

Vygotsky and the Zone of Proximal Development

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INTRODUCTION

Thinkers throughout history have surmised that humans exist most fully in communion with others. Learners mimic or model, read or reflect, and listen or lecture within a social context; therefore educational experiences, traditional or technology based, ought not to discount the interplay between shared experience, individual's attitudes, and relational understandings. The theories of learning that emphasize this kind of interpersonal interaction, the necessity of collaboration and collegiality, a reliance on social reference points, and intentional modeling have had various nomenclatures (Rogoff & Lave, 1984). Vygotsky's (1978) seminal work is commonly referred to as "social cognition" or "social constructivism."

According to Vygotsky's theories (1978), social interaction both precedes and initiates cognitive development, especially during the process of language acquisition. Vygotsky understood language to be an example of a mediated activity of cognition. His contention was that cognitive development proceeds in a series of relatively predictable transformations, beginning at the social interpsychological (between people) level and gradually progressing toward internal learning capabilities (interpsychological). In order to be effective, learning must occur within a social context; "... human learning presupposes a specific social nature and a process by which children grow into the intellectual life of those around them" (Vygotsky, 1978, p. 88).

Vygotsky explicates social cognition with a description of finger-pointing. An infant first points his/her finger as a meaningless gesture; however, after others within the community react to the finger point, it is endowed with meaning and becomes a learned and repeatable form of social interaction.

Vygotsky's ideas suggest that learning is rooted in a social environment in which context and interpersonal interaction play fundamental roles in learners' cognitive development. It is by observing and modeling others

and in an engagement with authentic tasks that learners are able to attain their full cognitive potential.

THE ZONE OF PROXIMAL DEVELOPMENT (ZPD)

Classroom teachers often define educational performance levels as independent-functioning level (including tasks that students are capable of completing completely on their own without supervision or guidance), instructional level (involving tasks that require instructional scaffolding, guided practice, or teacher assistance to complete), or frustration level (entailing those activities that are too difficult for learners to do, even with more expert guidance). In general, lessons are designed so as to afford the majority of learners opportunities at their instructional levels; in this way, teachers intentionally structure learning experiences that push students beyond that which they can do independently, and guide them towards utilizing existing independent knowledge as a foundation upon which to build new understandings.

Vygotsky described the "zone of proximal development" (ZPD) as the distance between what a learner can do independently and what he or she is capable of accomplishing with more expert assistance. Learners do not develop skills and proficiencies by performing only those tasks that they can do on their own; rather, it is by imitating and modeling more-skilled learners that students progress to a new stage of cognitive development. "The actual developmental level characterizes mental development retrospectively, while the zone of proximal development characterizes mental development prospectively" (Vygotsky, 1978, p. 87). Therefore, learning must occur in a social setting so that students may select those role models that facilitate proximal development. Thus, the social context of the learner defines the zone of proximal development as that optimal teaching space where an expert (the teacher) structures the environment to promote cogni-

tive development. Using scaffolded interaction with the instructor (or another expert) and their context, learners use what they *know* to figure out what they *don't know* (Conway, 1997, p.2). In practical teaching terms, the ZPD refers to what is generally called a student's "instructional level."

Authentic activity. In terms of formal education, Vygotsky maintained that activities involving language (such as speaking, reading, and writing) must have a necessary and authentic purpose. Activities and assignments from which students learn best are those based on something that they need to do rather than those that are purely teacher-generated tasks. Vygotsky theorized that learning has human social processes as its foundation, and also entails an intensely personal process. For this reason, new knowledge should be applied to a task that mimics the social reality of the learner, and parallels a "real world" application of the activity. In order to facilitate new understandings, educational opportunities must be structured so that they have an authentic purpose, mimic real-world application, are as socially-based and collaborative as possible, and allow the learner to operate within his/her zone of proximal development

Implications for instructional technology. The University of Houston (2007) defines instructional technology as a multifaceted discipline that integrates concepts from cognitive, computer, and instructional science with educational psychologies, pedagogies, and curriculum development in order to systematically create and deliver instruction. "Instructional Technology is thus a consumer of concepts, theories, and research... and it also contributes its own concepts, theories, and research" (University of Houston, 2007, ¶ 1).

From this perspective, Vygotsky's ideas have ramifications for instructional design, student attitude and achievement, learner motivation, and choice. If development occurs most significantly within the zone of proximal development, then the ways in which teachers structure instruction must seek to facilitate such interactions.

Teacher modeling assumes greater importance than teacher direction. Learners will look to imitate teachers' attitudes, motivations, and strategies as they seek cognition of a concept beyond their independent functioning. Collaborative and/or collegial tasks where skilled peers assist more novice learners also facilitate understanding, as learners seek to create meaning within an authentic social setting and in the completion of relevant tasks.

Whatever the age of the learner, instructional design must be relevant, authentic, and challenging enough so that interactions occur within the zone of proximal development (Ormrod, 2004). Learning situations ought to be structured neither as didactic drill and practice sessions nor as media-enhanced independent research activities. Rather, technology should be intentionally integrated into guided learning opportunities that offer technology-assisted situations in which students supported in the construction of relevant understanding within an authentic context.

The use of technology enables students to transform socially acquired knowledge into personally meaningful understanding. Various technology applications support social constructivism by enhancing students' reasoning and critical thinking skills, providing opportunities for problem solving, affording a means of information retrieval and dissemination, enhancing collaborative learning within the zone of proximal development, and developing reflective learning practices. Instructional implementation of technology tools (e-books, Web logs, digital storytelling, podcasting, e-mail, multimedia productions, Internet research and analysis, etc.) provides educators "...the opportunity to create a learning zone that unifies thinking and problem solving, adult guidance (teacher/guest experts) and peer collaboration... this learning zone...allows a student to impact their digital identity as knowledge collectors and creators" (PPS, 2003, ¶2).

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