always specifying how reflective analyses of one's own teaching should be carried out. This paper examines the role of a mentor as a reflective agent in eliciting and structuring student teachers' verbal reflections on particular lessons they had taught, and traces in detail the effect of the mentor's assistance on one student's cognitions and practice. Relationships between the mentor's actions, students' perceptions of their developing teaching skills, and constraints within the practice teaching context are also explored so as to identify factors which influenced the extent to which students benefited from the mentor's intervention.


Introduction
Recent research on the development of teaching skills has frequently focused on the use of reflection in interpreting relationships between teachers' intentions, actions and their outcomes. However, it is rarely acknowledged that reflection of this kind is a skill which needs to be learned. While some studies have identified the benefits of reflecting with a partner (e.g. Reichert, 1990), few have attempted to define explicitly the role of the reflective agent, and to map relationships
between the process of reflection and changes in teachersí cognitions and practice. This paper reports on one such study, in which student teachers were offered structured opportunities for post-lesson reflection under the guidance of a mentor. In particular, it examines the complex interactions between constraints within the practice teaching environment, students teachersí knowledge, beliefs, and emerging teaching skills, and the mentorís actions in shaping the reflection task. These interactions are explained with the aid of a theoretical model which links contextual, personal and task variables, and identifies critical factors influencing the success of the intervention.

Method
A total of 58 students enrolled in a one year Postgraduate Diploma in Education course participated in the study during 1992 and 1993. The sample was divided into three groups of students, all of whom completed pre- and post-tests concerning beliefs and sources of knowledge about teaching, and the ability to recognise and interpret classroom events. (See Evans, Galbraith and Goos, 1993, for a full description of these instruments.) A measure of teaching performance was also obtained by combining judgments in four areas of proficiency that are used as the final ratings for practice teaching in the course.

Group 1, the control group (N=31), simply undertook the pre- and post-tests. Group 2 student teachers (N=13), as well as taking these tests, were also interviewed in a special reflection session in the last two weeks of each block teaching practice (five weeks and six weeks respectively). These interviews sought a self-evaluation and also prompted the student teachers to elaborate on goals, teaching methods, use of feedback during the lesson, changes in knowledge and beliefs as a result of the lesson, specific goals for the next few lessons and general goals for future teaching.

Group 3, the main experimental group (N=14), as well as being interviewed in the special reflection sessions, also participated in more active reflective interventions for two lessons during the second block practice. These interviews used a prompt in the form of a Reflection Card, consisting of a 4 x 4 grid which targeted sixteen specific aspects of teaching. The rows corresponded to important lesson features for the students: involvement or engagement, learning processes, progress made during the lesson, and the social context in which they learned. The four columns referred to major lesson features for the teacher: expectations and actions, concerned with teaching approaches, and two aspects of within-lesson feedback, the opportunities the student teacher created to obtain feedback, and the indicators or cues during the lesson which the teacher actually used as feedback. The mentor sought reflections on each of the sixteen cells, usually working systematically either by columns or rows. The student teacher used the discussion to make written notes in each cell. The mentor explained the meaning of each cell, and then used a variety of interventions, based both on the student teacherís previous responses.
and her observation of the lesson, to assist the teacher to analyse the particular issue.

The Role of the Mentor as a Reflective Agent

The theory behind the mentoring process stemmed initially from the ideas of Vygotsky (1978) concerning the Zone of Proximal Development (ZPD), which is often defined as that level of performance that a learner can achieve with the help of an expert or mentor, but not alone. For student teachers, the ZPD encompasses aspects of their emerging teaching skills which have not yet developed fully, but which are taking shape under the guidance of other people. However, the gap between the studentís present and potential ability, or ZPD, is not the only factor influencing future development. Other factors which may play a part include the contextual constraints of practice teaching, and the extent to which the mentorís assistance matches the student teacherís changing needs. Relationships between these factors may be clarified by borrowing from Valsiner (1987) two additional constructs which, like the ZPD, have their origin in developmental psychology: the Zone of Free Movement and Zone of Promoted Action.

The Zone of Free Movement, or ZFM, is a set of environmental constraints which limits freedom of action and thought. Within the practice teaching context, the ZFM includes such elements as:
1. the students, whose abilities and behaviour may constrain teaching actions;
2. the curriculum, embodied in the school work program and supported by prescribed textbooks, which influences choice of topics and teaching methods;
3. resources, in the form of audiovisual aids, materials for practical classes, reference books, or specially equipped classrooms, whose availability has a bearing on teachersí planning decisions;
4. time constraints, in particular, the need to cover a specified amount of content within a limited time period (whether this be the lesson or the school year); and
5. the relationship between student teacher and supervising teacher, and the extent to which their beliefs about teaching and learning coincide. Although these elements clearly have an external existence, student teachers may also construct personal ZFMs within which constraints exist as a result of their interpretation of the external environment. This interpretation is likely to be influenced by the studentís personality; for example, a diffident or timid student could interpret the supervising teacherís suggestions as directions to teach in a certain way.

While the ZFM determines which teaching actions are possible, the Zone of Promoted Action, or ZPA, represents the efforts of a tutor or supervisor to promote the acquisition of particular teaching skills. It is important that the ZPA be set up such that it is within the schoolís ZFM, and is also consistent with the studentís ZPD–that is, the actions promoted must be within the studentís reach if development is to occur. Figure 1 represents schematically one set of relationships between the three zones.
Student teachers usually develop under the influence of two ZPAs. One, provided by the supervising teacher, promotes actions which, although available within the school context, may conflict with the student teacher’s beliefs and personality. The other ZPA, the set of teaching skills promoted by the theoretical content of the Diploma in Education course, is often seen by student teachers to have very little application within the practice teaching context. The present study offered a third ZPA, represented by the reflective interviews and interventions.

The mentor’s role in promoting reflection involves the notion of scaffolding—that is, providing strategic assistance which is gradually faded out as the learner reaches a more independent performance on the particular task, which is then replaced by a more advanced task. Scaffolding in this case involved four main actions by the mentor: cognitive modelling, providing feedback, questioning for assistance, and cognitive structuring. Cognitive modelling involves the mentor in using, out loud, cognitive strategies that the learner may imitate. Feedback is provided when the mentor and learner jointly analyse aspects of the lesson. Questioning for assistance is intended to elicit reflections that the learner would not produce alone, while cognitive structuring helps learners to organise and explain their experience and provides a structure for analysis, evaluation and goal setting. While each of these mentoring processes was present in the dialogues of the special reflection and reflective intervention sessions, the structure of the Reflection Card provided an additional, concrete scaffold. Each of the mentoring functions involves asking questions, particularly follow up questions which seek more information or encourage elaboration, mirroring the student teachers’ responses by distilling, summarising, paraphrasing or amplifying their ideas, and modelling reflective statements if the student teacher is unable to answer a question. They thus entail active teaching, but of a kind that continually assesses and reassesses the boundaries of the student’s Zone of Proximal Development and encourages progress within them. The purpose of both types of reflective interviews was to signal aspects of the teaching task that seem particularly important. The Reflection Card did this explicitly, but in both cases a number of strategic behaviours was also signalled. These were concerned with:

1. awareness by the students of factors influencing choice of goals and methods;
2. analyses by the students, such as comparing teaching methods with intended goals and recalling indicators within the lesson of how goals were being achieved;
3. evaluation by the students of how well goals were achieved and of the effectiveness of their methods; and
4. goal setting for future lessons.

Results
The results of the study have been reported in detail elsewhere (Evans, Galbraith and Goos, 1993; Evans, Goos and Galbraith, 1994). In summary, statistical analysis of pre-post test changes indicated that the reflective interviews differentially benefited those student teachers in the experimental groups in their teaching performance and ability to recognise lesson structures and draw inferences from them. However, as interest here centres on the reflection process itself, results of qualitative analyses of the interview transcripts will be used to document and explain critical features which influenced the outcomes of the interventions.

How Effective was Scaffolding in Promoting Reflection?
Newman, Griffin and Cole (1989) have introduced the term dynamic assessment to describe the judgments made by the mentor in continually assessing and extending the boundaries of the learnerís ZPD. These judgments involve observing how much, and what kind of, help the learner needs to complete the task successfully. Reflective intervention transcripts of the 1992 subjects were analysed to determine changes over time in the level of help offered by the mentor, in terms of the follow up provided to student teachersí responses to interview questions. Help ranged through maximum assistance for no response, minimum assistance for incomplete responses, to no assistance for complete unprompted responses. Maximum assistance involved rephrasing or clarifying the question, indirect telling (hinting or cued elicitation), or direct telling of a suitable response. Minimum assistance involved rephrasing a question to extend a previous incomplete response, prompting for extra information, or probing to explore an idea further.

The number of instances of each kind of follow up over the two reflective interventions was recorded for each student teacher. Five of the eight students received less help in the second intervention than in the first. A further two students, who were judged to be coping successfully with their first attempt at the intervention task, were pressed by the mentor to raise their level of reflection by explaining and justifying their initial responses. These changes in the quantity and quality of help indicate that scaffolding, tailored to each student teacherís demonstrated needs, was effectively provided in seven out of eight cases.

To What Extent was the Scaffolding Internalised?
By comparing the first and second special reflection sessions it was possible to explore to what extent the students had benefited from the interventions. This was done by constructing maps from the transcripts of the interviews. Reflection Maps centred on the studentsí goals and methods for the lesson, and the factors involved in their formation. These factors included the student teacherís beliefs about teaching, ideas from the university program, and contextual features which defined the student teacherís Zone of Free Movement, such as the particular group of students, constraints seen as being set by the supervising teacher, resources, time available, and curriculum
requirements. A second kind of map was concerned with feedback, reflection and regulation before, during or in, and after the lesson. The intention in constructing Feedback Maps was to analyse how each of these reflective processes influenced lesson goals and plans, methods, outcomes, and future goals. Qualitative comparisons of maps from these interviews indicated that four of the seven students who received effective scaffolding also internalised the reflective processes elicited by the mentor. These students' goals and methods became more detailed and theoretically informed, they made more use of feedback during the lesson to monitor and evaluate progress, and they were better able to articulate future goals for themselves and their students.

It appears that not all of the student teachers internalised the mentor's scaffolding. What other factors might have influenced the extent to which internalisation occurred? This question will be answered in two parts. First, a case study of one student for whom the intervention was successful will be presented so as to illustrate changes in his cognitions and practice, and how these changes were brought about. Second, the prospect of scaffolding without internalisation will be examined. Both cases highlight interactions between the mentor's actions in promoting reflection, the students' dispositions, beliefs and skills, and elements of the practice teaching context— that is, relationships between the Zones of Promoted Action, Proximal Development and Free Movement.

Damien

Damien's main teaching area was in mathematics. One of the classes to which he was assigned in the practicum was a Year 10 group with a reputation for poor classroom behaviour and performance. They were regarded by Damien's supervisor, their regular classroom teacher for mathematics, as being uninterested and unprepared. For a variety of reasons, they had no regular classroom and changed rooms frequently. The supervising teacher believed in whole class exposition and questioning, that the tasks set should be ones that the students could readily achieve, and that the key to helping these students was to give them the opportunity for successful performance. He encouraged Damien to model his teaching on this approach, and was not responsive to Damien's tentative requests to try more student centred methods. Although disappointed, Damien did not press the matter further because he felt an obligation to do things in the way his supervising teacher wanted them done.

First Special Reflection Session

By the time of the lesson observed for the first special reflection session, Damien was experiencing increasing discipline problems with the students, who were more accustomed to their regular teacher's firm management than to Damien's gentler approach. His Reflection Map for this interview is shown in Figure 2. The map shows his concern with the students' experiencing success as a first step towards changing their negative feelings towards mathematics, and his corresponding approach
of setting very easy tasks. This policy was reinforced by his expectations of the students’ abilities and behaviours, and by his supervising teacher. As the practicum progressed this policy was to prove demonstrably counter-productive, in that he responded to his students’ declining performance by continually lowering his expectations of them. While Damien wished to help individual students understand the subject matter, he did so through whole class teaching and seat work. These methods became the context within which he tried to apply his beliefs about student involvement and encouragement.

Figure 2 about here

Damien’s interview responses also portrayed three major aspects of his personal context. He was unwilling to try methods he had not seen practised, and he had only ever experienced whole class expository teaching; he did not wish to become an authoritarian teacher, despite his classroom management problems; and he recognised conflict between his supervising teacher’s methods and those promoted by the Diploma course.

In theoretical terms, then, the ZPA offered by Damien’s supervising teacher conflicted with that of the university program, and was not well matched with the ZPD which defined the direction in which he hoped his teaching and management skills would develop. After four weeks of practice teaching, Damien had settled into a relatively conservative equilibrium between his own ideals and those of his supervisor. He was surviving but was not really comfortable with what he was doing. Damien’s recall of how he reflected during the lesson is shown in the Feedback Map of Figure 3. His only reference to reflection in action was to ask questions to check students’ understanding, and goals for future lessons were expressed in very general terms.

Figure 3 about here

First Reflective Intervention

The first lesson observed during the second block of teaching practice brought Damien’s problems to a head. Afterwards, when analysing the lesson with the aid of the Reflection Card, he realised that none of his expectations regarding student involvement, learning or behaviour had been achieved. The analysis helped Damien to identify four problems, and to propose solutions to two of them. First, Damien recognised that his students were responding to his very modest lesson goals by refusing to do the work he had prepared, and he resolved to raise his expectations of progress. Second, he acknowledged that the students’ behaviour, and his own mild personality, made it difficult for him to gain their attention and respect by using the stern management techniques exemplified by his supervisor. While acknowledging that he could not change his personality, Damien decided to try a firmer classroom manner in future. Damien’s perception of the students’ behaviour, and his own belief in individual satisfaction as a means of creating enjoyment and
confidence, made him unwilling to try small group discussion or other activities in which he feared losing control of the classroom. Activities of this kind, which give students some control over the pace and direction of the lesson, might also help overcome the discipline problems which prevented him from giving individual attention, feedback and encouragement to those students who wanted to work. Damien was not aware of a fifth problem, concerning his expectations of students' learning processes. Although he believed that students learn better if they think for themselves, the teacher-led, whole class approach approved by his supervisor provided few opportunities for them to understand the mathematics they were doing.

At this stage of the practicum, three constraints were affecting Damien's actions: the students, his own personality, and his relationship with his supervisor. Partial solutions to problems involving the first two constraints were worked out within the ZPA offered by the reflective intervention. However, solutions to the remaining problems, which involved changing his teaching methods, were not available to Damien because they lay outside his personal Zone of Free Movement.

Second Reflective Intervention

The second intervention coincided with a visit by the university liaison tutor. In contrast to his usual approach, Damien's supervisor encouraged him to try an activity involving the students in discovering for themselves various properties of triangles. This change represented a high risk venture for Damien, but it paid a handsome dividend. Not only did he carry out his stated intentions to set higher expectations of his students and to take a firmer stand on discipline, but he was also able to try out a teaching strategy which allowed his students to 'work things out for themselves', created enjoyment and confidence, and made it possible for him to give much more individual help and encouragement. It also had the unplanned effect of stimulating discussion between the students.

The changes in Damien's teaching actions were instigated by the university tutor's visit, which prompted his supervisor to relax his objections to student investigative work. However, this temporary modification of Damien's Zone of Free Movement provided the mentor with a valuable opportunity to make the event into an occasion for learning. Her scaffolding of the reflective conversation created a ZPA which helped Damien to identify the reasons for the lesson's success, as the following excerpts illustrate.

The first two excerpts demonstrate how the mentor raised the level of reflection by using the minimum assistance move labelled probing to explore (P-E). Both concern Damien's expectations of students' behaviour.

D:...Today I particularly ... before the lesson I said to myself, I'm going to make sure I do my transition between the five things in the beginning and to the next thing properly. I sort of had that expectation to do that.
M: So that is, ... it seemed like you really wanted their full attention.
D: Yes.
M: And what was the reason for that particularly today? (P-E)
D: Well obviously because (liaison tutor) was there. Isnít that terrible? If I had that expectation all the time Iím sure it would make things a lot better.

In the second excerpt of this type, Damien follows his response to the mentorís probe with an unprompted reflective statement (RS).
D: The other thing I decided before the lesson I was going to ... if anyone misbehaved or something like that I would make sure that they sat down the front. Iíd do that early in the piece, which actually worked quite well.
M: So do you think that is because you made a stand early in the lesson? (P-E)
D: I think so. Like thatís not to say ... I should have done it a couple of other times as well I think. (RS)

The next example contains a prompt for added information (P-A), and Damien expands on his initial response by reflecting on the benefits of group discussion (RS):
M: Any other signs that they were involved on task? (P-A)
D: Oh yes they were talking amongst themselves about the work, a lot of them. I mean it is much better to have them working together on the work than even by themselves, I think, because they are able to talk and express themselves mathematically, which is important. (RS) Something which I never had the opportunity to do myself which is a real downfall I think.

Although it was preferable to use prompts which encouraged the student teacher to do the work, if it seemed that an elaborated response to an important question would not be forthcoming, the mentor resorted to direct telling (DT) to ensure that the significance of the issue was not overlooked:
M: So what opportunities did you create to get feedback on the degree of engagement and involvement and willingness to work?
D: Feedback for me?
M: Mmm ... What did you do to allow them to be involved?
D: Oh they could ask me as many questions as they wanted.
D: Mmm. Encouraged questioning ... I think just the fact that you gave them an activity was an opportunity to allow them to be involved far more than a conventional expository lesson in which their involvement is really fairly minimal. (DT)

Second Special Reflection Session
This lesson was with a different Year 10 mathematics class, but with the same supervising teacher. Damienís Reflection Map for the lesson (Figure 4) shows that he has internalised the reflections elicited in the second intervention. His belief structure remains intact, but his goals are now a little more specific, and ichanging studentsí beliefsí has been replaced by aiming to have students work things out for themselves as a means of understanding. He has only partly retained
whole class teaching as a method and has now elaborated this method with specific statements about the nature of the mathematical examples to be used. He has made use of an activity worksheet, which became the vehicle for his helping individual students. The way in which he related his beliefs to these goals and methods has become detailed, explicit, and theoretically grounded (e.g. created and strengthen information networks in memory). He has reconciled his goals, methods, beliefs, and the requests of his supervisor.

Figure 4 about here

The second Feedback Map (Figure 5) shows an even more dramatic change. Damien reflected on his previous lesson to plan his methods, and he was now explicitly using the language of indicators in his description of how he monitored and regulated methods through the progressive outcomes of the lesson.

Figure 5 about here

Scaffolding without Internalisation
Damien's case is an example of scaffolded assistance, with evidence of internalisation observed in his reflections and teaching practice. But for some student teachers who received effective scaffolding, changes of this kind were not observed. Figure 6 plots alternative pathways for the seven student teachers who were judged to have received effective scaffolding, and attempts to explain observed internalisation (four student teachers, including Damien), unobserved internalisation, and no internalisation.

Figure 6 about here

Unobserved Internalisation
One possibility which should not be ignored is that internalisation did occur, but was not apparent at the time of the post-lesson interviews. The only direct evidence for independent reflection comes from the interviews, and these verbal methods of collecting data on thinking rely on the subject's ability to recall and describe cognitive processes of interest (Ericsson and Simon, 1980). Thus, some student teachers may have failed to report on the reflective processes they actually used before and during the lessons observed. A number of students also found it difficult to reflect on the lesson immediately after it had ended, and commented that they needed time to separate themselves from their experience in order to analyse and evaluate their teaching. For these students, independent reflection originally stimulated by the mentor's questions may not have surfaced until some time after the interview itself. A third explanation for unobserved internalisation concerns the methods used to analyse the interview transcripts, which may have overlooked reflective processes unable to be represented by Reflection and Feedback Maps. Fortunately, indirect
evidence for internalisation is available in the pre- and post-tests, which show that one student, given the pseudonym 'Mike', did improve in his ability to recognise, analyse and interpret lesson events, even though this improvement was not apparent during the reflective interviews. Reasons for this anomaly are discussed later.

No Internalisation

Scaffolding without internalisation can be understood by referring to the theoretical model outlined earlier, which portrayed learning to teach in terms of three zones of action and development. Some student teachers may have failed to internalise the mentor's reflective prompts because the intervention did not meet their specific needs—the Zone of Promoted Action did not match their Zone of Proximal Development. Such a mismatch could occur in several ways. The first concerns the mentor's role in judging the boundaries of the student's ZPD while the interview is in progress. In making this judgment, which requires the mentor to provide only the minimum amount of help the student needs, two problems could arise: giving too much help, for example, by telling, rather than eliciting, an answer; and giving too little help, such as in failing to follow up incomplete responses. Both misjudgments deprive the student of opportunities to reflect. It is difficult to say whether these problems occurred, however, because there is no way of testing whether the help given to the student teachers matched the help they actually needed.

Just as the mentor can misjudge a student's need for help, so too may students misinterpret the purpose of the mentor's questions as information seeking, rather than inviting reflection. This may involve a genuine lack of understanding on the student's part, or an unwillingness to admit to problems and engage in self-examination. Despite being non-evaluative, the intervention was a risk laden activity which placed students in a vulnerable position. Most students welcomed the unique opportunity to open their minds to someone who was not required to assess their teaching, but those who were hesitant about trusting a relative stranger with their private thoughts would have found it difficult to give extended, and honest, responses to her questions.

A third type of ZPA-ZPD mismatch occurs if students lack sufficient motivation to reflect, in particular, if there is no tension between their relationship with the practice teaching environment, or ZFM, and their present or emerging teaching skills. If environmental constraints cause no discomfort, the student teacher is secure in his or her perception of self and is unlikely to desire change. This appeared to be the case for two students, referred to as 'Frances' and 'Christine', who were satisfied with the opportunities for development offered by their school experiences. On the other hand, difficulties with students' classroom behaviour or attitudes towards learning, dissatisfaction with the teaching approach modelled by the supervisor, or conflict between beliefs and actions may create problems which the student teacher wishes to solve. Each of the four students who experienced scaffolding
with internalisation identified problems or aspects of their teaching they wanted to improve, set goals for future lessons, and translated their goals into changes in practice. As Damien’s case showed, the mentor’s intervention was as useful in helping students to learn from these changes as it was in causing them. Damien’s experience also illustrates a second major factor which could prevent internalisation. Even if change is desired by the student, the constraints of the practice teaching environment are often perceived as being too great to overcome—the Zone of Promoted Action offered by the mentor lies outside the student’s Zone of Free Movement. Damien was fortunate in that his university tutor’s visit expanded his ZFM in such a way that solutions to his problems became available, which, in turn, persuaded him to reconstruct his personal ZFM to accommodate new teaching actions. The other students who, like Damien, changed in their actions and ability to reflect, also did so because they were able to transform their interpretations of the ZFM. A contrast is provided by Mike, the student described previously as having achieved unobserved internalisation. Mike’s liberal beliefs about teaching and learning were in conflict with the more traditional methods he felt obliged to use within his school’s ZFM, but he appeared to resolve the conflict by separating his beliefs from his actions. Although he complied with environmental restrictions while at school, and showed no signs of increased reflection during post-lesson interviews, his pre- and post-test results indicate that he increased his commitment to democratic/constructivist principles and improved in his recognition of, and theoretical thinking about, classroom events. These results suggest that he was able to derive theoretical benefits from the interventions, but was not able to translate reflection into practice.

When Does Internalisation Occur?
The previous section has attempted to trace a pathway through a complex set of relationships between mentor and student, the reflective task in which they are engaged, and the broader context within which changes in practice may, or may not, occur. It is now possible to offer some tentative answers to the question that was posed earlier: what factors influence the extent to which an intervention of the type described here could be expected to succeed?

Figure 7 about here

First, and most importantly, the student teacher must have a reason to embark on what is, for some, an uncomfortable journey. Their willingness to admit to problems, and to actively seek solutions, should be accompanied by an understanding that guided reflection is an opportunity for growth. The mentor’s task is twofold: it involves securing the student’s trust, so that open and honest reflection may occur; and making continuous judgments about how much, and what kind of, help to give in the form of scaffolding. If the intervention matches the student’s needs, an additional factor to be considered concerns the practice teaching environment. When solutions to teaching problems are not be available within the existing
context, then the student teacher must either find a way of altering the environment, or alter his or her interpretation of the constraints it presents. Figure 7 shows how these factors affected the outcome of the reflective intervention.

Conclusion
This paper has been concerned with the processes of reflection on teaching, and has described the role of a mentor in scaffolding student teachers’ post-lesson reflections. Effective scaffolding does not always result in students learning to reflect independently, however, nor does it guarantee that they will use their reflections to initiate changes in practice. Differences in the extent to which students benefited from the mentor’s intervention have been explained with the aid of a model which adapts Valsiner’s (1987) notions of the Zones of Free Movement, Promoted Action and Proximal Development. The findings presented here raise several issues which may have implications for teacher education. First, scaffolded assistance appears to be a promising means of enhancing reflection; however, the task places considerable demands on the mentor’s judgment in deciding when it will be helpful to intervene. In fact, there are parallels between these kinds of decisions, which are based on the mentor’s recognition and interpretation of verbal and non-verbal cues during the interview, and teachers’ use of indicators of student activity to regulate their actions. The mentor is therefore called upon to exercise skills similar to those which the intervention attempts to develop in student teachers.

A second issue concerns the importance of understanding the context within which any lesson is embedded. The reflective interviews sought information on contextual details such as student characteristics, supervising teacher requirements, and constraints imposed by resource availability, time, or the school’s work program, and invited the student teachers to explain how these features influenced lesson planning and delivery. Such an approach, in providing opportunities to articulate and defend goals, assumptions and beliefs, reveals how students define their own situation, and acknowledges the problematic nature of teaching. Finally, it is clear that many of the factors which influenced the intervention are beyond the direct control of the mentor. Nevertheless, the mentor’s actions may still serve to promote reflection. For example, even though the time at which reflection occurs is not always predictable, students who have difficulty in reflecting on demand during post-lesson interviews may experience delayed insights which were stimulated by the mentor’s questions. Elements of the practice teaching context were also outside the mentor’s sphere of influence, but constraints which existed within the mind of the student teacher could be challenged during reflective conversations and then overcome in subsequent lessons. Finally, although the mentor took no part in determining how lessons unfolded, she was able to appropriate significant events to her purpose and recast them as opportunities for
learning. A mentor may therefore play a small, but valuable, role in mediating student teachers’ perceptions of their teaching and of the contextual forces which shape their practice teaching experience.

References


Figure 1. Relationships Between the ZFM, ZPA and ZPD for Student Teachers