

Fall 10-23-2009

# Parallel Reflections: The Interdisciplinary Process of Co-Constructing Meaning

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## Recommended Citation

Strickland, Martha J.; Keat, Jane B.; Wilburne, Jane M.; and Adera, Beatrice, "Parallel Reflections: The Interdisciplinary Process of Co-Constructing Meaning" (2009). *NERA Conference Proceedings 2009*. 24.

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## Parallel Reflections: The Interdisciplinary Process of Co-Constructing Meaning

There is widespread agreement on the value of reflective practice in teachers' professional growth (Darling-Hammond & Bransford, 2005; Schön, 1983). Effective teachers regularly reflect on their assumptions and instructional practices and adjust as they are confronted with new evidence (Hogan, Rabinowitz, & Craven, 2003; Strong, 2002). It is suggested that reflective practice is an effective venue by which to engage preservice and inservice teachers in linking theory and practice (Ferguson, 1989) as well as enhance their metacognitive skills (Darling-Hammond & Bransford, 2005) – both integral to effective teaching. Reflective practice is defined in this study as “introspection on one’s attitudes, beliefs, and experiences as they relate to content, pedagogical and/or professional knowledge, skills, and dispositions” (Teacher Education Unit, 2007).

While teacher educators promote reflection among teachers, they seem to have less tendency to consider reflection as a method for their own practice (Emden, 1991; Mezirow, 1990). Given the fact that student reflections provide teacher educators with insight into each learner's thoughts, these reflections can also be viewed as a form of assessment that gives instructors important information from which to make instructional decisions. Interacting with each other's reflections opens up a dialogic space through which new meanings are constructed as teacher educators engage in theory-to-practice dialogue with student reflections. This requires teacher educators to be reflectively interactive within classroom dialogues (Roschelle, 1992; Anagnostopoulos, Smith & Nystrand, 2008). The symbiotic relationship between student reflections and teacher educator reflections is an important component of this study.

The purpose of this study was to analyze how pre-service and practicing teacher reflections influenced teacher educator reflections about the learning dynamics within a course. Narrative and document data collection methods and qualitative analysis strategies were used to explore common practices among the teacher educators. Findings included an understanding of how a spiraling collection of student reflections shaped teacher educators' awareness of how their students' constructed meaning and how this impacted the teacher educators' understanding of both the content and processing within their classrooms. A parallel reflection model emerged from the data. This model illustrates the dynamic process that occurs when learners and instructors co-construct new knowledge as they connect theory to practice through their reflections.

### Conceptual Framework

#### *Reflective Practice*

Reflective practice has also been found to provide preservice teachers with a venue in which their beliefs and teaching practices are challenged to the point of breaking free from traditional practices and routine behaviors (Posner, 2000). Participation in regular reflective activities has been noted to enable preservice teachers to ascertain the impact of their personal beliefs and social characteristics (e.g., ethnicity, language, disability) on their role perception and interactions with diverse learners. Liou (2001) asserted that involvement in critical reflective activities was likely to trigger positive change, raise awareness, and promote deeper understanding of teaching among preservice teachers. Thus, it may be said that a reflective process helps them confront their attitudes and beliefs as they reaffirm or challenge existing notions and prejudices (Kyles & Olafson, 2008; Manouchehri, 2002).

#### *Dialogic Space*

According to Vygotsky (1978), the construction of meaning takes place through interaction, both interpersonally as well as intrapersonally. This means that learning takes place

in dialog with others as well as in dialog with oneself. Bakhtin's (1986) concept of multi-voicedness illuminates this dialogic process. According to Bakhtin, each person appeals to multiple voices scripted from past interactions to construct meaning in any present encounter. These voices are constructed to form one's identity and position on issues being addressed. The reflective process is one way these voices are exposed. As Wells (1999) posits, classrooms should be a place where dialogic inquiry for learning occurs.

Dialog between learner and instructor has moved to the forefront in teacher education research. A valued component of preparing teachers for work in the ever-changing classroom is to ask them to grapple with polemic issues in the classroom rather than to simply to say what a teacher educator has asked them to say. To provide for this type of dialog, teacher educators must create a dialogic space in which authentic discussion can occur (Hermann-Wilmarth, 2008). For this study, dialogic space will be defined as the space where all participants express their opinions and thoughts and listen or interact with each other's voices. The dialog involves participation of both the teacher educators as well as the students and it is through these interactions that beliefs and assumptions are challenged and new meanings are co-constructed providing each participant the opportunity to leave class with new knowledge constructions.

In this study, we propose that the reflective process is one venue for the necessary intrapersonal interactions to take place, and the subsequent dialogs on these reflections provide the venue for the important interpersonal interactions to occur. This dialog, as conceptualized by Bakhtin, includes both agreement and disagreement and a plurality of worlds which are embodied within conflictual word choices and narratives. Therefore, the goal is not to come to some agreement, but to provide space for these voices to be expressed and for all voices to interact with each other. To create a dialogic space, therefore, is to invite the multiple voices of

all participants and researchers to be heard with the intended result that this intersection of voices creates hybrid construction of meanings that are co-constructed outside of any one person and voice (Gutierrez, 1999). These meanings are seen as continually in process as the dialog continues within this space.

### Method

This qualitative study was designed to understand the influence of student reflections upon teacher educator reflections within the context of university courses. The study draws upon four teacher educator professors' experiences with students' reflective assignments in their courses. The four professors represent the following disciplines: early childhood education, educational psychology, mathematics education, and special education. Students' reflections, professors' portraits of their reflective practice, and narrative inquiries provide the data for the study. The following questions guided the study:

- 1) How do teacher educators encourage students to be reflective about their learning throughout education courses representing different disciplines?
- 2) How do teacher educators of different disciplines reflect on student learning through their courses?
- 3) What dialogs do teacher educators have personally and/or in their classes with the student's reflections?
- 4) What occurs when reflective practice and dialogs are intentionally pursued by both teacher educators and students?

To explore these questions, four university professors from different disciplines explored how each view the reflection component of their courses and found common elements and processes. Each course required assignments where students were required to reflect on their

learning with the intent to connect theory to practice. Once the reflections were collected, the professors coded keywords and concepts they noted existing across students' reflections or examples that exemplified the behavior or practices that correlated with the topic discussed (Creswell, 2007). They also coded keywords and concepts that represented where students struggled with concepts or with connecting theory to practice. The professors summarized the highlighted areas to determine what concepts needed clarification or where further discussion should take place to enhance students' learning.

Subsequently, the professors met and interacted with their findings. Each professor's coding, when discussed with the others' revealed a process of meaning-making that aligned with the sociocultural understanding of co-construction of meaning (Bruner, 1990). Additional dialog between professors was recorded using field notes. Subsequent analyses revealed how transformation of professor thoughts, decisions and actions based on this new knowledge were constructed from student reflections.

### Findings

The data exposed common understandings and objectives that the professors expected from the reflective assignments required of their students. One of the common understandings was an awareness of a dialogic space in which student and professor thoughts and discourse are interwoven in such a way that they challenge existing beliefs and dispositions and start the process of making connections between theory and practice. A process of parallel reflections was noted between students and professors. All four professors reported that these parallel reflections intersected and illuminated professor awareness of dissonances that existed between students' reported meaning and professors' expected student meaning as described in the portraits below.

#### *The Early Childhood Teacher Educator's Portrait*

In this portrait, I focus on the influence of students' written and spoken reflections on my professional development. The unusual educational and experiential backgrounds of my students provide a rich cross-section of perspectives within the early childhood field. Due to recent policy decisions in our state, early childhood courses are now attended by teachers of prekindergarten, kindergarten, grades 1, 2, and 3 at public and private schools, as well as directors of child care and Head Start centers, and instructors in community colleges. To accomplish several purposes, in each early childhood course, I assign two forms of student reflection: a theory-to-practice journal and a teacher research inquiry project.

*Theory-to-Practice Journal.* The purpose of this journal is to provide learners with the opportunity to develop the habit of reading with professional awareness. My intention is to facilitate preservice teacher ability to replace automatic thinking as a students with the process of thinking as a teacher by making connections between concepts in assigned readings and actual occurrences in classrooms. A second intention is to facilitate practicing teacher ability to replace automatic habits of teaching with the process of intentional, thoughtful teaching by making connections between concepts in the assigned reading and actual interactions in the classroom. Therefore, I ask each student to create a theory-to-practice journal by dividing a sheet of paper or a computer screen into two columns. One column is labeled Theory in the Reading, and the other is labeled Practice in the Classroom. In the first column, learners summarize three or more concepts from the reading. In the second column learners illustrate the concepts with a happening they observed, or did not observe, in their classrooms. These pages are brought to class, reported in small groups as well as to the whole class, collected in a binder or computer file and submitted to for instructor review three times during the semester.

By weaving learner examples into class discussion, textbook meaning can be enhanced by the multiple perspectives of the learners, and conceptual misunderstandings can be corrected by peers or professor. For example in a curriculum course, I heard a previously quiet pre-service teacher give several examples of older children scaffolding within the zone of proximal development (ZPD) of younger children (Vygotsky, 1978). Later, two child care directors pointed out that the ZPD was a new term for them, and they added that the preservice teachers' classroom examples had helped them understand. The following week, these two child care directors contributed many examples of similar ZPD interactions seen in their work with children. As the course instructor, I pointed out that these class session interactions illustrated an adult example of teaching within the ZPD. The rich discussion that followed strengthened my belief in the importance of using adult examples of early childhood concepts where possible.

When learner reflections refer to inaccurate connections between theory and practice, as instructor, I am grateful for the opportunity to correct misunderstandings. As an example, when early childhood teachers first learn about the guidance approach to facilitating young children's emotional self-regulation and social interaction skills, a few theory-to-practice journals indicate that learners equate the guidance approach with permissiveness. When this misperception is articulated, I have a perfect opportunity to re-teach a more accurate view. Often theory-to-practice entries are the beginning of increasingly complex semester-long discussions. To capture these discussions, I have begun to carry a small journal to each class. When everyone has left the room, I write a few bulleted notes to remind myself of compelling comments and questions. Before the next session of class, I re-read my notes and revise class activity as needed.

Over the years, I have come to realize that learner theory to practice journals provide me with a more complex understanding of what happens in 21<sup>st</sup> century classrooms and centers



located in urban, rural and suburban settings. I have learned about changes in curriculum, instruction and assessment practices, as well as how teachers are adapting to these changes. In addition, I have heard the details of why and how the theory of the field does not fit precisely into a specific center or school. I use these details to generate discussion prompts in class sessions to stir learner thought about how to integrate the theory of the field with the specific demands of their professional setting. For example, as more and more kindergarten classrooms eliminate time and resources for pretend play in the classroom, I have challenged myself to search the literature and my students' reflections for ways that teachers can design instruction that blends child imagination with child knowledge construction. Moreover, my teaching has been improved by the increasing quantity and quality of local illustrations that I find in my students' journals. As I read the journals three times a semester, I write examples on post-it-notes and place them in my textbooks and plan books. The next time I teach the course, I have relevant examples from local classrooms.

*Teacher Research Project.* The purpose of this assignment is to provide learners with a method for self-directed continuous professional development through systematic reflection. Recognizing that no course can provide all the knowledge needed across an entire career, my hope is that teachers, who move through the stages of teacher research, will use the method over and over again to answer questions of practice. Each course syllabus includes an assignment to plan and implement a teacher research project by moving through the phases of research. As learners collect, analyze, and interpret classroom data while also reading literature for potential answers to self-identified questions, learners engage in indepth multiple mini-moments of systematic reflection. At the end of the semester, learners report what their findings to the class with a powerpoint presentation.

As I observe, I see peers scaffolding each other's knowledge levels regarding problems of practice. In addition, I see that my students scaffolding my instructor knowledge level regarding problems of practice. As the instructor, I note multiple benefits from hearing the complexities, conflicts, challenges teachers encounter in their work with children, families, colleagues, administrations, and public policies. My empathy for teachers at all phases of the educational continuum has been enhanced by listening to teachers' struggles, solutions, pride and commitment to children.

As an early childhood teacher educator, I practice what I preach by designing and implementing a teacher research project each semester. One year I studied learner response to my attempts to provide differentiated instruction for non-degree, undergraduate and graduate students in one course. Another year I investigated the effectiveness of my integration of field placement supervision and methods course instruction. As I analyzed data collected through student documents, surveys, interviews and research literature, I knew what needed to change, what needed to remain the same and what actions were needed to make the change. Perhaps more important to my role as a teacher educator is the change in my sense of professional efficacy as an early childhood teacher educator, in part, as a result of learning from my students' shared reflections.

### *The Educational Psychologist's Portrait*

Reflective practice is key to learning and as an educational psychologist, my focus is on the learning process. That interaction between thought and language necessary to learn (Vygotsky, 1973) is embodied in the reflective process. Recently neuroscientists have noted the importance of reflection in the neural organization of the frontal lobe reminiscent of the learning process from the biological perspective (Immordino-Yang, 2009).

In my undergraduate class, Introduction to Educational Psychology, students are introduced to the theoretical perspectives of learning as well as how to make connections between theory and practice as they observe in a local public school classroom. Given the importance of reflective practice in the learning process, as held by this professor as well as by the constructivist theorists of our day, I have incorporated a reflection assignment as part of their weekly work in this class. At the end of the semester the students review their reflections and summarize their learning process highlighting reflections they find to be key to their learning. This summary they present in some creative format at the end of the semester. They turn in their reflections and their summary to me for evaluation.

For their weekly reflection assignment the students are asked to first identify and describe an idea or concept in their class readings and/or class discussions that got their attention, and second, identify something in their world that connects with this idea or concept and describe the connection they made. Subsequent to their posting of their reflection, they take a moment in class to either share their reflection with another classmate or read another's reflections and provide an additional insight or connection.

As a professor I find it to be a rich experience to reflect on my classes. This involves after each class personally answering the question, "What struck you as key learning opportunities in this class?" I intentionally answer this by looking at individual and corporate learning not just at teaching strategies. The answer to this question provides me with a framework upon which to build as I plan the next class. Also, each week I read through the students' reflections. I intentionally read these weekly and give feedback to each student that is intended to enhance and affirm their understanding as expressed in their entry. Additionally, I take notes as to what

generally appears to need additional reinforcement which I then embed within the plan for the next class.

The dialog I facilitate during class related to this reflective practice inevitably provokes thought that frequently challenges past assumptions or enhances present understanding. For example, Steven (pseudonym) connected his understanding of constructivism with toy connecting blocks. As he described this connection students added to his understanding referring to Piaget's understanding of connecting to prior knowledge and Vygotsky's approach to mediated learning. The resulting dialog provided a venue for the students to verbalize their approach to this connection and ultimately enhance their understanding of these theoretical frameworks as they link theory to practice – an essential skill for quality teaching (Ferguson, 1989). As a professor hearing this conversation and reflecting on it later I found myself approaching the theory to practice connections in a more creative way such as using virtual worlds familiar to the students to illustrate Bandura's understanding of learning. Reflective practice has been found to provide preservice teachers with a venue in which their beliefs and teaching practices are challenged to the point of breaking free from traditional practices and routine behaviors (Posner, 2000). I would suggest that this pertains to education professors as well.

At the end of the semester these undergraduates re-read all their reflections and summarize their approach to learning using theory as support. Also, they summarize implications for the role and responsibilities they will soon commit to as a pre-service teacher entering the education major. This metacognitive exercise is intended to provide the students with the opportunity to take all learned into their personal and future professional lives, enhancing their metacognitive skills – a key component of quality teaching (Darling-Hammond & Bransford,

2005). Their presentation of this final summary reveals their present understanding and continual construction. Frequently after hearing others' presentations they adjust and add to their presentation as they are presenting in a way that many times enriches those listening.

Throughout this process I have particularly noted the impact that our class reflective practice dialog has on students' awareness of the concept of diversity. As we verbalize our own reflections and build upon other's reflections, as one who formerly worked internationally, I find it important to interject into the discourse ways of thinking and behaving that are situated in cultures different from their backgrounds. As I read through their reflections during a semester I find increasing mention of diversity and comments relating their surprise or puzzlement over something I shared from another culture. Reflecting upon their response to my cross-cultural insights I find a greater awareness of our cultural frames of reference we bring into the classroom – a key component of culturally relevant pedagogy (Gay, 2000). Each semester over 90% of the students' final summaries devote at least a paragraph to their increased awareness of diversity in the classroom as it relates to teaching and learning. This is powerful illustration of the efficacy of promoting a reflective process which includes intentional personal student reflections and professor reflections as well as classroom dialogues and activities promoting reflective interaction.

#### *The Mathematics Educator's Portrait*

This portrait focuses on the influence of students' reflections on their knowledge and confidence with mathematical problem solving and my interactions with their reflections. MATH 200 (Problem Solving in Mathematics) is an undergraduate mathematics content course required for elementary education majors. The course focuses on concepts of numbers and operations, rational numbers, ratio and proportion, number theory, geometry and measurement. The content

of the course is taught through problem-solving experiences and inquiry methods using manipulatives, technology, and group discussion. The students are required to keep a problem-solving journal where they record the problems they are assigned weekly and their work to solve the problems. The weekly problems are non-routine problems (problems for which there is no known or obvious means as to how to go about solving the problem) that require cognitive demands over and above those needed for solution of routine problems, even when their knowledge and skills required for their solution have been learned (TIMSS, 2009). They are to make a line about two inches from the left margin to divide each page of their journal into two sections: a working section and a reflection section. The two inch section is where they record their metacognitive thoughts and reflections as they solve the problem. The working section is where they include a detailed description of the four steps to solving a problem (Polya, 1945): understanding of the problem; strategies to solve the problem; process used to solve the problem and; reflection of the process used and the reasonableness of their solution.

The first reflection assignment requires the students to write a two to three page reflection of what mathematical problem solving means to them and to describe their K-12 mathematical problem-solving experiences. This assignment provides me with insight into where the students are coming from with respect to their knowledge and experiences related to mathematical problem solving. In many cases, the students believe problem solving means solving the typical textbook word problems that require an algorithm to solve. Most of the students have had little opportunity to work with rich, non-routine, and higher-level thinking problems as a way to learn mathematics or to learn the problem-solving process. They describe almost a sense of fear or lack confidence in being competent with problem solving.

As I read over their first reflections, I highlight certain comments the students make regarding their attitudes or beliefs that I then share (anonymously) with the class in the next session. A discussion ensues regarding why some of these thoughts and beliefs exist and discuss what attitudes and beliefs elementary teachers should have to teach problem solving effectively to students. This discussion frames the conversation where the students describe characteristics of effective teachers of problem solving, and the professor gains insight into what the students believe effective problem solving looks like in a classroom. Both interpretations of the discussion are learning opportunities for the students and professor and help set the evolving interactions that will exist from the reflections.

Throughout the semester, weekly problem-solvings are assigned and the journals are collected either electronically or in paper version. I read the students description of their processes used to solve the problem, including the students' reflections of the thinking and understanding they experienced as a result of working through the problem. As I read the students' reflections, I highlight various strategies and descriptions of areas where the students admitted they struggled or where they had successes. I mark various students' solution strategies with post-it notes or track changes and share them with the class. This creates a discussion where students are encouraged to think about what they could do when they face various road blocks and answer questions regarding what types of strategies work for certain problems. Also, I select various reflections where students had written excellent descriptions of their steps to solving the problem and share these with the class to model the level of insight and metacognitive thinking that I expect in future problem-solving assignments. In the next class, I frame a discussion around the highlighted areas regarding the various approaches to solving the problems, the approaches students took when they were struggling with the problem, and the learning gained

by being cognitively challenged. We also discuss student comments regarding their beliefs and attitudes to emphasize the need to be cognizant of their thoughts and discuss what impact they may have on their success with solving problems. (Research has shown that when teachers have negative attitudes and lack competencies with problem solving, there exists a strong correlation with the lack of success in and fear of problem solving exhibited by their students (Schoenfeld, 1992). Post (1992) posits that a teacher's negative attitude toward mathematics may lead to poor student performance in problem solving). Being knowledgeable about the problem-solving processes and heuristics and aware of their habits of mind are important steps in the process of becoming effective problem solvers.

By mid-semester, the preservice teachers began to describe in more detail where they struggled in solving a problem and recognized that struggling helped them better understand the problem and appreciate the learning they experience when they see how one of the strategies could be used to solve the problem. The reading of exemplar reflections upon returning the problem solving, helps students see the depth of insight expected and the various approaches to solving the problem that they may not have thought of initially. Throughout the semester, they help me, as the instructor, gain insight into the change taking place in the students' learning of mathematics through the problem-solving assignments. This step in their overall abilities in solving mathematical problems is critical to helping me see them move from the stage of novice problem solver to expert problem solver (Schoenfeld, 1985).

Over the years, I have seen the growth students experience throughout their reflections in their problem-solving journals. They note their knowledge about strategies to use with mathematical problems is enhanced and they are more confident in knowing they can be successful with mathematical problem solving. I am also more aware of how the use of the



journal along with the interactive discourse and modeling that takes place throughout the course is critical to helping students develop their confidence and abilities with mathematical problem solving.

### *The Special Educator's Portrait*

Sensitivity to Special Learner's course is an undergraduate course offered to prospective general education teachers during the semester before student teaching and offered concurrently with an urban field experience. This course focuses on special education procedures and services, characteristics of learners with special needs, educational approaches for promoting successful inclusion of learners with special needs and building partnerships through effective communication and collaboration. Throughout this course, students engage in a variety of reflection activities which serves as a venue for students to rationally examine and question their mindsets towards the practice of inclusion. The practice of inclusion is defined as educating students with learning and/or behavioral needs full time in the general education classroom.

Through the different reflection activities, students begin examining their frames of reference towards inclusion of special learners in general education in addition to unveiling their sources of information. Taylor (2008) defines frames of reference as structures of assumptions and expectations that frame an individual's point of view and influence their thinking, beliefs and action (p. 5). My observation has been that many pre-service teachers begin this course holding deficit notions and negative opinions regarding appropriateness and/or effectiveness of inclusion. Offering this course alongside with the semester long placement in an urban classroom provides the necessary experience in authentic classrooms and opportunities for critical reflection on practice, both of which are key to perspective transformation (Taylor, 2007). According to Mezirow (1996), perspective transformation leads to "a more functional frame of

reference that is inclusive of differences, differentiating, critically reflective of assumptions, open to other view points and integrative of experience” (p. 163), all key attributes and qualities essential for effective inclusive practice.

Despite the pedagogical value of reflections, many pre-service teachers do not purposefully reflect on their practice in a manner that is beneficial for their own professional growth and consistent with instructor expectations. Without structure, I have found that many students often retell the concepts covered in the course without any attempt to interpret or make connections to practice. For this reason, I provide a variety of guided activities in the form of oral and written reflections, intentionally structured to address content and requiring students to use the information to challenge their own mindsets and practices observed in the field as they strive to improve their practice. It is through these reflection activities that the preexisting beliefs and preconceived notions held towards learners with special needs begins to surface and the different types of misinformation or gaps in knowledge are also unveiled. Based on this information, I adjust the class readings and/or learning activities incorporating research based-practitioner oriented journal articles to enhance the course content. In addition, misinformation that surfaces in the reflections are also addressed through classroom dialogue and developing solutions for case based scenarios that address inclusive practice.

Throughout the semester, students complete a variety of reflection activities which include oral and written reflections in the form of discussion forums and a pre/post class reflection paper. The oral reflection activity completed during the first and last class meeting involves students engaging in dialogue with their peers taking a stand on their commitment or non-commitment towards inclusion of learners with special needs. During this activity, students dialog with peers as they determine their position along a continuum with one end of the line

representing individuals fully committed to inclusion and the opposite end representing individuals who are presently non-committed to inclusion. Each student is expected to justify their position along the continuum. The middle section where approximately half of my students tend to position themselves is representative of individuals who prefer to remain neutral in the sense that they are open and willing to embrace and learn effective strategies for successful inclusion. In addition students complete a guided pre-class reflection paper in which they are expected to take a rational examination of their mindset and frames of reference towards inclusion, citing specific examples from past experiences. By completing the pre-class activities during the first week of class, I am able to get baseline sense of the attitudes and dispositions towards inclusion as demonstrated by the students and identify focus discussion points which are very critical as I develop classroom discussion prompts, learning activities and case-based scenarios throughout the semester. In addition, the justifications provided and examples from past experiences cited in the pre-class reflections are used to refine topics and issues addressed in my class discussions. The post class activities (oral and written reflection) also provide information that I use to revise the learning activities/assigned readings for future course offerings.

The pre- and post- class reflection activities are structured so that students engage in dialog where they begin to rationally examine effective and ineffective practices observed throughout their field placements and also begin questioning their mindset towards inclusion. By providing students the opportunity to intentionally examine connections between what they are learning (theory) and different practices and/or strategies implemented in inclusive general education classrooms (practice), conflicts or dissonances begin to surface as students engage in dialog regarding the reality of practices and experiences within their field placements and

evidence based practices covered through the course content. It is through this dialogic space, that I am able to identify disconnections, deficit-based notions or gaps in knowledge that need to be addressed as we progress throughout the semester. Any misconceptions or deficit based notions revealed through student reflections are addressed through class discussions, case based scenarios and other guided learning activities. In addition, extra reading assignments and supplementary learning activities are incorporated to address any gaps in knowledge.

Students also engage in discussion forums where they collaborate with their peers in groups of 4 to discuss specific case-based scenarios. Team members are expected to read each other's response and make comments and/or ask for further clarification on issues raised from the responses. This activity provides the opportunity for pre-service teachers to interact with each other's responses and develop solutions to specific case-based scenarios aligned with content covered in class. My participation in these discussions forums is limited to steering the discussion towards strength based solutions and challenging the students to explore other evidence based practices as they strive to formulate solutions to their cases. Through this activity students collaborate and co-construct their knowledge together as they engage in problem solving situations related to effective inclusive practice.

As I evaluate their dispositions towards inclusion of learners with special needs in the general education classrooms and assess their progress throughout the semester, I focus attention on the affective, behavioral, and cognitive (ABC) dimensions (Welch & James, 2007) of the student reflections. My expectation is that students begin considering perspectives of others and demonstrating empathy towards students with learning and/or behavioral needs (affect); evaluating their perceptions and before, during and after the learning experiences (behavior); and comparing practices/strategies observed in their current field placements to concepts learnt in the

course (cognition). Overall, I can attest that through the different activities and content covered in the course, students go through a process of perspective transformation as they gain a better understanding of inclusive practice which translates into a more functional frame of reference. As a professor it is always rewarding to see growth throughout the semester as students revise their frames of reference and demonstrate shifts in paradigm focusing more on strength based solutions and practices. On the contrary, I also strive to gain a better understand of students who maintain the same frame of reference throughout the semester, maintaining their stand and opposition towards inclusion of learners with special needs in general education classrooms. I pay special attention to examples they share through their reflections and class discussions and this help me revise or develop additional case-based scenarios to be used in future classes.

### Discussion

Through the four portraits, we can see how the professors read their student reflections for evidence of learning and demonstrations of affect and behaviors associated with exemplary models. They used selected student reflections to model the intensity of the reflections required and to demonstrate how various experiences may result in different interpretations of the concepts or theory explored in the previous class. The professors also found they often used student work to model either an expert performance (e.g., mathematics course) or how a concept or theory was interpreted in a life experience (e.g., early childhood, psychology of learning, or special education).

The conversation that focused on the interchange between students' reflections and professors' notes took place in what we identified as dialogic space. This dialogic space is viewed as an essential component of each course in that it helps frame the collaborative learning between professor and students, and student to student. In each of our courses, we view the

interactions in this dialogic space as the catalyst that ignites students' cognitive recognition of what and how they are learning, and the meaning behind the concepts or topics discussed in class. The professors and students use this dialogic space to co-construct the meaning of the class concepts. In other words, as the dialog is both intentionally pursued as well as open to voices which are beyond the assumptions, content, and beliefs, carried into this space, new meaning is constructed -- both the teacher educator and the students are given the opportunity to construct together new meanings of the presented topic. For teacher educators, this involves informing them as to whether particular concepts need to be re-addressed or whether to continue with teaching new knowledge.

This process, as uniquely pursued and understood in this study, suggests a conceptual model for implementing a parallel reflective process between students and their professors to promote conceptual understandings embedded within a course as well as potential opportunities to challenge professors' and students' beliefs and practices. This model may be used to inform professors and students of the importance of dialogic space and the parallel processes. This knowledge may encourage professors and students to report their individual reflections accurately and comprehensively which is likely to facilitate professors' ability to target instruction more accurately.

Unlike other studies which have looked at the importance of dialog in the classroom (Anagnostopoulos, Smith, & Nystrand, 2008), this study explored the co-construction of meaning which evolves during reflective practice and the cyclical nature of dialog during a semester. Throughout the discussions of how the reflective process occurs in each class, a visual model emerged that was defined as the parallel reflection model (see Figure 1). This model represents a visual interpretation of the cycle of continuous interactions between students and

professor across each of the education courses. The professors were able to identify how each action in the parallel reflection model looked in their classes, and could see the value of having a representation of the process to define the course actions and to help them monitor the objectives of the course and the theory to practice connections. The identification of the dialogic space and where it occurred in each course revealed a component of each course that was essential to students' overall learning.

The professors found the conversations in the dialogic space support the sociocultural understanding of cognitive apprenticeship (Vygotsky, 1978) by using the focus discussion points to scaffold students' learning. They also found the students were able to co-construct their knowledge by using the sample reflective statements as a comparison or point of query to challenge their existing thoughts and beliefs and form new understandings. As recognized across the four courses, the dialogic space became the class time where students' knowledge base was enhanced through the focused discussion points and explicit connections made between theory and practice or between expert and novice performance.

### Implications

This study suggests a conceptual model for implementing a parallel reflective process between students and their professors to promote conceptual understandings embedded within a course as well as potential opportunities to challenge professors' and students' beliefs and practices. This model may be used to inform professors and students of the importance of dialogic space and the parallel processes. This knowledge may encourage professors and students to report their individual reflections accurately and comprehensively which is likely to facilitate professors' ability to target instruction more accurately.

This investigation of the influence of student reflection on four teacher educators' professional practice yields significant implications. First, the value of dialogic space was clearly

defined as each teacher educator reported learning important lessons by interacting in written and oral dialogue with students' reflections. Each professor can list important aspects of professional practice that would be missing or inaccurately taught if the dialogic space within the courses had not been intentionally designed.

A second implication of this study was recognition of the specific benefits that dialogic space that prompted the professors to review the content and make adjustments to address any disconnections or missing gaps in knowledge. All four teacher educators discovered enhanced knowledge of local classroom as reported by teachers working within changing institutions and systems. In addition, all of us were increasingly able to flexibly target instruction in ways that overcame initial student resistance to implementing theory into practice. As each of us more fully understood each learner's context, we became more empathic to the struggles involved in making professional change in classroom settings. All four of us discovered that students learned important lessons from each other, challenged themselves and each other to risk change and enhanced their awareness of developing professional efficacy when invited to interact with peers and professor within respectful dialogue about issues of practice. Moreover, each teacher educator discovered that we had learned many critically important lessons, challenged ourselves to risk pedagogical change, and enhanced our awareness of professional efficacy as a result of interactions within the dialogic space created by consistent sharing of reflections.

Third, the parallel reflection model that emerged from analysis of our separate practices could be used as a template by other teacher educators to design course sequences and assignments that result in shared reflections and the form of dialogic space in which each participant influences the others. All four of us learned through trial and error that multiple sequences of interaction were needed to move learners and teacher educators beyond initial



beliefs and practices. Intentional planning was essential to engaging everyone in a professional flow of dialogue. This model illustrates phases of the process.

A limitation of this study is that student written reflections were required by each teacher educator; however, written reflections from the professors were not designed into the study. Further research is needed to understand the influence of a parallel reflection model in which both teacher educators and students write reflections.

### Conclusion

The purpose of this study was to analyze how preservice and practicing teacher reflections influence teacher educator reflections of the learning dynamics within a course. Four teacher educators representing four disciplines discovered that a spiraling collection of student reflections altered teacher educators' awareness of their students' meaning-making process. The parallel reflection model that emerged from the data could be used by teacher educators as a template to assure that their course is designed so that a dynamic process occurs when learners and instructors co-construct new knowledge as they connect theory to practice through their reflections.

## References

- Anagnostopoulos, D., Smith, E. R., & Nystrand, M. (2008, October). Creating dialogic spaces in support teachers' discussion practices: *An introduction. English Education, 41*(1), 4-12.
- Bakhtin, M. (1986). Toward a methodology for the human sciences (V. McGee, Trans.). In C. Emerson & M. Holquist (Eds.), *Speech genres and other late essays* (pp. 159-173). Austin: University of Texas Press.
- Bruner, J. (1990). *Acts of meaning*. Cambridge, MA: Harvard University Press.
- Darling-Hammond, L. & Bransford, J. (2005). *Preparing Teachers for a Changing World: What Teachers Should Learn and Be Able to Do*. San Francisco: Jossey-Bass.
- Emden, C. (1991). Become a reflective practitioner. In G. Gray & Pratt, R. (eds.) *Toward a discipline of nursing*. Churchill Livingstone, Melbourne.
- Ferguson, P. (1989). A reflective approach to the methods practicum. *Journal of Teacher Education, 40*(2), 36-41.
- Gay, G. (2000). *Culturally responsive teaching: Theory, research, & practice*. New York: Teachers College Press.
- Gutierrez, K. D. (2008). Developing a sociocritical literacy in the third space. *Reading Research Quarterly, 43*(2), 148-164.
- Hermann-Wilmarth, J. M. (2008). Creating dialogic spaces around controversial issues in teacher education. *Teachers College Record*.
- Hogan, T., Rabinowitz, M., & Craven, J. S., III. (2003). Representation in teaching: Inferences from research of expert and novice teachers. *Educational Psychologist, 38*, 235-247.
- Kyles, C. R., & Olafson, L. (2008). Uncovering pre-service teachers' beliefs about diversity through reflective writing. *Urban Education, 43*(5), 500 – 518.

Manouchehri, A. (2001, January) Developing teaching knowledge through peer discourse.

*Teaching and Teacher Education, 18*, 715-737.

Mezirow, J. (1990). *Fostering Critical Reflection in Adulthood*. San Francisco: Jossey-Bass.

Mezirow, J. (1996). Contemporary paradigms of learning. *Adult Education Quarterly, 46*, 158-172.

Pólya, G. (1945; 2nd edition, 1957). *How to solve it*. Princeton: Princeton University Press.

Post, T. R. (Ed.). (1992). *Teaching mathematics in grades K-8*. Boston: Allyn and Bacon.

Roschelle, J. (1992). Learning by collaborating: Convergent conceptual change. *The Journal of the Learning Sciences, 2* (3), 235–276.

Schoenfeld, A. H. (1985). *Mathematical problem solving*. New York, NY: Academic Press.

Schoenfeld, A. H. (1992). Learning to think mathematically: Problem solving, metacognition, and Sense making in mathematics. In D.A. Grouws (Ed.), *Handbook of research on mathematics teaching and learning* (pp. 334-368). New York, NY: Macmillan.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.

Strong, J. H. (2002). *Qualities of Effective Teachers*. Alexandria, VA: Association of Supervision and Curriculum Development.

Taylor, E. W. (2007). An update of transformative learning theory: A critical review of the empirical research (1999 – 2005). *International Journal of Lifelong Education, 26*(2), 173-191.

Taylor, E. W. (2008). Transformative learning theory. *New Directions for Adult and Continuing Education, 119*, 5-15.

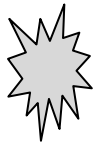
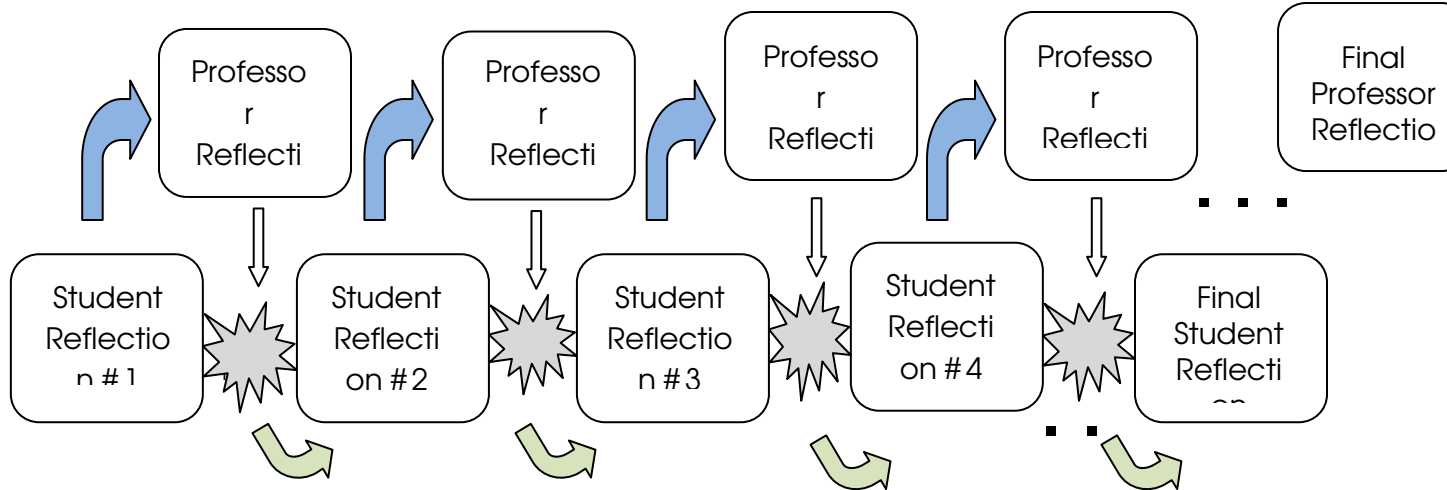
Teacher Education Unit (2007). The Pennsylvania State University: Penn State Harrisburg, The Capital College. School of Behavioral Sciences and Education. [Brochure]. Harrisburg, PA.

TIMSS Mathematical Framework. Retrieved August 29, 2009, from [http://timss.bc.edu/timss2011/downloads/TIMSS2011\\_Frameworks-Chapter1.pdf](http://timss.bc.edu/timss2011/downloads/TIMSS2011_Frameworks-Chapter1.pdf)

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Welch, M. & James, R. C. (2007). An investigation on the impact of a guided reflection technique in service learning courses to prepare special educators. *Teacher Education and Special Education, 30*(4), 276 – 285.

Wells, G. (1999). *Dialogic inquiry: Toward a sociocultural practice and theory of education*. New York: Cambridge University Press.

Figure 1: *Parallel Reflection Model*

= Dialogic Space: Students' & Professors' New Meaning Construction

Strickland, M., Keat, J., Wilburne, J., & Adera, B. (2009)