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## Expanding the Zone of Reflective Capacity: Taking Separate Journeys Together

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Teacher education is a matter of life-long learning that begins before pre-service teaching and continues through one's career (Fullan, 1992). Diez and Blackwell (1999) advocate for graduate-level education programs that have a role in providing professional development that moves beyond teacher preparation. In recognition of the National Board for Professional Teaching Standards, Diez and Blackwell (1999) recommend that reflection, inquiry into one's practice, and collaboration be integrated into graduate education for teachers. Darling-Hammond (2005) asserts that graduate programs need to provide opportunities for teachers to enact theory into practice and deal with teaching complexities by learning to analyze teaching and learning. Educators world-wide have embraced the notion that engaging in action research can empower teachers as classroom researchers who improve their teaching practices and increase their students' learning outcomes (Carr & Kemmis, 1986). Our institution was aware of these recommendations and attempted to incorporate them into the design of its graduate education program when it was created.

The Master of Arts in Education program at our college began in 2004 and was designed to help practicing teachers become more effective and insightful teachers through developing both their content and pedagogical knowledge and helping them to incorporate this new knowledge into their daily practices. The program was designed to culminate in a capstone project. Capstone projects have been used in graduate education as a culmination to

the learning experience. The capstone course has been found to be instrumental in helping graduate students "connect theory to practice in a meaningful and collaborative way" (Brown & Bensen, 2005, p. 679). The capstone project serves as the conclusion to our master's degree in the same way as a traditional thesis, and it includes many of the traditional components of a thesis, such as a review of relevant literature, data collection, data analysis, and reflections on the data.

Our capstone was designed to differ from a traditional thesis in several significant ways. The focus of our capstone was to be on improving individual practice through active classroom research, rather than on conducting literary or experimental research. The capstone was designed to be an independent work of action research that would demonstrate a teacher's improved level of performance as a reflective practitioner. Furthermore, our capstone project was to be completed in one semester--not left open-ended as a traditional thesis would be. At least, this is how our program envisioned the capstone project. But as time came near for our first group of teacher/graduate students to begin the capstone course, we found that they were not adequately prepared for the challenge of undertaking these projects in the way we had envisioned.

### The Problem

As instructors of the capstone course, we had imagined that these students, having completed 27 or more graduate credits, would be able to quickly identify a problem in their

classrooms, formulate a plan of action, enact the plan, and reflect on their success. Instead, we had twelve teachers who needed support, feedback, and reassurance in conducting any kind of classroom research. We had to face facts. These teachers were not yet independent practitioner researchers. We had failed to prepare them to independently undertake action research projects.

We quickly developed a new plan with a clear end in mind. We wanted our teachers to be practitioner researchers who would reflectively self-evaluate and synthesize new ideas into their own practices by utilizing available resources. We realized that we could not achieve our goals with these teachers if we directed their research projects for them. If we over-scaffolded the process, they would not develop a sense of independence. We needed to find the right balance of support and freedom for these emerging practitioner researchers.

We wanted to provide these teachers with social support that would meet them within their zones of proximal development. Vygotsky defined this zone as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (1978, p. 86). We wanted to provide structure for collaboration with peers of varied backgrounds but similar levels of education. We also planned to provide these teachers with expert guidance on an individual basis if peer support was not sufficient. We therefore adopted a collaborative structure in which these teachers would analyze, reflect upon, and support each other's professional development throughout the action research process.

We observed that these teachers collaboratively constructed and developed their understanding of their practices within the zone of proximal development, as anticipated. We further witnessed a remarkable acceleration in development as these teachers became well acquainted with each others' classes and

teaching practices through viewing their teaching videos and discussing them openly. These teachers became practitioner researchers in each other's classrooms after taking time to attentively view the teaching videos, become honestly engaged in each other's teaching practices, and become vicariously involved in the student learning taking place in each other's classrooms.

This rapid growth occurred within a specific portion of the zone of proximal development that we have identified as the "zone of reflective capacity." This zone shares the theoretical attributes generally associated with the zone of proximal development, but it is a more specifically defined construct that becomes apparent as practitioners undertake separate action research projects and at the same time reflect on their projects collaboratively. When these teachers worked together in an expanded zone of reflective capacity, they rapidly developed as reflective practitioner researchers.

### **The Participants**

Twelve Masters of Arts in Education students participated in the capstone experience. These graduate students, all practicing kindergarten through 12<sup>th</sup> grade teachers, varied greatly in terms of their experience and current teaching placements. Of the twelve teachers, three were male and nine were female. One of the males was African American. The rest of the participants were White. Teaching experience ranged from two years to twenty years. Four elementary school teachers were relatively new to the field of education, each having taught less than five years. Two of the teachers were middle school special education teachers. One teacher taught middle school writing while another teacher taught middle school science. Five teachers taught in diverse high school areas, including mathematics, social studies, English, and special education. The teachers' school districts also varied greatly. Three teachers taught in urban schools considered at-risk, one teacher taught in a private special education school, and eight teachers taught in suburban school districts. All of the teachers

had completed between 27-33 credits of graduate study.

### **The Process**

To help facilitate their practitioner research projects, we grouped the twelve teachers into three groups that met weekly for fifteen weeks. Initial meetings focused on communally defining effective teaching practices and beginning to practice reflective group dialogue. Reflective dialogue served as a transactional mode for understanding events in each other's classrooms and framing options for transforming practice. The group members videoed their teaching periodically for twelve weeks and watched each other's teaching practices from week to week to gain insights and to help develop each other's teaching practices. Initially, the groups watched each other's entire videotaped lessons. However, as the semester progressed they watched clips identified by the teacher who had been videotaped. In their reflective dialogues, they drew from their own experiences as well as from theoretical frameworks learned during previous graduate study. Each teacher kept field notes of their own classroom actions and documented their group's dialogues from week to week. During the fifteen weeks we consulted with the individual groups but did not directly facilitate the process. We suggested professional references for them to consult, but largely we encouraged them to answer their own questions for themselves and for each other. In the end the groups were largely self-directed.

Adding these structured opportunities for collaboration and reflection helped to ease everyone's misgivings from the outset and helped these teacher/graduate students to develop as emerging practitioner researchers. Meetings with peer groups allowed teachers to collaborate in cycles of planning, acting, observing, and reflecting. Each teacher developed an individual project and then utilized collaboration to broaden possibilities for input as they shared reflections at each step of the action research cycle.

### **Documenting the Process**

As instructors and teacher-researchers, we wanted to analyze our teacher/graduate students' processes. We kept weekly journals and videotaped each peer group's collaborative dialogue sessions. Unmanned video cameras were set up to record group processes each week. We analyzed the videos in two separate phases. Initially, we watched the videos to provide feedback to the teachers during the research process. Upon completion of all the projects, we analyzed the videos and journals in order to inform our own future practices with the capstone project.

We watched the videos of the peer groups chronologically to develop a clearer understanding of their journeys into action research. Using these videos as windows into the groups' research and development processes, we documented the sustained growth of these individual practitioners over the course of the semester. The dialogues from week to week reveal transformations of professional practices occurring in the practitioners' lives. The videos, viewed in combination with completed projects and field notes, allowed us to compile the full story of these teachers' journeys into becoming practitioner researchers. We witnessed the teachers in all three groups grow and transform their practices in various ways—all of them positive.

The following account is a description of one group's journey through the action research process, with a focus on one of its members. This account incorporates transcriptions from videos, excerpts from field notes, and information from completed projects. This group's story documents the professional growth that is possible through the collaborative process we designed and implemented with these teachers.

### **One Group's Journey into Transforming Practice**

This group consisted of four secondary teachers, Cliff, Michelle, Jenny, and Fran. These four teachers were at a variety of stages in their careers and taught different subjects at

different schools, but they were able to relate well to each other as professionals teaching secondary student populations. They all had shared experiences in the graduate education program leading up to this culminating action research project. We chose to follow their journey due to the wide range of teaching experiences represented in this particular group. We use fictitious names, but the details are accurate.

Cliff, a seasoned math teacher, had taught high school geometry in an urban school district for twenty years at the time the group began. Michelle taught high school English in a suburban school for four years. The other two members of the group were Jenny, a history teacher with five years of teaching experience in a suburban school, and Fran, an eighth grade writing teacher with eight years of practical experience in a small seaside community school. These four teachers met weekly to collaboratively plan, act, observe, and reflect upon their individual action research projects.

During their first group meeting Cliff, Michelle, Fran, and Jenny discussed their teaching experiences and tried to define what areas they wanted to improve through their projects. They discussed issues they had studied in graduate courses and in other professional development settings. Developing the plan, however, proved to be an elusive task. Cliff, who had more than twice the teaching experience of any of the other members of the group, had the most difficulty in identifying a research focus. Somewhat baffled at the prospect, he tried to explain his thoughts to Michelle, Fran, and Jenny.

*Cliff:* I have been teaching geometry for 20 years. I know my content. It's pedagogy I need to focus on. Mathematics, because of its scaffolding content nature, has always had a more traditional approach to its content delivery and instruction when compared to other disciplines. Teaching math concepts has been predominately whole-class in nature, and I don't really know any other way it can be done.

During the peer group's second meeting, Cliff showed a videotape of a typical mathematics lesson in his classroom with his peer group to gain their insights in developing a focus for his action research project. As his peer group watched the videotape, they noticed that a few individual students were dominating the lesson.

*Michelle:* Why are there only four students answering your questions?

*Cliff:* I have a wide range of abilities in this class. These four know all the presented material. That's why they dominate the class discussion. I do stop it later on in the lesson. Keep watching. You'll see how I have to deal with them.

When the group watched the video of how Cliff stopped one student's persistent answering, they asked him to stop the tape and replay the segment. On the video, this is what the group saw and heard:

*(Cliff is standing at the board questioning a group of 20 students. Student chatter can be heard in the background. Some students appear disengaged while some are focused on the teacher. One student is obviously dominating the lesson by answering each question correctly before Cliff can ask for a response.)*

*Cliff:* Keisha, don't answer any questions for the next five minutes. You understand? Five minutes!

*(Keisha shifts in her seat and attempts to remain silent.)*

*Cliff:* For a negative value, am I going to go above or below this axis?

*Keisha:* Below.

*Cliff:* Five minutes, Keisha? Has it been five minutes yet?!

*(Keisha places her head down on the desk and writes something on her paper. She keeps her head on the desk for the rest of the class period.)*

After the video replay of the interaction between Cliff and Keisha, Michelle was the first to speak.

*Michelle:* Cliff, you were really limiting Keisha's learning. She completely shut down after you got onto her.

*Jenny:* Michelle's right, Cliff. She responds to your directive to be quiet by putting her head down. Even after her five minutes have passed, she doesn't reengage in the lesson.

*Fran:* Keisha isn't the only one not engaged. That student isn't getting it at all. Look at her. *(Fran points at another student in the video paused on the screen.)*

Cliff started to explain how he manages student behavior and how this student is always dominating, but then he stopped talking, rewound the video tape, and watched himself and the student again. Nobody said anything for several moments. Michelle was the first to speak again.

*Michelle:* I think you need to find a way to meet the needs of more of the students in your class.

*Cliff:* With all of the content I have to get through it is hard to teach to all of the different levels of students in this class.

*Michelle:* Cliff, Keisha would be an ideal candidate for the content process of compacting.

*Cliff:* I don't know what compacting is.

*Jenny:* Compacting is a strategy for differentiating the instruction. I learned about it in a class last semester.

Michelle and Jenny continued the dialogue, explaining key concepts and terminology related to differentiating instruction and how it could be done with high school students. While Cliff saw the issue as a behavior management problem, the peer group helped him to focus on improving student learning. The collaborative process that occurred both during and following the sharing of the first video became the impetus for Cliff's research project. He decided to focus upon meeting the needs of all of his geometry students through differentiating instruction. The plan Cliff chose to follow would never have emerged had he been left on his own to develop an action research plan. His peers helped him to define his own path.

He proceeded into his planning process by reading research available on the subject. He asked us for reading suggestions. Cliff recorded his activities day by day in his field notes:

*I spent the entire day reading both books that the professor gave me to read. I think the element that interests me the most is the process aspect. For my research, I will focus some of my observations on how students go about making sense of ideas and information as well as employing readiness assessment and "compacting-out" eager students.*

As Cliff read about differentiating instruction, he learned how implementing a different instructional model could provide greater opportunities for learning in his classroom. He continued recording his thoughts in his field notes:

*The design of implementing differentiated instruction in this setting requires the classroom teacher to plan instruction that includes small flexible grouping, individual exploration, as well as whole-class instruction. This approach may foster an instructional planning challenge, but it has the potential of providing meaningful activities for multiple intelligences and*

*promoting an environment that affirms an appreciation of varied learning styles.*

Following research into his new area of interest, he composed a list of guiding questions that developed into a new conceptual framework for designing instruction in his classroom. His peer group played an integral role in his development process and in his subsequent design of differentiated lesson plans for his classroom. Collaborative reflection led to further self-reflection. Feedback led to research which further informed his self-reflective planning processes. In his field notes, Cliff wrote about preparing to implement differentiated instruction in his classroom:

*Today I began to plan lessons that will include elements of differentiation. The current unit in which we will work is right triangles. So, I need to plan a group project. I haven't pin-pointed the particular skills, but I need something that will be hands-on, computational, and maybe a few other things. This is a challenge—but it is an exciting one. I really want to see what is going to happen.*

As Cliff implemented new strategies in his classroom, he struggled internally with the obvious benefits of an instructional model that sharply contrasted to his teaching practices of the past twenty years. By implementing differentiated instruction in his classroom he departed from whole-class instruction and relinquished some of his control over to his students. In the following excerpt, Cliff turned to his peer group for feedback. He showed them a video of his first attempt at differentiating instruction in his geometry class. He asked them for suggestions on handling a student, Mia, who was having difficulties solving a multi-step problem.

*Cliff:* Tell me how I could have done this differently. I didn't know how to handle this situation with Mia.

The peer group watched the video of Cliff's students working together in groups. Mia was

obviously frustrated with the geometry problem. The other students in her group recognized her frustration and stepped in to help her by providing the steps needed to solve the problem. When Mia completed the problem she appeared relieved, but she quickly put her head on the desk as if embarrassed by needing the peer support. Cliff paused the video and turned to his peer group.

*Cliff:* Now that is how that section of the lesson went. Math always gives everyone a tough time. I had the students help each other solve the problem. I don't do that enough. It is February and I am just starting to have them help one another. I wanted them to share but I don't know if I handled it right. Maybe they weren't ready for this level of help. Mia looked upset when she put her head down.

*Fran:* She just put her head down on the desk at the end. I can see your concern.

*Jenny:* I think the other students were trying to save her from drowning. They didn't want to see her fail.

*Cliff:* I don't know if that worked. After I watched this part on the video, I went back and looked at all the books on differentiation. According to what I have read, the students need to learn from one another when you differentiate. I think Mia learned something, but I am not sure.

*Michelle:* Kids do learn from one another. And not just kids, I learn from my kids. I learn sometimes more from them than they do from me.

*Fran:* I think the key is creating a comfortable atmosphere in the classroom. Kids need that in order to feel comfortable giving and receiving help. All the books on differentiation point to the need for building community.

*Jenny:* If you look at the video, the kids did utilize the student help. It was good you did not give in and help. You need them to

learn from each other and the only way that will happen is if you let them do it.

*Fran:* You started differentiation only a few weeks ago. Look at how they are able to start to go to one another now. You are starting to build community.

*Michelle:* Yes, they are starting to build a personal identification with each other. In this short amount of time of doing differentiation we are seeing a difference.

*Cliff:* I remember reading the book you guys told me to get. It was about creating an environment for the students that was conducive to learning and assessing. This is definitely something I need to continue to work on. I am glad you think this was a good first step.

*Fran:* This is important for life. When the students get in the real world, they need to get help from one another.

The dialogue between Cliff and his peers provided support and reassurance for the actions he was taking in his classroom. Through analyzing the situation with his peers, Cliff was encouraged that the changes in his classroom were positive. He gained confidence to continue to try new instructional strategies in his classroom.

During the following weeks, Cliff worked to develop on-going group projects in his classroom. His peer group supported his efforts and provided further insights to help him prepare for continuing his work. His field notes revealed his thoughts and processes at the time:

*I have finally completed my small group activity. It consists of four components: computation, reading, constructing, and talking (discussion). I believe that each of these components will engage at least one member of each group. There will be four groups of 3-4 students. These small groups were teacher selected, whereby each group consisted of a student who is good in*

*computation, one in construction, one in writing /reading and (one) kinesthetic.*

After his students had completed the project, Cliff showed his peer group a new video. His peers watched with interest to see if there were new signs of student learning and active engagement.

*Michelle:* No one took total control of the group. Each member added and gravitated to their own strengths.

*Fran:* You really reached all students and time was allotted for review.

*Jenny:* The lesson was a good example of content processing.

*Cliff:* You all have really helped me to make some dramatic changes. I could not have seen this coming a few weeks ago.

As Cliff continued through the research process, he moved from creating small opportunities for students to help one another to planning a week long differentiated project. His practices quickly evolved to include the use of pre-assessment data to determine instructional directions rather than taking the whole class through lessons and units in lockstep.

*Cliff:* Looking at the results of the pre-test, I am able to move through this unit of transformations quicker. Most of the pre-test questions were covered with ease. The students understood the basic movements. I was glad that this was accomplished. Normally, I would just plow through the chapters and take too much time to cover the material.

At the end of the fifteen week project, he and his group recognized the change in his practice.

*Michelle:* There is such a difference in the level of engagement of your students now.

*Fran:* Keisha is now challenged. What a difference from the first lesson where she disengaged from the lesson.

Cliff's own reflective practices demonstrated the cyclical nature of the action research process. His final entries in his field notes showed the organic developmental possibilities of the collaborative action research process:

*The impact of this study will foster innovative instructional practices and lead to more in-depth research about differentiated instruction. Although differentiating instruction has proven to be tedious at times, I will share the academic benefits of employing such practices with colleagues in order to aid in the instruction of culturally and linguistically diverse students.*

Cliff recognized that collaboration was the key to unlocking the action research project that was right for him:

*It was a pleasure to have non-math educators evaluate my teaching process. So often we only ask for council and guidance from within our own discipline. Having the others in my group watch my video taped lessons and my delivery forced me to gear my lessons to those who may not have a mathematical propensity. Their advice has been forthright and appreciated. It showed also through my students.*

Over a fifteen week period Cliff also eased away from needing a high degree of peer support and guidance in adjusting his own practices. Cliff was becoming a self-actualizing and self-directed practitioner researcher in his classroom. His zone of proximal development had expanded, and he recognized that the expansion was due in part to reflective collaboration with peers.

While Cliff is the example we chose to focus on in this article, it is important to note that the other members of Cliff's group and members of the other two groups also developed and

implemented research plans that were significantly shaped by the input of their peer group. All members of the groups freely admitted that the peer interaction at all stages of the research process led to transformations in each of their classrooms. Each member of the group entered the action research process at their own level of readiness and worked toward improving on areas of need identified and clarified in the peer collaboration process. Each teacher had taken different journeys in completing their capstone projects but all noted the positive changes in their visions of professional practice.

### **Our Learning Outcomes**

After observing and analyzing the peer interactions develop on video, we found that each individual teacher had to begin the capstone process at his or her present level of practice. Through our observations, we also discovered that each member of the peer group could contribute to and benefit from the peer collaborations, regardless of the initial level of practice.

In our analysis and synthesis of the data (teaching videos, peer group videos, field notes, and final projects), we drew upon the framework of Vygotsky's sociocultural theory. Vygotsky's focus on the social situation of development provided a lens for viewing the growth process of these teachers. Specifically, Vygotsky's concept of the zone of proximal development provides a theoretical construct for analyzing the professional development process presented in this article (Vygotsky, 1978).

In order for this potential to be realized two conditions must be met if the interaction enables the potential development to be realized (Wells, 1999). First, the assistance must be relevant to the learner's own purposes. Second, the form of assistance must enable the learner to achieve in collaboration with others what he or she can not do yet alone. The assistance received from peers in our groups met the criteria of both relevancy and of enabling the individual to perform at levels

beyond his or her independent level of functioning.

Through this process, the teachers in the peer groups became well versed on the strengths and weaknesses of individual learners in each other's classrooms. During the process, they vicariously became practitioners in one another's classrooms. They were engaged cognitively and affectively in the collaborative peer group processes at the same time as they were acting independently as action researchers in their own classrooms. These teachers, like all learners, operated within a zone of proximal development, each constructing understanding of the art of teaching through reflective practice, and each drawing guidance and assistance from the range of sources available to the others (Tharp & Gallimore, 1988). Adger (2002) states, "Professional talk is not the icing on the cake of professional development. It is the cake" (p. 28). The process we documented showed those sentiments to be accurate.

### **Development in the Zone of Reflective Capacity**

The rapid targeted growth we witnessed among these teachers occurred within a specific portion of the zone of proximal development—which we identify as the zone of reflective capacity. This zone shares the theoretical attributes of the zone of proximal development, but is a more specifically defined construct helpful in describing and understanding the phenomena we have documented.

Wells (1999) states, "Learning in the zpd involves all aspects of the learner—acting, thinking, and feeling; it not only changes the possibilities for participation but also transforms the learner's identity" (p. 331). Similarly, the capacity to reflect occurs concurrently in the cognitive, affective, and psychomotor domains when individuals are engaged together in a zone of heightened reflective capacity.

Through collaborative reflection, all members of the peer groups focused on communally agreed upon goals, which led to cognitive development. The foundation for this

development was formed by the collective knowledge and experiences of the group. Their knowledge and experiences were rich, diverse, and well informed by semesters of graduate education courses. As the peers shared their insights, feedback, analyses, and evaluations, the potential for powerful reflection expanded. Cliff's field notes provided insights into his cognitive gains:

*I was concentrating on the readiness aspect of differentiated instruction, because my comment to Keisha really made me rethink my classroom instruction. If it was that obvious on video, then what other "errors" am I committing under the guise of teaching "properly"? I have read the books that my professors and colleagues gave me to read. I have incorporated new knowledge on differentiation and cooperative instructional techniques into my classroom practices. I now see students differently, plan lessons differently, and discuss teaching with my peers differently. My teaching has evolved.*

As the zone of reflective capacity opened up, so did the minds of the teachers to the possibilities for transforming their practices in ways they could not have imagined as independent researchers. Collectively their potential for reflection was expanded, and cognitive development expanded similarly as demonstrated through written feedback:

*After reviewing the videos of the systematic and conscious changes in my teaching, I realize the direction my lessons need to take in order to motivate my students to take ownership of their education and to move from passive to active learning. To accomplish this will require a continued evolution of my teaching, gained through continued research and dialogue with colleagues, since learning is a lifelong process.*

The zone of reflective capacity further expanded as trust and mutual understanding among the peers grew. Like the zone of

proximal development, the zone of reflective capacity is constructed through the interaction between participants engaged in a common activity and expands when it is mediated by positive interactions with other participants (Wells, 1999). Written feedback gathered after the last class meeting revealed the affective impact of the process:

*I have to say as I sat in class tonight and looked around the room the unknowing and nervous faces were no longer present. Those of us who were unsure and standoffish, now had an entirely different perspective. It was actually a great feeling. I'm sure I can say that many of us didn't know what to expect and didn't know how to feel about the project, but now all of those feelings have changed.*

We have also learned, in retrospect, that as an individual's actual self-reflection expands, the range of reflective peer support or other resources needed for further reflective development changes. In progressing through reflective cycles, an individual may initially depend heavily on peers and other resources, and over the course of the process develop a new level of self-reflective independence. One teacher recognized this developmental process in her written feedback:

*In a short amount of time we are seeing improvement in each other. We are starting to question ourselves, like how am I doing this, or can I do this better.*

### **Conclusion**

The journeys shared in this article stand as a powerful testament of what individuals can accomplish when they work independently, interdependently, and reflectively to improve their professional practices. Through infusing peer collaboration into the action research process, these teachers eventually transformed their own identities as teachers and empowered themselves to control their own learning and professional growth. By expanding their zone of reflective capacity, each teacher came to embody the role of the

expert facilitator and the role of the practitioner.

Graduate level education programs can empower teachers as reflective practitioner researchers. At the most basic level, research equates to learning. We have found that teachers can move from being graduate students into acting as practitioner researchers in their own classrooms and transform their own teaching practices. Graduate education programs must provide teachers with knowledge, guidance, structure—and gradual release from guidance and structure in order to empower them as self-actualized professionals.

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