

# ENHANCING REFLECTION BY PRE-SERVICE TEACHERS THROUGH ACTION RESEARCH

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## Abstract

In this third of four articles discussing the introduction of action research to a class of pre-service teachers, Julian and Dianne draw upon reflections written by students in their teacher program to examine the degree to which engaging in action research heightens their self-awareness.

## Introduction

Action research involves teachers in systematically investigating their own practice in order to enhance student learning. While the focus is on improving practice, there is ample evidence that action research helps teachers “become more reflective, critical and analytical about their behaviours in the classroom” (Rock & Levin, 2002). Although there are few studies connecting reflection to action research projects in pre-service teacher education, there is some evidence to suggest that this can be a powerful combination (Chant, Heafner, & Bennett, 2004).

Drawing on reflections written by students in our teacher education program, we examined the degree to which engaging in action research heightened self-awareness among pre-service teachers. An overview of the pre-service action research assignment and our results can be found in “Introducing Pre-service Teachers to Action Research” (OAR, Volume 7.1).

## Methodology

This paper is one of series of papers based on our action research project with pre-service teachers. For the larger project, we collected preliminary questions, action research proposals, student action research projects, student reflections on their projects, our written responses to their work, and our reflections on the project.

Three questions acted as guides for the reflections pre-service students wrote at the conclusion of the project:

- What are your reflections on the experience?
- Would you conduct action research again?
- If so, what would you do differently?

These questions were open-ended and no response prompts were provided. Also, they were grouped together on the guidelines for the assignment, which meant that some students did not respond directly to all three questions.

This format has the advantages and disadvantages of providing open-ended snapshots of students’ impressions and feelings at the time they were answering the questions. Also, as the responses were not anonymous, we were aware that some pre-service may not have been forthcoming with criticisms. We performed a cross-case analysis of the reflections that the 31 pre-service teachers wrote at the conclusion of the project. Extensive selections from these reflections are used to support our analysis.

We did not draw conclusions except where there was a triangulation of data, including a high level of agreement across responders and situations which were validated by researcher observations, informal discussions and anonymous end-of-year course evaluation forms.

In examining the data, we adapted an approach recommended by Bogdan and Biklen (1998). We each read the responses and independently generated coding categories, based on our sense of the categories that were emerging from the data. We discussed the results in order to develop meaningful categories for the data. We reread the responses and adapted the categories accordingly. We established a high rate of inter-rater reliability (over 80%), resulting in an acceptable degree of confidence (Carmines & Zeller, 1991) that the classification system effectively summarized the participants' responses. Our research findings in the next section of the paper are a result of this process.

### **Discussion of the Findings**

The reflections written by the pre-service teachers at the conclusion of the project provided us with insights into both their developing conceptions of teaching and their conceptions of themselves as practitioner-researchers. We have organized our reporting of the findings around the three guiding questions. While some students systematically addressed these three questions, many answered these questions in a free-ranging manner.

#### ***What are your reflections on the experience?***

This open-ended question generated a wide variety of responses. After analyzing these responses, we identified three principle themes that emerged from the data: enhanced sense of self as teacher, deeper understanding of individual student learning, and heightened awareness of the complexity of teaching in classroom.

#### ***Enhanced sense of self as teacher***

27 pre-service teachers credited the action research assignment for enhancing their awareness as teachers. Leslie, for example, reflected that the action research project taught her "to continuously and consciously observe, monitor, and reflect in order to improve my own practice." Teresa credited her project with "making me more aware of underlying issues within the classroom, both social and academic". More significant, in our view, is her next sentence: "I think that the process of reflection and investigation that accompanies an action research project forces a teacher to examine alternative ways of teaching and learning—both of which are important in the process of life-long-learning". By taking an active role in creating and researching her practice, Teresa moved beyond simply designing and implementing lesson plans. Instead, she was "forced" to reflect and investigate, to see herself as an agent capable of transforming learning among students.

The example of Siow-Wang illustrates the power of action research when it is combined with deep personal reflection. Siow-Wang, who had been educated in Asia, grappled with the tensions between her traditional academic education and her attraction to the cooperative learning activities introduced in her teacher education classes. In reflecting on her formative learning experiences and critical incidents in her practice teaching setting, she sought to reconcile the tension she perceived between academic rigour and authentic learning. Her action research project, in which she used cooperative learning activities to stimulate high level investigations and discoveries in physics, provided her with an opportunity to work through these issues. While cooperative learning proved "time consuming", she described it as very effective because it motivates students, enhances learning, and demonstrates to students that "teamwork and communication are crucial" to solving complex, authentic problems. As a result of this project, Siow-Wang indicated that she is now committed to using cooperative learning in future lessons and "would conduct action research on a continuing basis in my future career". For Siow-Wang, working through an issue of interest enabled her to become more reflective and, through reflection, come to develop a stronger identity as a teacher committed to authentic learning and practitioner research. Many of the pre-service teachers identified reflection as an important part of the process, which suggests that the reflective aspect of action research, also found in self-study, is a powerful strategy in teacher education.

Maureen writes, "I enjoyed this project tremendously. I would not have been as conscious of classroom management, nor as willing to experiment with different strategies, if I had not chosen this topic." By "working on the intersection of theory and practice", she was reminded "of the need to keep learning and of [her] ability to do so". This comment conveys the joy

expressed by these pre-service teachers upon discovering that researching their practice could make a difference to their self understanding and to the lives of the students they teach.

### ***Deeper understanding of individual student learning***

One of the reasons that pre-service teachers revised their sense of themselves as teachers was because their work on these projects led them to develop a deeper understanding of student learning. The responses of 24 pre-service teachers corresponded with this thematic category.

Key to understanding individual student learning is shifting the focus from one's own performance as teacher to the needs of students. Stacey's passion for taking detailed field notes illustrates the importance of this shift in focus:

Action research encourages educators to consciously observe their students and record their insights. I found this part of action research extremely rewarding and it is something that I will draw upon in the future. I believe that keeping a daily journal of observations from the classroom is an activity that will facilitate a variety of different future action research projects.

Diana, who worked with a student who was both hearing impaired and gifted, wrote, "Through my participation in action research, I gained a greater appreciation for the learning needs of students with multiple exceptionalities within my classroom." This heightened sense of awareness was evident in many of the other responses.

This led many pre-service teachers to modify their initial assumptions about student learning. Laressa, for example, made the following observation about her developing understanding of student learning: "Before doing this study, I believed that treating boys and girls differently was inherently wrong. I have learned that in computing science, girls and boys require slightly different treatment in order to excel." While Laressa maintained her sense that equal treatment is desirable, this action research project has caused her to recognize that "slightly different treatment" may be necessary. As she gains experience, we suspect that Laressa is likely to consider other adaptations to meet student needs.

Kagan's (1992) case studies of pre-service teachers reveal that most focus on classroom management rather than student learning. He describes this as a "critical lack of knowledge about pupils" (p. 42) and calls on teacher educators to help pre-service teachers focus more on the needs of students. Both these reflections and their analysis of data reveal that pre-service teachers in our program were able to begin this transition early on thanks to the action research project.

Two students, in addition to better understanding student learning, discovered that students were very appreciative of their efforts. Amy noted that "students found my project helpful to them" and "appreciated the fact that my research addressed one of their greatest concerns". Shannon wrote:

By undertaking this research, I developed a nice rapport with senior IB [International Baccalaureate] students in the Grade 12 class. These students knew that I was very interested in their transition [to university], and they repeatedly highlighted my empathy for their situation in their reviews of my teaching. They seemed touched by the fact that someone cared so much about what they were going through.

Similar sentiments were expressed informally by other pre-service teachers, particularly those who worked closely with one or two students.

Effective, experienced teachers address the individual learning needs of students. Action research projects focused on student learning have enormous potential as vehicles for fostering this understanding in pre-service teachers.

### ***Heightened awareness of the complexity of teaching in classroom***

"Putting theory into practice in complex educational environments is a difficult yet rewarding task," Michael concluded. Indeed, many of the pre-service teachers in this study emerged from their action research with a heightened awareness of the challenges of teaching in classrooms, with 17 making reference to the complexity of teaching, classrooms and/or class dynamics.

Dominic who studied classroom seating preferences, concluded that "learning styles are only mildly dependent on location." Instead he concluded that the key is how the teacher responds to the diversity of students in the classroom. While Dominic began his action research project hoping for a technical solution to a problem, he learned that classrooms are dynamic environments in which teachers must adapt by using a wide range of strategies in order to "engender a broader participation from the class".

"Practical work is an essential component of a Chemistry course," Nina noted. Nonetheless, she found that "cognitive overload caused by stress" limited the practical learning that takes place during experiments. Enhancing student learning in a Chemistry class, she concluded, requires students to take charge of their own learning, rather than be "just observers and recorders of the process". As a result of this action research project, Nina's intends to develop more sophisticated experimental approaches that can reduce stress by enhancing practical learning. Rather than retreating to the safety and control of teacher-centred lessons, this pre-service teacher now embraces the complexity of classroom teaching.

Teacher educators devote considerable attention to the complexity of classroom learning environments. However, this information is often seen as more theoretical than practical. By being a systematic and reflective inquiry, action research helps pre-service teachers make the transition from knowledge as attribute to knowledge embedded in contextual experience.

### ***Would you conduct action research again?***

The responses to this question were overwhelmingly positive, even from students who expressed concerns about elements of the assignment. In coding the responses, we grouped them as follows:

Not mentioned in the reflection	4 respondents
Interested in informal action research	14 respondents
Committed to formal action research	13 respondents

A respondent typical of the "interested in informal action research" cluster wrote, "I probably wouldn't do it in such a structured way, but I would try to identify a problem...research possible solutions, and then implement one or more solutions in a structured and controlled way".

Representative of the groups "committed to formal action research" was the pre-service teacher who wrote, "I believe that the collection and publication of data is vital to professional development".

These comments, combined with their reflections on the experience, suggest that action research is an authentic performance task that is meaningful to pre-service teachers. While their intentions are good, we are also aware the challenges of teacher induction make it unlikely that they will engage in action research during their first two years of practice. We also suspect that very few will engage in formal action research, unless they work in school cultures in which such work is valued. Nonetheless, their positive experiences and dispositions offer hope that they will be more reflective as they adapt their educational practices to the needs of their students.

### ***If you plan to conduct action research again, what would you do differently?***

Most of the responses to this question focused on practical dimensions of the project. For example, fifteen identified methodological aspects that they would handle differently in future. Most of these self-criticisms pertained narrowly to their particular project, such as the way

they conducted a survey or how they compiled data. Others in this category took a broader view, including two who sought to adopt more scientifically rigorous approaches and one who would choose to work collaboratively with a team of teachers.

Four responses focused on issues regarding the scale of the project. Two of these students regretted that their action research projects were too ambitious, while one wished she had widened the scope of her inquiry. The other student identified the time constraints of the project as a major problem. Twelve pre-service teachers did not address this question directly.

The focus on practical elements of the project reinforces the positive comments made in response to the first two questions. Indeed, like good practitioner-researchers, they were engaged in healthy self-criticism.

### ***Other Concerns***

While student reflections on their action research projects were largely positive, approximately 20% identified one or more significant concerns about the action research project we designed. One student, who was particularly critical, identifies some of the main issues of concern:

The action research was essentially useless. A research paper would have served us better. We do not have the experience or the time to worry about it in the practicum. I found the research part very helpful, but the action part was not.

Embedded in this criticism are three interesting perspectives on the project. This student quite fairly addresses the tensions caused by delays in the selection of research questions and the approval of proposals; these delays increased stress during the high-stakes first practice teaching session. On a deeper level, this criticism reveals a conception of teacher education that sees little place for teachers actively engaged researching practice. The value attached to the academic portion of the project reveals a possible preference for content or theory over practice in the field. Finally, this comment raises the possibility that pre-service teachers, who have no formal experience as classroom teachers, are not yet equipped with the knowledge and experience to be action researchers. These observations, while a concern for only a minority, raised important issues for us as we reflected on this project and considered ways in which to improve implementation in subsequent years.

### **Conclusion**

The reflections written by pre-service teachers in our cohort of thirty-two students indicate that action research is effective in enhancing both practice and reflection on practice. Our research indicates that pre-service teachers, like teachers in the field, are more likely to become reflective, critical and analytical when engaged in meaningful action research projects of their own choosing (Rock & Levin, 2002).

### **Implications**

Reflective practice is an important dimension of many teacher education programs, including our own. Indeed, there is much evidence that reflection on personal experiences and critical incidents during practice teaching sessions is an effective pedagogical practice (e.g. Tripp, 1993). Our findings, which are consistent with those of others who have studied the intersection of reflection and action research in pre-service teaching (Rock & Levin, 2002; Chant, Heafner, & Bennett, 2004), suggest that engaging pre-service teachers in action research makes them more aware of student learning, classroom complexity, and their own agency as teachers.

While almost all pre-service teachers in our study indicated an interest in researching their practice, we recognize that many or most are unlikely to do so systematically in their first years of teaching, when pressing practical issues claim their attention. However, studies

indicate that engaging in action research during the teacher induction years might help them refocus on ways in which they as teachers can enhance individual student learning within the classroom setting as they become more experienced practitioners (e.g. Bullough & Gitlin, 1995).

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### Biographical Note:

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