Reflective Thinking and Educational Solutions: Clarifying What Teacher Educators Are Attempting to Accomplish

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Teacher educators require reflective assignments to develop the educational thinking of prospective and experience teachers. Reflective rubrics describe the quality of thinking and provide insight into teacher development. Larrivee (2008) developed a rubric compiled using input from teacher educators. Pre-service teachers' reflections with feedback using the rubric are used to illustrate how to improve reflection. The rubric is also used to predict the quality of educational policy and reform.

Many teacher education programs require students to write reflective assignments such as field observations, journal responses, lesson reactions, philosophies, portfolios, and learning logs. Such reflections are used to evaluate students' quality of thinking by documenting attainment of teacher standards, program dispositions, quality of instructional thinking, and classroom decision-making abilities (Dinkelman, 2000; Dollase, 1996; Ferguson, 1989; Ross, 1989; Smyth, 1989; Takona, 2003; Wade & Yarbrough, 1996; and Zeichner, 1987). A review of the literature reveals numerous definitions and stated purposes for reflection. Dewey's (1933) definition of reflection is often quoted as "active, persistent and careful consideration of any belief or supposed form of knowledge in the light of grounds that support it and the further conclusions to which it tends" (p. 9). Schon (1983) described reflection-in-action as a problem solving process used to address situations of uncertainty, instability, uniqueness, and value conflict commonly faced by educators. According to Schon, such problems are best solved through experimentation, improvisation, invention, and reflection on the deep meaning and unique elements of each problem. Rodgers (2002) described the benefits and processes of reflective problem solving as:

> First, the process of reflection, and the steps of observation and description in particular, require the teacher to confront the complexity of students and their learning, of themselves and their teaching, their subject matter and the contexts in which all these operate. Any action the teacher takes, therefore, will be considered rather than impulsive and based on a deep knowledge of each of these elements and their interactions, which ultimately can only benefit students' learning. (p. 864)

Teacher educators who require reflection do so to sharpen student focus on what is educationally important and to slow down students' consideration of instructional events to allow a more deliberate and considered analysis of teaching and learning. The virtues of reflection are frequently praised in the teacher education literature and the themes teacher preparation programs select for conceptual frameworks demonstrate the importance of reflection. Themes

such as 'teacher as reflective decision-maker,' 'educator as reflective practioner,' and 'teacher as reflective problem-solver' reveal the role that reflection plays in the teacher educators' lexicon.

Given the importance of reflection it is surprising how little has been written to address the problem of how to help students who have difficulty writing quality reflections. That is, writing that accomplishes the goals of reflection by helping students to think in more deliberate, considered, connected and principled ways. The purpose here is to assist teacher educators by describing ways of responding to written reflections that improve the quality of reflection, and to consider how reflective reasoning may extend beyond the classroom.

Methods for Improving Responses

The problems that students exhibit in their reflective writing arise from a variety of sources. Some students may not have sufficient vision to focus on future teaching and fail to regard reflective writing as a serious assignment. Students sometimes call reflective assignments 'busy work' and use trite educational ideas sprinkled with textbook jargon to complete an assignment without thinking or just to get a grade. Some students, unaccustomed introspection may have difficulty describing their thinking processes, while others may be shy about sharing their inner world. Also, research is fairly compelling that students in their early 20's may lack the cognitive development to engage in the abstraction and theory integration required for the higher levels of reflection (Bakken & Ellsworth, 1990; King & Kitchener, 1994; Perry, 1981; Yeazell & Johnson, 1988).

Whatever issues students have with their reflective writing, the goal of teacher preparation is to support beginning teachers as they engage in the process of defining themselves as teachers. This process asks students to examine their own values and beliefs and to integrate these

with knowledge of theory, research, and ethical guidelines, and to then use technical skills to apply and formulate a classroom solution to meet the learning needs of a specific individual or group of learners. For this reason, Dewey (1933) viewed experience and multiple opportunities to reflect on experience as necessary preparation for becoming a teacher. Becoming a teacher means defining oneself in the role by making personal, moral, theoretical, instructional and professional commitments to students and their learning.

Conferences to discuss the quality of reflective writing can be used by teacher educators to correct and improve student reflections. Face-to-face interaction is an effective way to probe students for the underlying meaning of what they have written. Non-reflective writing consists of simple description of educational events while failing to ascribe events with educational or personal meaning. Reflective research suggests probes to encourage reflection may include asking students to extend their reasoning when making educational judgments, asking students "why" an assertion is important, or requiring them to generalize the findings of a current classroom experience to the practices of their future classrooms. For students who need extensive support in writing reflection, conferencing and direct feedback is essential. Even then, while students may improve the current reflection, they may fail to generalize teacher critique in the next reflective assignment (Baker & Rozendal, 2006).

One of the most effective ways to guide students to write better reflections is to use a rubric that designating levels of quality to provide feedback and to evaluate progress. Although rubrics are effective, until recently, one problem was the lack of agreement on a single definition of reflection and criteria for designating levels of quality (Larrivee, 2008). The literature provides a history of attempts to define reflection. Typically, three or four levels of reflection are common, but authors differ in their descriptions and the types of skills demonstrated at each level. For

example, Van Manen, in 1977 distinguished three sequential stages levels of reflection described as technical, practical, and critical reflection, while Smyth (1989) proposed four levels, labeled as describing, informing, confronting, and reconstructing. Mezirow's (1991) classification also included four levels with non-reflective the lowest degree and three levels of reflection labeled content, process, and premise. Larrivee (2008) recognizing that research on student reflection would be hampered until the profession adopted a standard taxonomy, attempted to synthesize the thinking of teacher educators. She identified 110 individuals engaged in research on reflection, of which 40 participated in a survey to establish specific descriptors to define levels of reflection. Four levels of reflection emerged that Larrivee labeled as pre-reflection, surface, pedagogical, and critical reflection.

Examples of Reflection at Four Levels

To demonstrate Larrivee (2008) rubric, an analysis of three student reflections with supportive feedback is provided. The students are pre-service teachers the semester before their student teaching experience who were required to write reflections on a field experience in a classroom where they first observed and then taught several lessons. Below are summaries of Larrivee's reflective levels:

Pre-reflection - The teacher operates in survival mode, reacting automatically without consideration of alternative responses. Views students and classroom circumstances as beyond the teacher's control. Is willing to take things for granted without questioning. Attributes ownership of problems to students or others. Is preoccupied with management, control, and student compliance. Enforces preset standards of operation without adapting to student needs while failing to consider differing needs of learners. Sees self as a victim of circumstances.

Defends rather than analyzes teaching practices.

Surface reflection – The teacher reacts to student differentially but fails to recognize patterns of learning and behavior. Limits analysis of teaching practices to technical questions about technique. Modifies teaching strategies without questioning underlying assumptions. Supports beliefs only with evidence from experience. Questions the utility of specific teaching practices, but not general policies or practices.

Pedagogical reflection – The teacher has a commitment to continuous learning and improved practices and genuine curiosity about effectiveness of teaching practices, leading to experimentation and risk taking. Analyzes the relationship between teaching practices and student learning. Acknowledges the knowledge, community values, interests and curiosity that students bring to the learning process and seeks new ways to connect concepts to students' prior knowledge. Analyzes the impact of instructional methods on students' learning. Accepts responsibility for own professional practices and learning outcomes.

Critical reflection – The teacher views own practice within broader sociological, cultural, historical, and political contexts. Challenges status quo norms and practices, especially with respect to power and control. Addresses issues of equity and social justice that arise in and outside of the classroom. Considers the ethical ramifications of classroom policies and practices. Acknowledges the social and political consequences of one's own teaching. Acknowledges that teaching practices and policies can either

contribute to, or hinder, the realization of a more just and humane society.

Student Reflection One

When observing my supervising teacher's instruction, I have noticed that she is very talented when it comes to conveying the information to the students in a way that they can understand. She generally uses a teacher-directed lecture style, however she also makes certain that all of the students are engaged by having them help discuss the concepts that are being presented. Even though her lessons are lacking in differentiated instruction, she is able to keep the students engaged and help them to learn the material. One way that she does this is by continually reviewing the material and how it all ties in together. The assessment I used for the pre-assessment consisted of around 30 multiple -choice questions. The students averaged around 54 percent on the pre-assessment. I was actually surprised by how much students already knew about WWI.

Student Reflection One is classified according to Larrivee's (2008) rubric at the pre-reflection level. The pre-service teacher affirms and describes the supervising teacher's instructional method as a "teacher-directed lecture style" even while commenting that it is "lacking in differentiated instruction." This indicates that the pre-service teacher accepts the supervising teacher's use of the lecture method without questioning its effectiveness, even while noting differentiated instruction as a valued method. For this pre-service teacher, as long as the students were engaged, that is behaving properly; a traditional lecture is considered a 'talented' way of presenting content. The pre-service teacher states that 'continually reviewing content knowledge' is another effective method for teaching the history of World War I. Last,

the pre-service teacher notes with 'surprise' the pre-test results and how much students already knew about World War I, not having considered students' prior knowledge or interest in the topic. While it is difficult for a pre-service teacher to challenge the methods of a supervising teacher, this pre-service teacher accepted without question the supervising teacher's transmission method of instruction, regardless of the constructivist practices advocated by his program. This pre-service teacher's automatic acceptance of methods without naming the underlying reasons for the selection of those practices and without reference to theory, research, best practices or even the pre-service teacher's own classroom experience demonstrates a pre-reflective level of reasoning. Without intervention, this pre-service teacher would likely emulate any practice that would keep students quiet and the teacher out of trouble. The pre-service teacher needs additional field experiences with a constructivist teacher and extensive prompting to recognize methods that represent best practice and learning and developmental theory. Ideally, pre-service teachers who fail to exhibit reflection should consider delaying student teaching and certification until they have demonstrated reflection at the first level of the rubric.

Student Reflection Two

The students enjoyed being able to approach their teacher about a problem or question that they have. This connects to the idea that students need new knowledge to relate to them on a personal level so that they can assign personal meaning to what they learn and information that they gather. One way that I evaluated students' instructional needs was in reading (and correcting) dialogues that students had written for a short assignment. From this assignment, I could see that students need step-by-step instructions on material and that they need a lot of time and practice in order

to learn it. The [supervising] teacher also pointed out that these students, while they are very well behaved, have a difficult time with the course material. The difficulties of teaching a language are evident in the teacher's comments and from reading their written dialogues, but I am reminded that students need the information repeated and in a variety of ways. Many of the methods of teaching languages stress repetition in learning, and thus students need to see material in different ways, and they also need to be reminded of what they have learned so that they will continue to improve with old material, as well as to connect it with new material.

Student Reflection Two is at Larrivee's (2008) surface level of reflection by the pre-service teacher assertion that, "that students need new knowledge to relate to them on a personal level so that they can assign personal meaning to what they learn and information that they gather," demonstrating that the focus of the reflection is not on self, but on the events as experienced by the learners. The narrative does not meet criteria for the next level of reflection as the pre-service teacher had assumed that high school students would need minimal scaffolding to learn new material. When the learners experienced difficulty with her lessons, she accepts the supervising teacher's advise to resort to rote instructional methods without questioning the validity of the advice or the method. The pre-service teacher connects student needs to schema theory with the statement, "they also need to be reminded of what they have learned so that they will continue to improve with old material, as well as to connect it with new material." The pre-service teacher is willing to modify her instruction based on student data (dialogues) to improve her teaching so she is reacting appropriately to her classroom experiences, yet she fails to justify the change in her methods. She would benefit from prompting by a teacher educator to

better explore the connection of her instructional methods to the learning of her students, learning theory and the best practices for language learning. Surface reflection is the most typical level observed for teachers who are able to react to specific instructional instances, but are unable to generalize that specific to recognize patterns of behavior represented by a theory. They also rely too much on their own classroom experiences rather than seeking multiple references to formulate instructional decisions.

Student Reflection Three

Overall, I think the assessment project went well. Next time, I will make the pre-assessment much more like the post-assessment so it is easier to compare student data. I really like using exit slips as a formative assessment. It allowed me to see what students knew and it is very quick for both students and teacher. I think homework is also an important assessment tool. Both have their pro's and con's. Exit slips must be turned in before the end of class, so there is no risk of forgetting it or losing it before the next class period. Homework can assess higher-level thinking and teaches students responsibility. I will probably use a combination of these things in the future. The formative and post-assessments followed directly from what I had been teaching. The format and content were all aligned. Having short answer questions allowed me to see what the students knew. It also allowed me to see exactly where students are making their mistakes and gives me a good idea of their thinking. For these reasons, I will probably keep this post-assessment very much the same in the future.

Student Reflection Three, the final example, is classified at Larrivee's (2008) third level, pedagogical reflection as demonstrated by the

analysis of the "pro's and con's" of exit slips versus homework for use as formative assessment and impact on instruction. The pre-service teacher is also very explicit about her effort to align content and assessments while also acknowledging her need to revise the pre- and post- assessments to make student data, "easier to compare." She justifies the format of her assessment method as short answer. Clearly the focus of the reflection is on student learning with the analysis of assessment tools that will be used to determine the quality of student data. The tone of the reflection is professional with its concentration on solving problems and student benefit. This pre-service teacher needs encouragement from a teacher educator to recognize that the questions that she is grappling with are the correct ones and that many teachers spend their entire careers attempting to solve just such instructional and assessment problems. This reflection is missing consideration for broader educational, social, political issues and this keep it from being classified at Larrivee's fourth and highest level, critical reflection. It would be rare to find a pre-service teacher who is capable of reflective thinking that looks both inward at the teacher's own practices and also looks outward to see the implications of that practice in broad sociological, cultural, historical, and political contexts.

These examples of teacher reflection at three levels of Larrivee's rubric demonstrate how reflection provides a window into the thinking of developing teachers. Reflection is generally thought of as developing in sequential stages, thought teachers may reflect at different levels simultaneously (2008). Teacher educators should collect a variety of samples and use the information in a diagnostic manner to provide feedback to pre-service teachers and by challenging them to move to the next level of reflection. Scored reflections can also be used to make diagnostic decisions by measuring a skill that is a far better marker than grade point averages and standardized test scores for judging

teacher quality. The reflective rubric offers an evaluation tool to benchmark the quality of teacher reflective skills.

Reflection on a Broader Scale

Teacher educators can also use Larrivee's (2008) reflective rubric in a broader application to consider educational policy in relation to the four levels. Larrivee's surface reflection corresponds to Schon's (1983) description of technical rationality. In the framework of technical rationality, the focus of problem solving is to subject empirical evidence to rational and rigorous analysis. As in Larrivee's surface level reflection, solutions are found by focusing on the technical aspects of teaching without consideration for underlying values and theories of education. In fact, the objectivity of technical rationality precludes consideration of values and beliefs. In addition, the primary goal is an efficiency that achieves short-term results regardless of the means used to obtain those results; the same result as high-stakes accountability. Schon (1983) described how as the limitations and failures of technical rationality became evident, the response from those utilizing the framework was to continue to use the same tools, but to work those tools harder by using more rigor, more data, more analysis. With President Obama's continuation of No Child Left Behind educational policies, our nation continues to use the same tools to pursue a failed system of educational reform. Not understanding the limitations of technical rationality, national policy-makers will continue to require ever more stringent accountability, but as Schon predicts, no amount of leverage will produce the desired effect of improved learning.

Failure can be expected because technical rationality frames the problem incorrectly. Note that Larrivee's (2008) rubric positions technical rationality at the lowest level of reflection. The more advanced levels of pedagogical and critical reflection include contextual factors such

as culture, history, politics, and community. When these factors are taken into consideration along with the morals, values, and beliefs of the problem solvers, additional complexity is included in the solution. An educational leader acting from pedagogical or critical levels of reflection would collaborate with the school community to negotiate complex solutions, according to researchers like Lambert (2003). In Leadership Capacity for Lasting School Improvement, Lambert (2003) described schools that improved student learning through professional dialogue and collaboration that considered contextual and value factors. When problem solving focuses only on the technical aspects of education, teacher's values, beliefs, and aspirations are ignored and teachers feel like pawns in a system. Lambert's process provides opportunities for teachers to develop to Larrivee's pedagogical and critical levels, thus allowing teachers to become active agents in a democratic process.

Even as classrooms continue to be dominated by the technical aspects of instruction prompted by accountability models that promote simplistic approaches to change, teacher educators need to remain committed to reflection as one means to foster teacher growth and development, school improvement, and student advocacy. A focus on reflection during pre-service education models the deliberate, complex and collaborative approaches teachers need to navigate their way to instruction that will benefit all learners. A reflective rubric describes the quality of educational thinking at the teacher, program, and policy levels. Understanding the level of reflective thinking for an individual, program, or policy can predict the likely outcome of solutions that lead to either simple, short-term outcomes or multifaceted solutions that address educational problems in complex ways.

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