

1-1-2010

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Recommended Citation

Rodman, G. J. (2010). Facilitating the Teaching-learning Process Through the Reflective Engagement of Pre-service Teachers. *Australian Journal of Teacher Education*, 35(2). <https://doi.org/10.14221/ajte.2010v35n2.2>

This Journal Article is posted at Research Online.
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Facilitating the Teaching-learning Process Through the Reflective Engagement of Pre-service Teachers

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Abstract: The repeated use of reflection throughout their teacher preparation experience can be useful in encouraging growth and improving pedagogical knowledge, teaching performance and professional development among pre-service teachers. This study looks at how the reflective engagement of these teachers in a structured classroom activity reinforces the application of the teaching-learning process in the classroom and enables them to construct meaning from that application. It seeks to identify ways in which the teachers engage in reflection; determine their levels of reflective engagement; examine what they discover about teaching through reflection; and establish how this reflection affects their pedagogical ability.

Introduction

Experience in the classroom can reinforce the concept that self-reflection enables pre-service teachers to construct meaning from their work in it (Costa & Kallick, 2000). It has been the practice in a teacher preparation program at a developing state university for teacher candidates to be given the opportunity to collaborate with professionals in the classroom and to develop their ability to engage in reflective practice. This reflective experience occurs in collaboration with the university professor, classmates, mentor teacher and/or university partner and seeks to enrich the impact of the reconstruction, reorganization and application of theory to classroom practice.

Reflective engagement helps pre-service teachers to actively consider and reconsider beliefs and practices that allow them to move toward metacognition in teaching (Moon, 2004) so as to improve their ability to monitor the decisions about what and how they teach. It is a major responsibility of teacher education to facilitate a reflective, self-monitoring practice and to promote such a practice as a critical and active habit that improves the pre-service teachers' pedagogical ability. This study sought to discover how pre-service teachers' reflections focused on actions they took while in the classroom and how the application of the teaching-learning process in the classroom enabled them to construct meaning from that application.

This study looks at how the reflective engagement of pre-service teachers reinforces the application of the teaching-learning process in the classroom and enables them to construct meaning from that application. Use of a structural classroom activity enabled pre-service teachers to engage in that reflection.

The purpose of the study was to (a), illuminate ways in which pre-service teachers engage in reflection; (b), discover the level of reflective engagement of the pre-service teachers; (c), examine what pre-service teachers discovered about teaching through their reflection; and (d), understand how the reflection undertaken by pre-service teachers influenced their pedagogical ability.

Literature review

The importance of teacher candidates being able to develop their ability to engage in reflective practice has been supported by many theorists and practitioners in teacher education (Boud, Keogh, & Walker, 1985; Schon, 1996; Kettle & Sellers, 1996; Ellsworth, 2002). From a theoretical framework that was drawn from the works of Dewey (1910, 1933) and Schon (1983), the use of reflective practice encourages pre-service teachers to think critically about their practice (Pedro, 2005). Specifically, reflective practice helps them to develop their ability to examine their own concepts, theories and beliefs about teaching and subject matter (Posner, 2005). As Dewey (1933) argued, learning from experience is enriched by the reflecting on experience. Schon (1983) further developed reflection by defining two distinct ways that professionals practice reflection. Schon distinguished reflection-in-action as occurring in the experience when we connect our feelings to theories to inform our actions in the situation as it happens. He also described reflection-on-action as spending time exploring how and why reactions to an encounter unfolded. Both facets of reflection enables professionals learn to frame and reframe complex and ambiguous problems, test out various scenarios and modify their actions as a result (Schon, 1987). When we take reflection in and on action together, the theory proposed by Schon is important in explaining how processes, experiences and understanding generated through reflection can improve on what we do.

Reflection on an experience could be defined as thinking about an occurrence, examining an event from more than one perspective, and using the process to think about what happened, why it happened and what else could have been done (Cruickshank & Applegate, 1981). Reflection is also viewed by many as the foundation for developing the highest professional competence in the complex practice of teaching. Reflective thinking is necessary for teachers to take control of their teaching and become empowered decision makers (Cole & Knowles, 2000; Osterman & Kottkamp, 2004; York-Barr, Sommers, Ghere & Montie, 2001). Some believe that it is only through teachers' reflections of their own teaching that they become more skilled and capable practitioners who are able to define their role in the context of educational goals (Michener & Liston, 1996). Larrivee (2006) believes that by engaging in systematic reflection about their work, teachers can become empowered decision makers who can act as change agents.

Some researchers have extended the study of reflective practices in teaching to include the impact reflection can have on self-awareness and how that can influence decisions practitioners make in the classroom. Reflective orientation to teaching is seen by Corcoran (2003) as an inquiry orientation that requires attention to one's own actions in relation to intentions and leads to selecting an option or course of action based on the consequences on student learning. Houston & Warner (2000) believe that teacher education programs must assist prospective teachers to understand themselves, their values

and their drives prior to focusing on other students' needs and aspirations, or ways to develop effective instructional strategies. According to them, reflective practice encourages personal growth and development that can facilitate improved functioning in the classroom because of a better understanding of their personal orientation and capabilities.

Several recent studies have been conducted that look at the effect of reflective practice of pre-service teachers in a variety of approaches (Pedro, 2005; Long & Stuart, 2004; Zengaro & Iran-Nejad, 2007; Downey, 2008; and Ward & McCotter, 2004). Pedro's (2005) qualitative, interpretive study explored how five pre-service teachers constructed meanings of reflective practice, and how these meanings informed their practice. Ward & McCotter (2004) analyzed exemplars of student teacher reflection coming from two very different approaches to outcome-based teacher preparation and developed a rubric that illuminates the dimensions and qualities of reflection. Zengaro & Iran-Nejad (2007) looked at how multiple-source learning provides a new lens for the observation of reflective teaching and learning experience in a university-level literature-based writing class. Downey (2008) examined at how guided reflection of a recorded teaching assignment enhanced development of the knowledge, skills and dispositions needed to be an effective educator. Long & Stuart (2004) focused on the reflections of teacher candidates about their experiences in an integrated mathematics and science methods course, and how that affected their decisions as teachers.

The findings of these studies support the notion that pre-service teachers have the ability to develop a better understanding of the skills and knowledge and self awareness through reflection. They point the way to how reflective practice can and should be encouraged in different pedagogical contexts. In this study, pre-service teachers reported that thinking about what important tenets they learned in their educational psychology course made them more aware of how their experience was helpful to them in adapting the often more theoretical college classroom to the real-world experience of the public school classroom where they still needed to develop their skills. Additionally, reflection encouraged and engaged them in thoughts about how their students were affected by their thoughts about thinking and learning.

Current context

Pre-service teachers were active in the public school classroom for a field-based placement of eighty hours for one of two to three semesters prior to their semester of student teaching. Most students in Early Childhood K-4, Bilingual and Special Education began their pre-service experience in their second semester of their junior year. Kinesiology and Secondary Content Major pre-service teachers started their field-based experience in the first semester of their senior year. Along with the activities related to their other methodology classes, pre-service teachers in an education psychology class completed field-based assignments related to cognition, modification, literacy and motivation. They also undertook a brief case study of an individual student, complete with formal individual observations of the student. A lesson plan format that included a reflective section, where they were asked to monitor actions and decisions about what and how to teach, was used in all the courses throughout the program that included lesson

preparation. Their activities and plans were evaluated by their university professor, their university partner and their mentor teacher. Observations were paired with conferences and suggestions for improvement were made. Further, at the end of field-based placements, pre-service teachers shared some of their activities and experiences with their peers and submitted mini-portfolios of their assignments and evaluations to their university professor. While seemingly similar to teacher preparation requirements of other universities, the reflective pieces used particularly showcased the reflective practices of the pre-service teachers and allowed them to utilize reflection to expand their understanding of involvement in the classroom setting.

Participants

Students in the teacher preparation program are from a current junior and senior campus growing to become a new four-year university. As a result, all students arrive as transfer students and have a wider range of underclassman college experience. Students tend to be non-traditional, with the average age of thirty-two. A large majority of them are working full time and taking courses in the evening. Approximately one-third of the teacher preparation program students are currently working as aides in schools. A large number are from minority groups and frequently are the first in their families to complete college.

Of the pre-service teachers in this lab-based educational theory class, three class sections were composed of early childhood and bilingual education students, while the other three class sections were made up of secondary content, kinesiology, and special education pre-service teachers. The two major classifications of sections were almost equal in number – 62 and 58 respectively

Certification area	Spring 2007	Fall 2007	Spring 2008	Totals
Early Childhood and Bilingual Education	14	26	22	62
Secondary, Kinesiology & Special Education	25	14	19	58
All	39	40	41	120

Table 1: Number of Pre-service Teachers by Certification Area and Semester

The study

Method

Pre-service teachers in a theory-based course about the behavior and development of students were asked to respond to a series of questions that called for reflection about their recently-completed 80-hour field-based experience in public school classrooms. As a part of this class reflection activity, pre-service teachers were prompted to respond to a series of statement or questions related to the components of their field based experience that included ‘Name three important things you learned from your field-based placement’.

The structured reflection questions (Appendix A) were given over one and a half years to the six sections of a theory-based educational psychology class, two sections each semester. A grounded theory methodology was used until data had been coded to preserve

the pre-service teachers' perspectives accurately in the results (Lincoln & Guba, 1985; Glesne, 2006).

Student responses to the above statement are included in this paper. The written responses were collected, entered verbatim and coded. These responses were then looked at by the author for accuracy. A group of colleagues reviewed the responses and attempted to categorize the responses, based on emerging themes. Common elements in the statements were noted and coded. The group then met again and discussed the newly-coded statements and identified major themes occurring within the reflections. The resulting ideas were again sorted and negotiated through the group, from which each theme became clear. This periodic review by a group of colleagues of the pre-service teachers' statements served to verify the accuracy of the determination of the themes and inter-rater reliability for the placement of the statements in the sub-categories.

A working definition of each theme was developed from the reflections. Responses from the reflection emerged in three themes: (a), learner characteristics; (b), classroom management and environment; and (c), teaching strategies.

The themes were defined in the following manner:

Learner characteristics were described in terms of both student strengths and weaknesses and included the performance modality of students. 'Learning styles' involved the identification of differing learning characteristics and focused on the learning styles of the students that would have implications for instruction. Performance modes of learning were described as the diverse ways in which learners approached the learning tasks.

Classroom management was identified as the pedagogical techniques used to maintain a healthy learning environment. Classroom management strategies included the ways teachers' maintained control that were conducive to student growth. This area also focused on techniques aimed at decreasing disruptive behaviors and increasing productive behavior.

Teaching strategies included both what was taught and how it was taught. This theme was driven by how lessons were organized, the content of instructional materials and the foci of the lessons. Planning methods, teacher and student-centered approaches for different content areas, and individual and group teaching strategies also were considered as part of this theme. The teaching strategies ranged from conversational questioning, content rules, small-group activities, contextual problem solving to collaboration and authentic learning experiences.

The focus of this paper is on the reflective statements of the pre-service teachers regarding the theme of teaching strategies. Forty-five per cent of all responses of the pre-service teachers occurred within this theme. Within the teaching strategies theme, data statements were additionally found to follow sub-strands or sub-categories including (1), organisation; (2), active engagement; (3) specific strategies and activities; (4), modifications and extensions: and (5), expectations and motivation of students. After data statements were placed in sub-categories, they were reviewed again and adjustments made. In some cases, sub-categories changed. For example, 'technology' was originally treated as a separate subcategory and then redistributed because statements in that area included references to specific strategies and activities. A summary of the results is shown in Table 2.

Sub-category	N	%
Organisation	80	37
Active engagement	26	12
Specific strategies and activities	35	16
Modifications and extension	21	10
Expectations and motivation of students	21	10

Table 2: Frequency and Percentage of Pre-service Teachers' Responses in the Subcategories of Teaching Strategies

To understand the level of reflective engagement of the pre-service teachers' experiences, the data were again analyzed and particular sub-categories related to the kind of engagement emerged. Sub-categories concerning engagement were categorized as teacher-centered or student-centered as they related to teaching strategies. If the reflection focused on the action of the pre-service teacher and how he or she reacted or felt about the use of a teaching strategy, it was coded as teacher centered. Reflective statements whose contextual content focused on looking at teaching strategies related to theories and knowledge and the impact on students were coded as student centered. Such student-centered reflection was also noted as a higher cognition level of reflective engagement because the pre-service teachers must not only focus on their personal perceptions and choices but also include options that take into account the issues and needs of the students and provide quality experiences that are relevant to the students' lives, needs and interests. The ability of pre-service teachers to view how their beliefs and practices affect their students in the classroom allows them to demonstrate metacognition in teaching. Table 3 shows the frequency and percentage of responses by sub-categories of reflective engagement on the theme of teaching strategies.

Certification area	Teacher-centred		Student-centred	
	Frequency	%	Frequency	%
Early Childhood and Bilingual Education	70	60	45	39
Secondary, Kinesiology and Special Education	40	50	39	50
All	110	57	84	42

Table 3: Frequency and Percentage of Reflective Engagement by Certification Area

Early Childhood and Bilingual Education pre-service teachers' reflective engagement was more often focused in both frequency and percentage on teacher-centered comments, while the reflective engagement for Secondary, Kinesiology and Special Education appeared to include equally teacher-centered and student-centered comments. However, review of individual pre-service teachers' levels of reflection revealed a continuum of reflection beginning with early comments that focused on the pre-service teacher functioning such as learning 'how to administer skills tests', 'time management' or 'assessment strategies that work'. Pre-service teachers then continued their reflection to comments that were student-centered in content, such as how to 'focus on helping students achieve given goals', 'ways to work with individual students discretely in a group setting' and knowledge that you 'must be aware of ways to help and motivate all students'.

Results

This study reports on the reflective statements of pre-service teachers in several sections of an educational psychology course. It was guided by four research questions:

- What are the ways that pre-service teachers engage in reflection?
- What are the levels of reflective engagement by the pre-service teachers?
- What did pre-service teachers discover about teaching through their reflection?
- How did the reflection done by pre-service teachers affect their pedagogical ability?

The ability of the pre-service teachers to reflect on their prior experiences in framing

their responses to a structured class activity begins to illustrate how their reflective practices throughout the semester influenced their pre-service field based experiences. For example, pre-service teachers were able to see how the developmental level of the students in their field-based classroom affected the choices they made for presenting content and selecting strategies to work with students. The analysis of the experiences of the pre-service teachers revealed findings pertinent to the development of a reflective orientation and, in particular, an orientation that looks at an experience from multiple perspectives.

The theme of teaching strategies was selected for examination because of the relevance of such activities to creating a reflective practitioner. As a teaching philosophy is developed that expresses personal values in a professional context and is articulated into the pre-service teacher's scope of responsibilities, the approaches adopted to facilitate those goals are shaped by teaching methodologies and strategies. Reflection assists the pre-service teachers in assessing the success of their intended purposes. Most of the students' field-based college classes incorporated activities related to the methods and teaching strategies to be used in their field-based classes. The emphasis on the methodology of teaching strategies that is as fundamental part of most teacher preparation programs appeared throughout the pre-service teachers' reflections. While some early concerns were about classroom management, the pre-service teachers' reflections focused on teaching strategies. Nearly twice as many chose to comment or reflect on experiences related to teaching strategies as those who focused on classroom management. Forty-five per cent of all reflections were in the theme of teaching strategies. Reflections occurred on a continuum ranging from teacher-centered statements such as 'teaching is fun' (which represents an egocentric focus on self) to open reflective statements that revealed a more student-centered perspective and provided insight into the teaching situation. An example of such movement is 'I realized that when I was teaching new material that students had not been exposed to before, I really had to break it down for them to understand'. Knowing that a pre-service teacher loved what they were doing is powerful, but the fact that the pre-service teacher realized that how the material is presented varies with the situation and the learners is an integral part of being a reflective practitioner and has rich contextual meaning.

As the data were analyzed, a variance between the elementary and secondary/all level certification area students was noted. Therefore, their data statements were viewed separately in each theme and the sub-categories of the theme. For example, the secondary certification pre-service teachers included statements such as 'You must always be prepared and organized – one person is responsible for so many students'. The structure of the middle school and high school, with very specific class periods and a larger number

of students in each classroom, makes organization more important. Pre-service teachers indicated that they had developed a new understanding of the time and effort necessary to direct the learning activities of a large group of students, especially because of the class timeframe. Statements such as ‘When you plan ahead of time, lessons usually work a lot better! Plan, Plan, Plan!’ were typical. Because their subject area instruction classes were usually from another academic discipline, such as mathematics or social studies, their exposure to teaching strategies had occurred in more limited methodology courses that were not linked to specific content areas.

On the other hand, elementary certification students focused on more specific techniques: ‘I learned some really good ideas for the literacy centre and how to make my lesson have higher level thinking skills’. While elementary pre-service teachers were concerned about organization, they appeared to be able to focus on teaching strategies that supported learner-centered classrooms which were structured differently. The fact that elementary and bilingual pre-service teachers took more field-based courses and had three semesters in the field prior to student teaching could be a factor in their personal and reflective engagement. The length of field-based time was indicative of increased or decreased reflection. In reviewing the data statements of the pre-service teachers, it was noted that the more time spent in the classroom, the richer the reflection. Pre-service teachers in their second semester of field-based experience appeared to focus more on the learner-centered classroom and seemed to have a clearer understanding of the need to move beyond organisational concerns to how to best work with students.

Pre-service teachers’ reflective statements about teaching strategies focused on the following:

- The importance of organization, planning, procedures, structure and consistency.
- Different techniques to keep students actively involved and engaged.
- Productive experiences of the value of specific teaching strategies and activities.
- Modifications and extensions to use with diverse learners.
- Expectations and motivation strategies for student success.

Findings are presented by focusing on the above sub-categories and illustrative examples are given for representation and clarification of the theme of teaching strategies. The statements were selected as exemplary responses because they were typical of the statements in the data set.

Importance of planning and organization

One category that emerged from the pre-service teachers’ responses was the importance of planning and organization. They noted the importance of established procedures, structure and consistency from their experience in the classroom (Table 4). The reflections of many pre-service teachers shared new understandings about the amount of planning and organization necessary for success in the classroom. The level of understanding about the importance of effective and thorough planning appeared to be consistent throughout the reflective statements of the pre-service teachers. Their first-hand experience in the classroom made them realise the importance of good planning to effective practice in addressing the needs of students.

Sub-category	Pre-Service Teacher Statement of Insight or Understanding
Pre-service - Secondary	When a teacher is unprepared and does not have a plan the whole class will become dysfunctional.
Pre-service - Elementary	It's important to have procedures that the students follow every day; this way the class can function smoothly and objectives for the day can be reached.

Table 4: Responses (With Exemplars) of Responses Related to Organisation

Different techniques to keep students actively involved and engaged

In the instructional design and methods lab classes, the pre-service teachers are exposed to a variety of techniques to use in the classroom and their creativity with those techniques is expected to be demonstrated in their mini portfolios and in their sharing sessions on field-based activities with their peers in the college classroom. Pre-service teachers' creativity was also indicated by their reflections in Table 5.

Sub-category	Pre-Service Teacher Statement of Insight or Understanding
Pre-service - Secondary	We need to make sure we have plenty of extension activities that keep students engaged and that the students will enjoy and learn from.
Pre-service - Elementary	Be creative with assignments and make assignments of interest to the students.

Table 5: Responses (With Exemplars) Related to Different Techniques to Keep Students Actively Engaged

Pre-service teachers mentioned several different techniques for keeping students on task. Their reflections in this subcategory of teaching strategies ranged from 'being creative to catch students' attention' to 'model instructions for students' and 'If students are not responding to instruction, I can improve that by talking slower and writing bigger'. As one pre-service teacher indicated, 'students are more active in the lesson when they are involved in activities that revolve around the concept that you are teaching rather than a direct teaching method'. Such a comment can be considered as being reflective of both the contextual content level that focuses on the student perspective and the knowledge base of the pre-service teacher. The level of generality or specificity in this subcategory was more pronounced than in the previous subcategory. The amount of involvement and level of understanding with regard to techniques utilized to engage students in learning experiences appeared to be related to the number of methodology courses included in the pre-service teacher's certification program.

Specific teaching strategies and activities.

Pre-service teachers reflected on their experiences with demonstrations, cooperative learning, guided reading, writers workshop and re-teach techniques and their value in the classroom (Table 6).

Sub-category	Pre-Service Teacher Statement of Insight or Understanding
Pre-service - Secondary	I had great experience with choral reading.
Pre-service - Elementary	I learned that teacher actually used writers workshop. I thought it was a teaching myth, that we learned it for nothing. It was used, and it was effective.

Table 6: Responses (With Exemplars) Related to Specific Teaching Strategies and Activities

But many of their reflective statements focused on specific actions and what they had gained from the experience. Such reflections had minimal depth and were on the beginning level of teacher-centered focus on the reflection continuum. A smaller portion of reflective statements included the students' perspective, which was indicative of deeper understanding of how to match what they do as teachers to student needs, such as the comment 'I learned the importance of closure and relating lessons to their life experiences'. Such a comment can be considered as being involved with the contextual content level that focuses on the student perspective. However, it also draws on the knowledge base of the pre-service teacher. Only a smaller proportion of pre-service teachers were able to focus on the impact on students and how that related to the application of teaching strategies knowledge and theory in classroom, which placed their reflective engagement at the student-centered area of the reflection continuum.

Modifications and extensions

One of the greatest challenges in the classroom for the pre-service teacher can be developing the ability to understand the influence of beliefs, prejudice and social structures on the classroom environment. Preventing those social-cultural factors from interfering in learning and in the development of all students and using teaching methods that reach all students is a challenge. That was noted by pre-service teachers in their reflective comments in Table 7. One student reports great satisfaction in 'focusing on helping students achieve their given goals'.

Sub-category	Pre-Service Teacher Statement of Insight or Understanding
Pre-service - Secondary	[You] prepare better lessons with modification/adaptation strategies.
Pre-service - Elementary	This experience taught ways to work with individual students discretely in a group setting.

Table 7: Responses (With Exemplars) of Responses Related to Modifications and Extension

These exemplars also demonstrate differing depth of reflection

Expectations and motivation of students

Table 8 focuses the importance of motivational strategies for student success, as identified by the pre-service teachers.

Sub-category	Pre-Service Teacher Statement of Insight or Understanding
Pre-service - Secondary	You must be aware of ways to help and motivate all students.
Pre-service - Elementary	If a higher level of learning is expected, students will perform at that level.

Table 8: Responses (With Exemplars) of Responses Related to Expectations and Motivation of Students

One respondent stated that an awareness of ‘ways to help and motivate all students’ had been part of what was learned in the classroom setting. Another felt that the ‘positive influence that a learning community between teachers, staff, parents and students’ enriches the interests in learning and improves of motivation on students’. The contextual content of the second reflective statement is at a higher level of understanding of the interaction of student needs and knowledge based application and is at the student-centered end of the reflection continuum.

Other areas that drew notice from pre-service teachers were technology support and the need for humor: ‘Learning to use technology is important’; ‘having a sense of humor will keep you from becoming stressed out’. Sometimes experience also brought into focus what **not** to do: for example, ‘I learned that worksheets all the time are not the answer’. The need for modifications and extensions for use with diverse learners was realized by the pre-service teacher who wrote ‘Maybe I should take time to create a book of modifications and extensions to be use in my classroom. It may be a useful tool for me when planning lesson plans’.

Discussion

When asked about their field-based experiences, pre-service teachers’ reflections focused on learner characteristics, classroom management and teaching strategies. Their reflections concerning teaching strategies comprised 46 per cent of their total responses. That theme was further disaggregated into sub-categories that included procedures, activities for students, ways of keeping students on task, modifications and adaptations for all learners, motivation, and other specific instructional strategies.

The largest areas of focus within the teaching strategies category related to the organization and application of a specific strategy in the classroom. Pre-service teachers start with an egocentric idea (teacher-centered) about what is important in the classroom. The focus is on their actions and how what they do reflects on them and makes them feel. However, their reflections revealed that as their experiences in the classroom increased, they moved along the continuum to a focus that was more student centered. As their reflections enriched their understanding of how the theories learned in the college

classroom could be applied to classroom practice, the focus moved to what they could do to make students more successful.

The focus on planning and organization and specific strategies for use in the classroom dominated what pre-service teachers discovered about teaching through their reflection. Most demonstrated an understanding of how contextual content that focused on the student affected their pedagogical ability.

Pre-service teacher statements indicated that their understanding about the role of the teacher improved during their field-based placement. There was also evidence that pre-service teachers were able to better identify the nature of the learning process and ways to utilize more appropriate learning tasks and strategies. The field-based experiences helped them to learn through application of an action. There was a noticeable difference in focus between the secondary and elementary pre-service teachers. The former looked more specifically at how to organize for instruction, while the latter were more concerned about specific instructional strategies.

The class reflection activity indicated a positive understanding of the effect that reflection can have on practice. Data showed that some pre-service teachers were able to reorganize and apply theory in the classroom through reflective engagement and that such reflection existed on a continuum of development from highly teacher centered to highly student centered. This pre-service teacher's statement best illustrated the value of this reflective practice: 'I also learned to utilize the theories I have been taught in [class] in my teaching. I found it really helpful to perform tasks in these areas for my teaching in the future'.

The structured reflection activity assisted pre-service teachers in developing a deeper understanding how they could apply the theories and processes learned in the college classroom to a more effective learning experience for the students in their classrooms.

Implications for practice

The results of this study suggest that repeated use of reflection throughout the teacher preparation experience, and particularly in a structured reflection questionnaire, can be useful for encouraging growth and professional development. The present data add to the debate on the relevance of reflection by illuminating specific discourse chosen by pre-service teachers in the area of teaching strategies. Differences in how time in the field-based classroom was viewed by pre-service teachers of different certification levels appeared in their reflections. Also, a clear delineation developed showing that reflective engagement progressed along a continuum from teacher centered to student centered, rather than occurring at the different levels apparent in the Johns Hopkins University Digital Portfolio and Guide (2006) utilized by other universities. This study presents a new conceptual model. Reflective engagement and self-correction have been shown to lead to increased understanding of skills and knowledge and thereby improved performance by pre-service teachers.

The discoveries and realizations generated by self-reflection have the potential to encourage continued development for pre-service teachers, and provide ways for college professors to promote continued, deepening and sophisticated levels of reflection.

It is often hard for professors who teach theories basic to the content of an educational psychology course to make their real-life application for pre-service teachers come alive and be understood within the process of learning the theory. Field-based placements provide such an opportunity. However, the discoveries and realizations relative to students' understanding of those theories increased through reflective engagement and allowed the pre-service teachers as well as for the professor to see the connections and to assess their understanding.

Conclusion

The findings of this study suggest that structured reflection, as related to field-based placement, increases the understanding and application of various educational theories for pre-service teachers. Through their experiences, pre-service teachers reported growth and development in organization and procedures, activities for students, ways to keep students on task, ability to create modifications, and/or adaptations for all learners, motivation techniques, and utilization of specific instructional strategies.

These results support previous research studies (Pedro, 2005; Long & Stuart, 2004; Zengaro & Iran-Nejad, 2007; Downey, 2008; and Ward & McCotter, 2004) that suggest pre-service teachers' ability to develop a general understanding of reflection is important and point the way to how reflective practice can be encouraged in different contexts.

The findings also extend previous research by identifying the subtle variations in the orientation of the secondary and elementary certification pre-service teachers as well as a continuum of reflective engagement from teacher-centered to student-centered focus. Reflective engagement serves to promote and continue the development of pre-service teachers' understanding of the nature of teaching and learning.

Future research would benefit from the consideration of the advantages of providing structured reflective exercises at various points during a field-based experience for pre-service teachers.

Questions that could be addressed include:

- How would a probing reflection questionnaire designed to promote increased critical thinking and deeper metacognitive skills as well as encouraging pre-service teachers to better understand their own orientation to learning and their decision-making process influence the depth of reflective engagement?
- When should reflective exercises be undertaken in relation to observations, field-based experience and the execution of lessons?
-
- Would group reflective activities be beneficial when used in relation to the content of the educational psychology course?

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Appendix

EDED 3312: Development and Behavior of Elementary Students Field-based Reflections

- Name three things you learned at your school.
- Discuss how your university partner helped you.
- What did you learn from your field-based assignments?