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### **Expanding the ZPD in Schools**

In describing the learning process, Wells (1994) states that “learning takes place in the context of purposeful activity, as learner and teacher work together to create a product that has its own intrinsic value” (p. 263). Learning needs to be meaningful, purposeful, relevant, and respectful. (Goodman, Bird & Goodman, 1991). Purposeful activities constitute a social process, with the actors bringing to the process their own lived experiences, from their own sociocultural-historical contexts. Learning in this way becomes transformative as students and teachers construct mutual knowledge through purposeful activities.

A way of further conceptualizing the zone of proximal development as a potentially transformative classroom process is through Vygotsky’s constructs of reformulation and internalization (Rieber & Carton, 1987; Vygotsky, 1978, 1986). Vygotsky theorized that, through dialogic and collaborative practices, learners personally reformulate a problem and then formulate a possible solution in their own words. What begins as a collective work is transformed as students take up, or internalize, common language and knowledge of the collective to be used in their personal academic work. From this perspective, participants working together on a problem construct knowledge together that has potential for becoming both collective knowledge and individual knowledge as well as for guiding and transforming subsequent actions (Putney, Green, Dixon, Duran, & Yeager, 2000). Collective learning and development and individual learning and development are integrally tied to each other (Souza Lima, 1995).

As teachers and students work together in a dynamic way, their knowledge of academic content and practices (patterned ways of acting) are transformed as they construct a community of practice (Lave & Wenger, 1991; Rogoff, 1994) or classroom culture (Collins & Green, 1992; Santa Barbara Classroom Discourse Group, 1992a) with their students. As Moll (1990) argues, for Vygotsky, “the intellectual skills children acquire are directly related to how they interact with others in specific problem-solving environments...(C)hildren internalize and transform the help they receive from others and eventually use these same means of guidance to direct their subsequent problem-solving behaviors.” (p. 1). Thus, we view the interactions and activity among members of the class as affording students opportunities to learn new ways of accomplishing subsequent tasks of classroom life as well as new content knowledge (Tuyay, Jennings, & Dixon, 1995).

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In a similar way, teaching can be viewed as a dialogic and dynamic process through which the teacher learns from observing what students take up, and in turn, uses this knowledge to formulate and reformulate classroom activity. This dynamic interactive and responsive process supports individual and groups of students in accomplishing current and future tasks that constitute academic curriculum. Both teachers and students interpret new tasks and draw on past learning to construct knowledge in new events, and both draw on this knowledge to shape subsequent classroom activity. Thus, both teachers and students are learners, only the object of study differs (Floriani, 1997; John-Steiner & Mahn, 1997).

In the next two small sections of this chapter, we will share two examples of the ZPD. In choosing these two examples, we have endeavored to demonstrate that the ZPD can be implemented in the most unusual teaching and learning contexts. While both examples took place in the context of international education, the first example was planned by the teacher, and the second example simply happened.

### **The Peace Patrol**

The zone of proximal development can be implemented in a wide variety of contexts, with any content, on any continent, and under difficult circumstances. Such is the example we learned from a teacher who teaches in international education. Recently, she had been seeking solutions to violence on campus and decided to try to find ways to make the ZPD increase the development and learning of her students (Chapter Note 2). In what follows, in her own words is how she found peace through the implementation of the ZPD.

Conflict resolution is a “hot topic” high school counselors. At my intermediate school. I have been interacting with small teams of student peer mediators to work through problem solving. These “more capable peers” have dual functions: First, they have preventative responsibilities, in which they learn role-playing, walking the talk, and wearing the peace uniform; and, second, they are intervention agents when conflict does arise. The more capable peers have become known as the “Peace Patrol.” We believe that these students are modeling a foundation of mediation for the rest of the student body.

I initially introduce the concept of peaceful problem solving, through the use of the ZPD. Next, more capable peers are trained using a variety of methods, including “peace” vocabulary giving mediator a framework in which to expand the concept. They are then ready to interact outside the mediator group with other students as the need arises.

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At this point, I have long since moved out of the director position (or more capable peer) and now work with the student more capable peers as they share their abilities to question, to analyze concept growth, and to encourage other students to also become more capable peers. In this way, the peace concept affects ever-widening pools of students by experiencing successful problem solving outside the classroom, but inside their meaningful social context. Teachers and parents are “in the loop” (or, in a Vygotskian sense, in the zone) by workshops and active participation within and without the school community.

As we knowingly create the zones of proximal development and actively expand the numbers of peer mediators (more capable peers), we’ve changed a lot from the inside out. We have been experiencing precious peace. Our school atmosphere is more positive; we have far fewer fights; and, more than fifty students—mediators and disputants—have walked away from a scary, frustrating, or hurtful problems feeling better and more confident than they were.

In summarizing the Peace Patrol situation, as the school counselors, teachers, and students utilized the construct of the zone of proximal development to build the peacekeeping strategies in their school, they were also problem posing and problem solving as we saw in the examples in Chapter 2. As the Peace Patrol participants expand their repertoires of dealing with problems on the school grounds, they also mediate problem solving solutions with their fellow students. In implementing a theoretically based solution to an initial problem, the entire school has made a transformation from a hurtful place to a nurturing place. They have made school safe for learning.

### **Mumbo/Jumbo Theory**

A vivid example of the ZPD recently happened with Joan and a classroom of adult students in the context of international education. As a way of preparing for a Masters’ comprehensive final, Joan spent two hours of class time reviewing the ebb and flow of the various theoretical perspectives throughout this century (Figure 1.1). With the test rapidly approaching, the students were focused, drawing their own timelines in preparation for the test, and asking many questions. At the end of this session, the whiteboard in the classroom was completely filled with a long red vertical line that ran the full length of the board. Obviously, it was a timeline as dates, people, and ideas were rapidly scrawled above and below the vertical line. In fact, a quick, cursory glance could lead one to believe that it was simply a *mumbo/jumbo* of scribbles, scrawls, and scratches.

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Retrieved from: [www.joanwink.com/vov/vov\\_pgs102-112.pdf](http://www.joanwink.com/vov/vov_pgs102-112.pdf)

However, a closer look by anyone preparing for a master's final would see that the mess contained the big ideas of thought running through this century. At the end of class, Joan recreated in her class journal the exact timeline that the students generated (Figure 4.7).

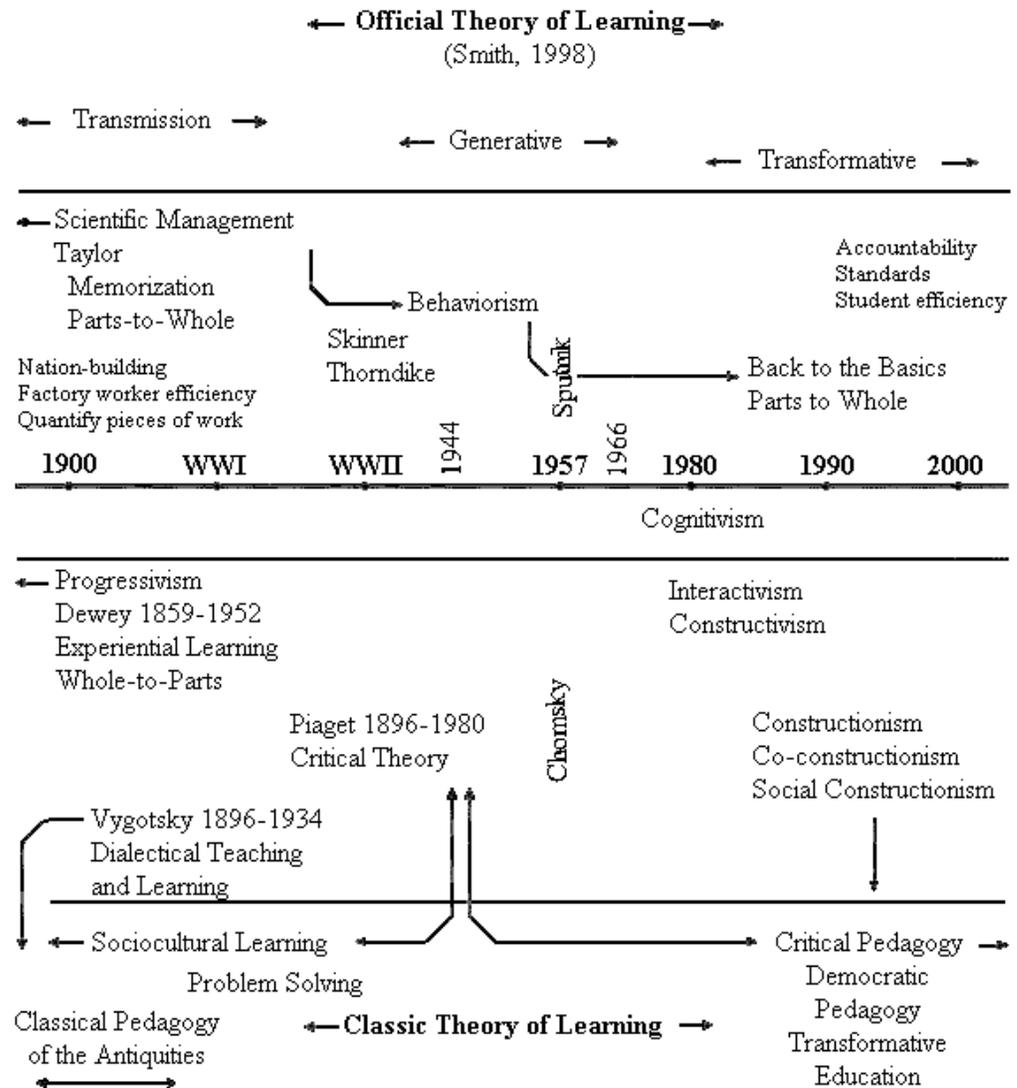


FIGURE 4.7 Time Line of Big Ideas

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On the timeline, the students had written *Vygotsky's life* (1896 to 1934), and close to his name, they wrote the words *dialectical teaching and learning, sociocultural learning, and problem solving*. Near his name and below the timeline, they wrote the lifespans of *Dewey* (1859 to 1952) and *Piaget* (1896 to 1980). Below Dewey's name, they scrawled *experiential learning, and whole-to-parts*. Above Piaget's name, they included the term, *generative*. The timeline included the simultaneous and conflicting notions of *Progressivism* and *Scientific Management* in the early years of the 1900s.

Above the timeline, they wrote *Taylor* under *Scientific Management* with the words: *memorization, and parts-to-whole*. Not far from Taylor's name, *Skinner, Thorndike, and Behaviorism* were followed by *Black Box theory, stimulus-response, and quantify-measure*. At the very top of the whiteboard above *Behaviorism*, they wrote *Transmission*.

In the middle of the horizontal line, *1957* appeared, with *Sputnik* written above the line, and with *Chomsky* written below. Both the years *1944* and *1966* were highlighted (Chapter Note 3). Below the late 1970s and moving into the 1980s, the words *cognitivism, interactivism, constructivism, constructionism, (see Table 1.1) co-constructionism, and social constructionism* appeared, followed by arrows to *critical pedagogy, democratic pedagogy, and transformative education*.

*Critical pedagogy* had an arrow beside it, one moving to the right as an implicated future, and another arrow to the left, and pointing directly up to *Critical Theory* of the 1940s. Another arrow from *critical theory* went down to *sociocultural learning*. From *Vygotsky's* name, an arrow indicated the link to *classical pedagogy*.

However, the original questions asked at the beginning of this section were: What is the ZPD? And, who is the more capable peer? What does that timeline on a whiteboard have to do with answering those two questions? The answers can be found in what happened next.

At the end of the review session on the timeline, Joan grabbed a whiteboard eraser to clean the board. She rapidly drew the eraser across the entire length of the board, and the RED marks stayed on the board. She did it again. Nothing. The RED marks remained. Joan had obviously used a non-erasable marker for this lesson, as opposed to the erasable marker. The students began to chant: *Leave it there. Leave it there*—as this was the same room where they would soon take their test. However, this international education program leases this classroom from another school. The thought of ruining the whiteboards for a school with a limited budget sent terrors through, at least, Joan's spine.

“Who knows what to do? Joan asked the class with panic rising in her voice.

“I know what to do,” Chris, who teaches in Kuwait said, as she ran from the room. She soon returned with a bottle of alcohol and lots of wet paper towels. She began to wipe the whiteboard which soon turned into a smeared bright hot pink, and not so white, board. Steve, who teaches in Turkey, watched what she was doing and went to help her. With continued perseverance and many more wet and then dry towels, the board eventually returned to an almost-passable shade of white.

“Now, let’s try to refocus our review and remember some of Vygotsky’s ideas. Let’s start with the ZPD,” Joan said to the class at the end of this near-classroom-fiasco.

“Enough of this *mumbo/jumbo* theory,” Steve suddenly blurted out. “Just tell us in real language what the ZPD is?” More laughter and nervous energy filled the air.

“Okay, Steve,” Joan began. “Chris is your more capable peer when it comes to cleaning permanent markers from the whiteboard. You had never learned this and were thoroughly enjoying the possibility that I might have ruined the whiteboard. Chris, as the more capable peer, knew that learners could solve problems beyond their actual developmental level if they receive guidance from a more advanced learner. Thus, Chris pulled us all through our actual developmental level in whiteboard cleaning. What you did in cooperation with Chris today, you can do alone tomorrow. In addition, if this should ever happen again, you could suddenly become the more capable peer in whiteboard cleaning for someone else. And, that is no *mumbo/jumbo* theory.”

As Joan was speaking and finally getting the adult learners thinking again about their comprehensive final again, the door of the classroom suddenly burst open. Harriet from the Czech Republic, said, “Dr. Wink, I am sorry to bother you, but do you have anything to clean markers off a whiteboard? I just wrote all over Dr. Titone’s whiteboard and can’t get it off.” A roar of laughter consumed the class again.

“Steve, you are now the more capable peer. Go help her,” Joan said.

“And, no mumbo/jumbo theory either, Steve. Just pull her up through the zone to her next developmental level in whiteboard cleaning.”

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## More ZPD in the Classroom

The previous example of the ZPD is synergetic (Chapter Note 4). It was not a part of the planned curriculum; it simply happened. The trick is to see the pedagogical relevance of many social/cultural events within the classroom culture and to learn from them. It is our contention, that the legacy of Vygotsky provides for all of us many pedagogical tools which, when implemented, become of cognitive coathooks for learning and developing at that moment.

In the next example of the ZPD, the teacher has assigned roles to the individual students to assure that each student contributes and that all learn. However, as shall be seen, even when the teacher has “planned” to make the ZPD a part of the curriculum, unforeseen events can happen which can stall or prevent further learning and developing. Once again, it is the teacher’s pedagogical expertise which, when applied appropriately, can assure that the students continue to climb that slippery learning curve.

In this sixth-grade classroom, the students were studying a unit on why and how people in societies build various types of structures. For this particular lesson, the teacher assigned student roles to facilitate the learning within each group. For the following small group, the teacher thought that the facilitator, Stephanie, would be the more capable peer. However, the sociocultural context often has an unplanned dynamic of its own which determines the direction of human relationships and learning.

Stephanie’s group was working on an activity in which they were to build a suspension bridge to demonstrate the concepts of tension and compression. As the teacher approached the group to observe their work, she noticed that one student, Jeff, was standing with his arms folded in front of him, scowling somewhat at the attempts of the others in his group to make a satisfactory model. He informed the teacher that he had been excluded from the process by the others. He had given his opinion on how to proceed, and since they did not agree with him, they ignored his suggestions and continued. Since the roles for group participation had already been constructed by the teacher and students, the teacher attempted to find a way to validate the strengths of this student without breaking down the interaction of the group as a whole.

Turning to the facilitator of the group, the teacher asked if their model truly demonstrated the concepts of tension and compression. The facilitator assured the teacher that their model was fine. However, another group member, the recorder, admitted that their bridge did not follow all of the specifications of a true suspension bridge.

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“The strings are wrong,” Mario chimed in. “Jeff tried to tell us.”

“Jeff, do you have any suggestions for fixing the bridge so that the strings demonstrate the concepts correctly?” the teacher asked. Jeff set about demonstrating how the bridge would have to be reconstructed so that it would comply with the necessary specifications. Turning back to the facilitator of the group, who had done most of the excluding, the teacher asked, “Stephanie, could your group utilize the information offered by Jeff in order to redo the bridge? Ana and Mario seem to be in agreement that something must be done to correct the model as it stands.”

“Well, I guess I did ignore Jeff’s suggestions earlier,” Stephanie admitted. Turning to the others in the group she added, “OK, let’s try again. Jeff is the bridge expert, so he can show us how, and we can build it together.”

The teacher moved on to another group, and when she returned to this group, all were collaborating on the new structure. The formerly excluded student was now the more capable peer, happily explaining the concepts of tension and compression with the others. Upon following his advice, they were able to build a much improved version of their original bridge which they proudly displayed to the entire class.

In effect, we had an example of students who were attempting to move through the zone of proximal development, but whose progress had been stilted because the student facilitator of the group did not recognize the resource of the more capable peer. The role of the teacher in this case was to facilitate the progress of the group by helping them to refocus trust in each other. Had the teacher insisted that the group members listen to Jeff, who knew what needed to be done, the teacher would have been forcing, not, facilitating. Instead, the teacher asked leading questions to focus the students on the fact that they were not accomplishing the goals of the group work. The group members had been relying on information from a less capable peer, Stephanie, who happened to be assigned the role of facilitator in their group.

The teacher encouraged the expertise of the more capable peer, Jeff, to emerge in a non-threatening manner. The other students could then see the advantage of utilizing his knowledge. When the teacher refocused the group, the others became willing to listen to and initiate Jeff’s ideas. With the knowledge of the more capable peer, and the cooperation of the others in the group, they quickly put together an impressive structure that correctly modeled the concepts so that the others in the class could learn from their experience.

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As teachers we must be open to the notion of more capable peer. We do not always know in every situation which student will be the more capable. This is important in validating multiple strengths as can be seen in the follow example.

### **Who really is the more capable peer?**

Judy and Juan are classmates with very different economic, social, cultural, and political backgrounds. Judy's family is economically enriched; her mother is a teacher, and her Dad runs a successful business. They adore their daughter, Judy, and do all they can to assure that she has many positive and varied experiences. Juan, on the other hand, comes from a broken home. His mother is raising 5 children alone; she works outside the home and simply does not have the time, nor money, to do extra things with her children. Juan's Dad is out of jail, but does not spend time with his family.

Judy is a great reader and knows it. In fact, she is often bossy to the point that her peers don't like to be with her—particularly in a reading group. Juan is the opposite; he is not a good reader, and his peers like to be with him—even in reading groups.

One long, rainy day in class, Olivia, the teacher, went to her closet and pulled out 10 different giant puzzles for the children to do during their indoor recess time. Although Judy and Juan had not worked together before, Olivia paired them on that long rainy day . At that point, none of the students wanted to work with Judy. Olivia was hoping that Juan would model some of his people skills in his innocent and gregarious way. Judy and Juan dumped out the pieces of their puzzle on the floor and began to work.

Put all the pieces face up," Judy said, and their fingers went to work. "Now, find the outside pieces. I'll do the top; you do the bottom," she continued.

"Okay," Juan replied. Juan quickly began connecting the pieces of the bottom of the puzzle.

"Juan, now do that corner, too," Judy said when she realized that she was not putting the top together as quickly.

"You are too bossy," Juan replied. "Look, see this piece? Does it look like it goes up there?" he asked her as he showed her a piece for the top of the puzzle.

"Yes," she answered. "Well, get it and put it together with that one," he said to her, still using a friendly tone. She took the two pieces, but could not make them fit together and threw them back into the pile of pieces.

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“Give it to me,” he responded in a more aggravated tone of voice. She handed it to him with a look of which says: sure-like-you’re-going-to-make-it-fit.

“Can you see this little loop?” he asked her as his voice began to take on a hint of sarcasm.

“Yeah, Juan, I can see it,” she returned his expression.

“Can you see the missing hole on the other piece?” he asked as he pointed to the piece that she had just tossed back into the pile.

“Yes, I can,” she pouted.

“Well, grab that piece and put the loop in the hole, and it will fit,” he said as he demonstrated each movement of putting the two pieces together. Reluctantly, Judy began to put the two pieces together and succeeded.

“I got it. I got it. I’m so good.” she squealed to all in the class. Juan and Judy continued to work on their puzzle and were the first to finish.

“We’re done, Teacher, we’re done,” Juan exclaimed.

“Oh, Juan, turkeys are done; people are finished,” Judy sighed in exasperation.

We offer the previous authentic example of the zone of proximal development to demonstrate that the more capable peer may not be who the teachers assumes. In addition, the previous story clearly shows that the more capable peer in one context may not be the more capable peer in another.

### **Cognitively Slipping in the Zone**

We have discussed the meaning of the concept of the zone of proximal development and the powerful effect of utilizing that zone in the classroom. However, we recognize that simply grouping students and hoping that they will help each other is not quite enough to ensure positive outcomes and movement toward that potential development level. In our studies of Vygotsky we have found two constructs which can thwart even a well-constructed zone of proximal development; the first is safety for the students while in the culture of the classroom, and the second is regression within the zone.

#### **Safety within the ZPD**

The Vygotskian legacy encourages students and teachers to taking risks in their problem solving. Dialectical thought and language will lead to learning *outside of the box*.

This combination of problem solving and dialectical thinking can be risky business. When we create zones of proximal development in the classroom, they must be surrounded by a safe and secure environment. Harste, Woodward, and Burke (1984) refer to risk taking as a strategy. They look to Vygotsky to argue their point as follows: To live within existing rules and predictable patterns is not to grow (p. 136). They advocate a low-risk setting for literacy and language development. They describe this setting as follows: “In such an environment the language user neither guesses wildly, nor does not guess at all; rather, he or she finds himself or herself in a setting where calculated guesses and ‘what-I’m-ready-for’ are allowed to evolve” (p. 136). In Vygotsky’s words,

what the child can do in cooperation today he/she can do alone tomorrow. Therefore the only good kind of instruction is that which marches ahead of development and leads it; it must be aimed not so much at the ripe as at the ripening functions (Vygotsky, 1986, p.188).

When we begin to create zones that encourage performance before competence, the teacher is no longer the center of learning. In the zone of proximal development, students using language are central to the learning process. Classrooms need to be organized so that all students continually use their own language to understand the concepts, ideas, and curriculum. It is necessary for students to have time to reflect, to discuss, to organize thoughts, to summarize, and to generate ideas through social interaction.

### **Regression with the ZPD**

Through properly implemented collaboration, students come to trust each other to provide information as learning emerges from the interaction. As students progress through the zone, could it be possible for them to regress during interaction? This was a question raised and researched by Jonathan Tudge (1990) who maintained that if learners are able *to progress* through the zone, it also could be possible for them *to regress* during peer collaboration. He based this on a study conducted in Ithaca, New York with children who helped each other solve a problem predicting movement of a balance beam in relation to varying weights placed upon it. According to Tudge the results of the study showed that collaboration with a more capable peer does not guarantee that the joint meaning will be at a higher level, and that the higher level peer could actually regress.

The next day after reading about Tudge’s research, Le went to a presentation about bilingual education programs in California and had the opportunity to experience this phenomena of regression. The presenter, who one could assume was the more capable peer, was attempting to explain the differences in the various types of programs that are associated with bilingual education.

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Due to the constraints of time, she had tried to give simple definitions of complex program models. As the presenter attempted to explain the various program models, her explanations became intertwined, because her knowledge base was not well established. In fact, it became clear that perhaps she was not the more capable peer in the group of colleagues.

As a participant, Le felt compelled to say something because the information being given was incorrect and confusing to everyone else in attendance. However, as Le began to share, she found much to her surprise that she simply could not find the words needed to set the situation straight again. The more confusing the discussion became, the more difficult it was to sort through all of the terms and definitions being offered. This happened, in spite of the fact that Le had years of experience with and knowledge of language acquisition and the various models available for diverse student needs.

After the presentation, some of the other participants began to ask Le for clarification as they walked to their cars. Away from the confusion brought on by the other speaker, Le began to share. She was able to clarify the terms that were causing confusion, realizing that the information came to her almost intuitively since she was no longer being influenced by the disorientation of misinformation.

The events had quite an effect on her, and upon arriving home after the session she phoned a colleague, who had also read the Tudge article, to tell her what had happened. Le told her friend of her confusion and inability to clarify during the presentation, although her confusion vanished after she left the context. Le and her colleague mused on the fact that maybe she had experienced regression within the zone of proximal development, ironically, the day after she learned about it.

The next day as Le related this story to Joan in her office, Joan suddenly exclaimed, "Le, you were Tudged!" Our apologies to Jonathan Tudge for using his name to explain the phenomenon. However, like our friend, Calvin of the Calvin and Hobbes cartoon, we like to verb words, and in this case, we simply could not resist.

The point we wish to make in the telling of this story is that simply pairing students with more capable peers is not sufficient to insure that increased learning is occurring. The more capable peer or any member of the social learning group can experience regression. However, if we return to Vygostky's take on development with Zebroski's image of the tidal wave, then we can recognize that regression can be a moment of reorganization of thoughts – a moment just before a revolutionary point of understanding (Newman & Holzman, 1993).

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Zebroski (1994) discussed Vygotsky's model of development as one that is progressive and regressive at the same time. Development in this sense depends upon risk taking, which may involve apparent "failure," but that is momentary as the apparent regression may actually be in preparation of the developmental leap that follows. Given this view of development, Tudge's study showed that the process and the conditions under which the interaction take place are important factors in the movement through the zone. Providing sufficient feedback is one way for teachers to help students confirm their learning.