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## Implications of Vygotsky's Zone of Proximal Development (ZPD) in Teacher Education: ZPTD and Self-scaffolding

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### Abstract

*One of the major themes in Vygotsky's sociocultural theory is the zone of proximal development (ZPD). Vygotsky's zone of proximal development was created with child development in mind. Unfortunately, Vygotsky lived a short life and never proposed any specific methodology for the use of ZPD in teacher education. Recently the idea of ZPD has been used in teacher education (Warford, 2011). In this paper, first the philosophical and historical foundation of ZPD is discussed. Then, ZPTD and different stages of developing the ZPTD are introduced. Finally, factors affecting teachers' ZPD are studied and suggestions are made on improving the ZPTD.*

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*key words:* zone of proximal development; zone of proximal teacher development; teacher development; teacher education; sociocultural theory; self-scaffolding

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### 1. Introduction

To understand Vygotsky's theory, it is important to look at the political environment of that time. Vygotsky began to work in psychology shortly after the Russian revolution, where the Marxism replaced the rule of the czar. The new philosophy of the Marxist emphasized socialism and collectivism. Individuals were expected to sacrifice their personal goals and achievements for the improvement of the larger society. Sharing and co-operation was encouraged, and the success of any individual was seen as reflecting the success of the culture. Marxists also placed

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a heavy emphasis on history, believing that any culture could be understood only through examination of the ideas and events that had shaped it.

Vygotsky incorporates these elements in his model of human development that has been termed as a sociocultural approach. For him, the individual's development is a result of his or her culture. Development, in Vygotsky's theory, applies mainly to mental development, such as thought, language and reasoning process. These abilities were understood to develop through social interactions with others (especially parents) and therefore represented the shared knowledge of the culture.

## **2. Zone of proximal development (ZPD)**

One major aspect of Vygotsky's theory is the idea that the potential for cognitive development depends upon the "zone of proximal development" (ZPD): a level of development attained when children engage in social behavior. Full development of the ZPD depends upon full social interaction. The range of skill that can be developed with adult guidance or peer collaboration exceeds what can be attained alone.

### *2.1. Historical perspective on the ZPD*

To fully appreciate how Vygotsky conceived of the ZPD requires going beyond the construct's standard definition and delving briefly into its historical origins. Vygotsky's thinking on the ZPD apparently began to crystallize as he confronted issues relating to IQ and IQ testing, which during his time—and not unlike today—was controversial. Educators then assumed, and many in mainstream education continue to assume, that for teaching to be effective children had to attain a threshold level of development, which was established by observing children as they independently performed specific types of task. Several of Vygotsky's contemporaries observed, however, that once in school, children with an initially high IQ frequently manifested a decrease in their IQ score, while those with low initial IQ scores often tended to show score gains.

Vygotsky (1978) argued that one could not fully understand children's developmental level without also determining that development's upper boundary, which was determined by the kind of tasks that children could do with someone else's assistance. In other words, two children might exhibit the same IQ score, supposedly indicating that they had achieved the same developmental level and thus readiness for instruction, but one of them might well be able to perform more complex tasks under someone else's guidance than the other could with the same assistance. Vygotsky referred to this difference between actual and potential IQ as the Zone of Proximal Development. He argued that some children might have a high IQ but a small ZPD and others might have a low IQ but a large ZPD.

On the other hand, some children might have a high IQ and a large ZPD and, likewise, others might have a low IQ and a small ZPD. Vygotsky's major insight regarding the ZPD was that instruction and learning do not ride on the tail of development but instead blaze the trail for development to follow.

Vygotsky (1962) introduced the concept of ZPD to criticize the psychometric-based testing in Russian schools. The traditional testing reflected only the current level of learners' achievement, rather than learner's potential for development in future. The zone of actual development (ZAD) does not sufficiently describe development. Rather, it reflects what is already developed or achieved. The level of assisted performance in ZPD highlights the potential for emerging behavior and "tomorrow of development" (Vygotsky, 1978).

### *2.2. Definition of the ZPD*

Vygotsky's zone of proximal development describes how cognitive growth occurs in children. Rather than considering a child's potential in terms of a static measure such as an IQ score, Vygotsky felt that a developmental measure was needed to better assess children's educative potential. The ZPD provides a conceptualization of how developmental potential might be understood. Vygotsky (1978, p. 86) defined the ZPD 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.

As this definition was created with child development in mind, it includes "adult guidance". Vygotsky also allowed that more capable peers may provide the nudge of assistance in the ZPD that showed a child's potential.

Assistance in the ZPD may be called scaffolding (Wood et al., 1976), and the accomplishments made with assistance may be termed assisted performance (Tharp & Gallimore, 1991, as cited in Ohta, 2005). Assistance in the ZPD functions most effectively when it is tailored to the learner, adapted and eventually withdrawn in response to learner development (Lantolf & Aljaafreh, 1996). Vygotsky rejected the notion of development as a necessary precondition for instruction and learning, and strongly criticized positions that assumed development is impervious to instruction.

### 2.3. ZPD in L2 learning context (the adapted definition)

Vygotsky's definition of the ZPD was designed as a way to consider the developmental potential of children. However, in the L2 learning context, many learners are adults. Prompted by this fact as well as the finding that adult peers need not necessarily be more capable in order to provide assistance in the ZPD, Vygotsky's definition has been adapted to better suit the adult L2 developmental context (Ohta, 2005). The adapted definition states that the ZPD is the distance between the actual developmental level as determined by individual linguistic production, and the level of potential development as determined through language produced collaboratively with a teacher or peer.

## 3. ZPTD

Unfortunately, Vygotsky lived a short life and never proposed any specific methodology for the use of ZPD in teacher education. Recently the idea of ZPD has been used in teacher education by scholars such as Warford (2011). Warford (2011) describes zone of proximal teacher development (ZPTD) as "the distance between what teaching candidates can do on their own without assistance and a proximal level they might attain through strategically mediated assistance from more capable others (i.e. methods instructor or supervisor)" (p.253)

Vygotsky (1962) stated, "direct teaching of concepts is impossible and fruitless. A teacher who tries to do this usually accomplishes nothing but empty verbalism, a parrotlike repetition of words by the child, simulating a knowledge of the corresponding concepts but actually covering up a vacuum" (p. 150). Mediated concept formation comprises the core of the Vygotskian view of developmental processes. Facts are not simply transferred to teaching candidates; rather, the candidates take the facts and appropriate their own meanings by means of cultural tools (Golombek & Johnson, 2004).

This process, according to Lempert-Shepell (1995), grows in systematicity and complexity as teacher knowledge is continually re-shaped to accommodate the dynamic nature of schools and classrooms; consequently, a Vygotskian approach to teacher development sees the education of teachers as situated learning. Perhaps the most salient feature of a Vygotskian way of seeing teaching and learning is a holistic, authentic approach that is consistent with whole language rather than the dominant IRE (teacher initiates, student responds, teacher evaluates) recitation scripts that pervade traditional classrooms (Edwards, 1995, citing Tharp & Gallimore, 1988).

### 3.1. Four stages of the ZPTD

The stages of the zone of proximal development (ZPD) traditionally proceed from expert- to self-assistance (Stages I & II) and later from internalization, as concepts are automatized, to recurrence through earlier stages (Stages III&IV) as the learners de-automatize what they have learned (Gallimore & Tharp, 1990).

#### 3.1.1. Initial stages of the ZPTD: self- and teacher-assistance (Stages I & II)

Due to the weight of prior learning experiences that candidates bring to their teacher education programs, the zone of proximal teacher development (ZPTD) requires a reversal of the first two stages (teacher-assistance, then self-assistance) in such a way that starts with candidates' reflection (self-assistance) on prior experiences and assumptions. Warford (2011) believes that the distinction between self- and teacher-assistance, from a teacher development perspective, is not an 'either...or' phenomenon but rather a point of emphasis. Obviously, there is some mediation provided by the teacher educator, even at this self-assistance stage, but the emphasis is on setting the field by promoting reflection on one's experiences and tacit beliefs with regard to teaching and learning; modeling or direct teaching should not prevail here. This focus on candidates' actual level of development represents a departure from the ZPD, as it was originally conceived.

### 3.1.2. *Advanced stages of the ZPTD: internalization and recurrence (Stages III & IV)*

The ZPTD progresses toward internalization and repeated application of the pedagogical concepts they have learned (Stages III and IV). As internalization grows, candidates demonstrate their capacity to use the pedagogical knowledge and skills espoused by their particular program.

Videotaped microteaching demonstrations are common assignments employed at this stage. In order to promote internalization and deeper integration of their learning experiences into the larger ontogenetic framework of professional growth, writing increases in importance as a tool for weaving together personal, professional and theoretical narratives. Rather than relying on the instructor's evaluations of their execution of the teaching episode, rubrics should instead focus on the distance between the candidate's capacity to reflect on the strengths and needs reflected therein.

The "Recurrence" stage (Stage IV) of the ZPTD may aptly be described as the 'theory into practice' stage, as candidates prepare to confront the dichotomy of theory and practice in all its intensity. With regard to innovative tools and techniques learned in the program, this means letting go of more traditional variants that are much more known and natural by comparison. Rather than avoiding or dismissing discrepancies between pedagogical values in the academy and the field, a Vygotskian approach embraces conflict as a catalyst for developmental change. According to Reiman (1999), reflection at this stage promotes equilibration, the process of accommodating new information into a conceptual understanding, which necessarily entails discomfort, stress, conflict, sadness and loss.

According to Lempert-Shepell (1995) "the teacher is not only expected to be a cultural mediator but also a teacher-researcher; consequently, the teaching candidate should experience investigative learning during their professional preparation" (p. 438). Ideally, this disposition toward investigative learning should be supported through the first years of teaching, perhaps through a Master's level extension program, one that continues to support beginning teachers' recursion through the concepts learned in their coursework in away that responds to classroom-centered questions. For Vygotsky recursion, the process of retracing the prior steps of the ZPD, represented an essential, final stage of concept development.

## 3.2. *Factors affecting the ZPTD*

There are some factors which may influence teachers' zone of proximal development. They include peers and mentors, contextual constraints, mediatory artifacts and technology (Shabani, et.al, 2010).

### 3.2.1. *Peers and mentors*

The idea that teachers do benefit from the encouragement and support of their collaborative colleagues and coaches is widely accepted. As Tschannen-Moran et al. (1998) hold, the increased collaboration with either supportive colleagues or literacy coaches can support teachers when they seem to lose their self-confidence due to a lack of experience and self-efficacy.

### 3.2.2. *Contextual constraints*

Teacher's freedom of action and decision making are always constrained by contextual factors. Some of the decisions made in the class by the teacher are affected by the outside forces which originate in social, economic, political or educational policies. In other words, the microcontext of the classroom is, to some extent, shaped by the larger sociopolitical macrocontext (Singh & Richards, 2006, as cited in Shabani et al., 2010).

One factor to narrow teachers' ZPD and restrict his personal choices, goal setting and activities is compliance with the norms prescribed and imposed by the local school or institution the teachers work in.

### 3.2.3. *Mediatory artifacts and technology*

The next triggering factor to influence teacher learning is the 'mediatory artifacts' which include technology, handouts, worksheets, video, physical classroom layout, etc. (Singh & Richards, 2006, as cited in Shabani et al., 2010). Technology has proved to serve as a reliable source of electronic scaffolding and, thus, a positive change in teacher's professional development. Internet, computer and associated software known as technological artifacts can mediate teacher's learning (Lantolf, 2004).

### 3.3. Improving the ZPTD

Teachers can improve their ZPTD through diary writing, self-scaffolding, collaborating with colleagues, conducting action research, analysis of teaching practice, and having discussions with learners.

#### 3.3.1. Diary writing

Diary as a tool at the teacher's disposal is the "first person account of one's own language learning or teaching experience writing candid entries in a personal journal for later review and analysis" (Bailey, 1990, p.215).

In diary writing, the teacher provides a genuine picture of his teaching practice either during or after the teaching session. To learn from diaries, teachers must feel free to reflect, experiment, criticize, doubt, express frustration, and raise questions in the journal (Bailey, *ibid*). Then, he should embark on post-activity reflection and ask questions to analyze his diaries.

#### 3.3.2. Self-scaffolding

Vygotsky's original definition of ZPD ignores the impact of assistance that is received via literary sources. Teachers may spend a great deal of time using L2 materials outside of interaction with another person. They can be scaffolded by materials such as textbooks, worksheets, and dictionaries. Ohta (2005) proposed that rather than understanding the ZPD as a strictly interpersonal space, it may be more useful to consider how the mechanisms of the ZPD may be internalized over the course of development such that literate adults become able to manage the ZPD for themselves as they interact both with people and with other L2 sources. As a result, teachers can scaffold themselves without getting help from others.

#### 3.3.3. Conducting action research

To keep abreast of state-of-the-art teaching, action research can provide the ground for the teacher learner to test different teaching methods and activities in the class and get feedback from the students so as to revise and develop his underlying understanding of language teaching and learning processes.

#### 3.3.4. Analysis of teaching practice

Teachers can improve their ZPTD through the analysis of teaching practices using demos, videos, and field observations. In this way, they will be able to reflect on what has happened in the classroom and think of other strategies to use in the classroom.

#### 3.3.5. Having discussions with learners

Learners can also help teachers in providing feedback on the strengths and weaknesses of the classroom. Having discussions with learners would aid teachers in whether they are on the right track or whether they have to make some kind of modifications or change in their teaching practice.

## 4. Conclusion

Vygotsky's idea of ZPD has recently been used in teacher education. Warford (2011) coins the term zone of the proximal teacher development (ZPTD). However, it is necessary to understand that unlike ZPD which starts with other-regulation ZPTD starts with teachers' self-scaffolding and moves toward other-regulation. A deeper understanding of the theoretical underpinning of the scaffolding metaphor and ZPTD will promote its creative and informed use by educators.

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