Constructivism, Zone of Proximal Development and Target in a Multi-Dimensional Classroom

Bradley Johnson, Ph.D.

Abstract

Constructivism represents a heterogeneous body of theoretical approaches across different disciplines for these alliances, as well as, attracting and antagonizing vast audiences within these disciplines, including psychology and education. A major influence on the rise of constructivism has been the theory and research in human development. Classroom characteristics, including motivation, can affect the perceptions and learning of students. By focusing on these factors within the classroom, teachers and students are able to work in a multidimensional classroom. Multidimensional classrooms have more activities and allow for greater diversity in student abilities performances, as well as being more compatible with constructivist tenants about learning. The Zone of Proximal Development (ZPD) opens the possibility for new interpretations of a development as a social construction and undermines the traditional assumption that development is independent from observers, researchers, and educators who can recognize certain aspects of the activity.

Introduction

Constructivism represents a heterogeneous body of theoretical approaches across different disciplines for these alliances, as well as, attracting and antagonizing vast audiences within these disciplines, including psychology and education (Vianna & Stetsenko, 2006). A major influence on the rise of constructivism has been the theory and research in human development (e.g., the theories of Vygotsky and Paiget). The existing diversity of constructivist theories and approaches ranges from radical forms of social constructionism (Gergen, 1994), distributed cognition, and situated learning perspectives to cognitive constructivism stemming from Piaget, to Vygotskys's cultural-history theory, often clouds the underlying common foundation and potential of this framework (Vianna & Stetsenko).

Constructivist educational theories often involve the intertwining of developmental and nondevelopment aspects (Phillips, 1995). Vygotsky's socio-historical or socio-cultural theory is considered to be an exception to this tradition of treating development as a constraint for education by allowing education to lead development (Matusov, DePalma, & Drye, 2007). The Zone of Proximal Development (ZPD) is one of the principles within Vygotsky's theoretical framework which has contributed to the body of knowledge in educational psychology. Vygotsky (1978) stated more capable peers, adults, or a socio-cultural activity (such as play) engage child a more advanced actions and they could have performed on his own or her own thus, define the child's potential development.

Unidimensional classrooms have high visibility performance (Rosenholtz & Rosenholtz, 1981), which can motivate high achievers to learn, but often have a negative effect on everyone else (Schunk, 2008). Classroom characteristics, including motivation, can affect the perceptions and learning of students. Epstein (1989) identified some of the factors which affect the motivation

and learning of students using the acronym, "TARGET." By focusing on these factors within the classroom, teachers and students are able to work in a multidimensional classroom. Schunk (2008) stated multidimensional classrooms have more activities and allow for greater diversity in student abilities performances, as well as being more compatible with constructivist tenants about learning.

Constructivists Assumptions and Perspectives

Many researchers and practitioners have questioned some of the cognitive psychology's assumptions about learning and instruction because they believe these assumptions cannot completely explain students' learning and understanding. Greeno (1989) identified the questionable assumptions:
- Thinking resides the mind rather than in interaction with persons in situations.
- Processes of learning and thinking are relatively uniform across persons, in some situations foster higher-order thinking better than others.
- Thinking derives from knowledge and skills developed in formal instructional settings more than on general conceptual competencies that result from one's experiences and innate abilities.

However, constructivist do not accept these assumptions because of evidence that thinking takes place in situations in the cognitions are largely constructed by individuals as a function of their experiences in these situations (Bredo, 1997). To understand the assumptions of the theory, an understanding of what constructivism is will be examined.

Constructivism
Constructivism is not used as a generic term to describe the theoretical approaches developed in sociology, psychology, political sciences, education and other social sciences; constructivism is not a theory, but rather an epistemology or philosophical explanation about the nature of learning (Vianna & Stetsenko, 2006; Simpson, 2002). Constructivism's central idea is that human learning is constructed, and that learners build new knowledge upon the foundation of previous learning. Hoover (1996) stated there are two important notions around the simple idea of constructive knowledge: (1) learners construct new understandings using what they already know; (2) learning is active rather than passive. Focusing around the central idea, the first notion shows that knowledge is developed by building upon experiences and adapting when necessary change for the environment. The second notion identifies that learners take an active role in each experience in order to enhance their own development and others in their classroom.

Rather than viewing knowledge as truth, constructivists construe it as a working hypothesis allowing for knowledge to be formed from inside an individual rather than imposed from outside people (Schunk, 2008). This working hypothesis allows for individual constructions focused specifically on each person is a separate entity and does not apply, necessarily, too other individuals. Cobb & Bowers (1999) stated this is because people produce knowledge based on their beliefs and experiences in situations; which differ from person to person. All knowledge, then, is subjective and personal and a product of our cognitions (Simpson, 2002).

Assumptions
Constructivism contrasts with conditioning theories that stress the importance of the environment on the person; constructivist theory also contrasts with cognitive information processing theory that places locus of learning within the meeting with little attention to the context in which it occurs (Schunk, 2008)). It shares with social cognitive theory the assumption that persons, behaviors, and environments interact in reciprocal fashion (Bandura, 1986, 1997).

Geary (1995) stated a basic assumption of constructivism is that people are active learners and must construct knowledge for themselves. In order for learners to understand the material and grasp the basic principles of a lesson, they must have basic knowledge and actively engage themselves. Constructivists differ in the extent to which they ascribe this function entirely to learners; some believe that mental structures come to reflect reality, whereas others believe that the individual's mental world is the only reality (Schunk, 2008).

Another construction of assumption is a teacher should not teach in the traditional sense of delivering instruction to a group of students, but they should structure situations such that the learners become actively involved with content through manipulation of materials and social interaction (Schunk, 2008). By using a multidimensional structure, teachers are able to structure lessons to allow for students to construct their understanding of the material across the curriculum. Students are taught to be self-regulated and take an active role of the learning by setting goals, monitoring and evaluating progress, and going beyond basic requirements by exploring interests (Bruning, Schraw, Norby, & Ronning, 2004).

Perspectives
There are three different perspectives on constructivism because it is not a unified theory. The three different perspectives are as follows: exogenous, endogenous, and dialectical (Bruning et al, 2004; Moshmam, 1982, Phillips, 1995).

Exogenous constructivism refers to the idea that the acquisition of knowledge represents the reconstruction of structures that exist in the external world; a strong influence of the external world on knowledge construction, such as by experiences, teaching, and exposure to models (Schunk, 2008). Endogenous constructivism emphasizes coordination cognitive actions (Bruning et al, 2004); mental structures are created that of earlier structures, not directly from environmental information; therefore, knowledge is not mirror of the external world acquire through experiences, teaching, or social interactions (Schunk, 2008). Between these two extremes lies the dialectical constructivism, which holds that knowledge derives from interactions between persons and their environments; it is referred to as cognitive constructivism (Derry, 1996).

Various Types of Constructivism

On the epistemological continuum, various types of constructivism have emerged. We distinguish between radical, social, physical, evolutionary, postmodern constructivism, social constructionism, information-processing constructivism and cybernetic systems to name but some types more commonly referred to (Steffe & Gale, 1995; Prawat, 1996; Heylighen, 1993).

Ernst von Glasersfeld whose thinking has been profoundly influenced by the theories of Piaget, is typically associated with radical constructivism (Murphy, 1997); it is radical because it breaks with convention and develops a theory of knowledge in which knowledge does not reflect an objective, ontological reality, but exclusively an ordering and organization of a world constituted by our experience (von Glasersfeld, 1984). Von Glasersfeld defines radical constructivism according to the conceptions of knowledge. He sees knowledge as being actively received either through the senses or by way of communication. It is actively constructed by the cognizing subject. Cognition is adaptive and allows one to organize the experiential world, not to discover an objective reality (von Glasersfeld, 1989).

Heylighen (1993) stated that social constructivism sees consensus between different subjects as the ultimate criterion to judge knowledge; 'truth' or 'reality' will be accorded only to those constructions on which most people of a social group agree. Derry (1992) stated that constructivism has been claimed by "various epistemological camps" that do not consider each another "theoretical comrades".

Vygotsky's Socio-cultural Theory

Tudge and Scrimsher (2003) stated Vygotsky's theory is a constructivist theory than emphasizes the social environment as a facilitator of development and learning. Vygotsky attempted to explain human thought and new ways by abandoning states of consciousness by referring to the concept of consciousness; similarly, he rejected behavior of explanations of action in terms of prior actions by taking environmental influences into account through its effect on consciousness (Schunk, 2008).

Vygotsky's theory stresses the interaction of interpersonal (social), cultural-historical, and individual factors is the key to human development (Tudge & Scrimsher, 2003). Through these interactions' children are able to transform their experiences, based on their knowledge and develop new characteristics by reorganizing their mental structures to coincide with their environment. The way that learners interact with their worlds – with persons, objects, and institutions in a – transforms their thinking; the meanings of concepts changes they are linked with the world (Schunk, 2008). Cognitive change results from using cultural tools and social interactions and from internalizing and mentally transforming these interactions (Bruning et al, 2004).

There are five major points in Vygotysky' (1978) theory:
(1) Social interactions are critical; knowledge is co-constructed between two or more people.
(2) Self-regulation is developed through internalization (developing an internal representation) of actions and mental operations that occur in social or actions.
(3) Human development occurs to the cultural transmission of tools (language, symbols).
(4) Language is the most critical tool. Language develops from social speech, to private speech, to covert (inner) speech.

(5) The Zone of Proximal Development (ZPD) is a difference between what children can do on their own what to do with assistance from others. Interactions with self and peers in the ZPD promote cognitive development.

Vygotsky's most controversial contention was that all higher mental functions originated in the social environment (Vygotsky, 1962). Research shows that young children mentally figure out much knowledge about the way the world operates long before they have an opportunity to learn from the culture in which they live; children also seem biologically predisposed to acquire certain concepts, which does not depend on the environment (Bereiter, 1994; Geary, 1995).

Zone of Proximal Development (ZPD)

The notion of ZPD opens the possibility for new interpretations of a development as a social construction and undermines the traditional assumption that development is independent from observers, researchers, and educators who can recognize are not recognized (value or discount) certain aspects of the activity as "developmental" (Matusov, DePalma, & Drye 2007). Within the framework of ZPD, Vygotsky distinguish between two kinds of abilities that children are apt to have at a particular point in their development. A child's actual developmental level is the upper limit of tasks he or she can perform independently, without help from anyone else; a child's level of potential development is the upper limit of tasks here she can perform with the assistance of a more competent individual (Ormrod, 2006). Challenging tasks promote maximum cognitive growth in children which is the basis for ZPD. A child's zone of proximal development includes learning and problem-solving abilities that are just beginning to develop – abilities that are in an immature, "embryonic" form; naturally, any child's ZPD will change over time and more complex ones appear on the horizon to take their place (Ormrod, 2006, p. 36).

One support mechanism that helps learners successfully perform a task within his or her ZPD is scaffolding. To understand the concept, scaffolding is similar to that used in constructing a building use of a scaffold as an external structure to provide support for workers until the building itself is strong enough to support them; as the building gain stability, the scaffold becomes less necessary and so is gradually removed (Ormrod, 2006). An adult guiding a child through a new task to provide an initial scaffold was for the child's early efforts; as the child becomes capable of working without such support, the adult gradually removes it, a process known as fading (Ormrod, 2006). As competence builds within the child; we remove the scaffolding.

Classroom Structure and TARGET

Organization and structure learning environments focus on how students are grouped for instruction, how work is evaluated and rewarded, how authority is established, and how time is scheduled; including classroom management (Schunk, 2008). Rosenholtz and Simpson (1984) stated an important aspect organization is dimensionality. The two types of dimensionality were identified previously as unidimensional and multidimensional classrooms. There are several different characteristics which are identified under the category of dimensionality. The characteristics are: differentiation of task structure, student autonomy, grouping patterns, and performance evaluations (Schunk, 2008).

Unidimensional classrooms set undifferentiated task structures; all students work on the same or similar tasks, and instruction employs a small number of materials and methods (Rosen holtz & Simpson, 1984). When students work on different tasks at the same time that structure becomes differentiated or multidimensional, bus more likely that daily activities were produce consistent performances for each student in the greater the probability that students will socially compare their work with that of others to determine relative standing (Schunk, 2008).

Autonomy refers to the extent to which students have choices about what to do and when and how to do it: unidimensional classrooms have low autonomy enduring self-regulation and stifling motivation; multidimensional classrooms offer students more choices, which can enhance intrinsic motivation (Schunk, 2008). Grouping patterns become more prominent when students work on the whole-class activities for when students are grouped by ability.

Performance evaluations referred to the public nature of grading; unidimensional classrooms grade students on the same assignments and greater public, whereas, multidimensional classrooms grading can motivate all students because they feature more differentiation, greater autonomy, let's ability grouping, and more flexibility in grading with less public evaluation (Schunk, 2008).

TARGET
TARGET is an acronym which identifies of the factors that can affect learners' perceptions, motivation, and learning in classrooms. Epstein (1989) identified the following factors: Task, Authority, Recognition, Grouping, Evaluation, and Time. The task dimension involves the design of learning activities and assignments by making learning interesting, using a writing challenge, assisting students to set realistic goals, and helping students develop organizational, management, and other strategic skills (Ames, 1992a, 1992b). Authority refers to whether students can assume leadership and develop independence and control over learning activities; self-efficacy tends to be higher in classes that allow students for some measure of authority (Ames). Recognition, which involves the formal and informal use of rewards, incentives, and praise, has important consequences of motivated learning (Schunk, 1989). Grouping focuses on students' ability to work with others and evaluation involves methods for monitoring and assessing students learning (Schunk, 2008). The final factor of time involves the appropriateness of workload, pace of instruction, and time allowed for completing work (Epstein, 1989). Incorporating TARGET components into a unit can positively affect motivation learning within the classroom.

Applying a Model of ZPD in the Classroom

In the National Reading Report (NRP, 2000), research and the development of reading comprehension skills that are three predominant themes:
- First, reading comprehension is complex cognitive process that cannot be understood without a clear description of the role that vocabulary development and vocabulary instruction play in the understanding of what has been read.
- Second, comprehension is an active process that requires an intentional and thoughtful interaction between the reader and the text.

- Third, the preparation of teachers to better equip the students to develop and apply reading comprehension strategies to enhance understanding is intimately linked to students' achievement in this area (2000).

Duffy (1993) argues that strategies are not skills that can be taught by drill; they are plans for constructing meaning.

Application of the Model
As part of a multidimensional reading and language arts classroom; the use of ZPD and scaffolding would be appropriate for teaching students how to improve their comprehension. Through the use of several different strategies a teacher and the students are able to be instrumental in reading fluency and comprehension. Kaminski and Good (1996) suggests the following strategies for the teacher and students to use: practice naming letters until the student can name the letters at a rate of approximately 47 letters per minute, practice identifying letter sounds until the student can say the phonemes at a rate of 35-45 phonemes per minute, practice reading nonsense words until the student can read nonsense words at a rate of 40 nonsense words per minute, and practice reading phrases that include high-frequency words or words targeted for sight vocabulary.

In order to implement these strategies, the teacher can develop a lesson plan by using the Phrase-Cued Text Practice to focus on fluency. The following lesson plan is very specific on how a teacher can use the strategy: The objective of the lesson is to use Phrase-Viewed Text Practice allows students to focus on fluency. The teacher should prepare marked and unmarked copies of the phrase-cute text passage. Distribute copies of the text passage. Instruct the students to follow along as you, the teacher model reading the marked passage using appropriate phrasing and intonation. Then read the text chorally. Have the students read the passage multiple times; provide appropriate feedback. On subsequent days, have the students chorally read the marked passage first as a group, then in pairs. Ask the students to practice reading the passage independently. Distribute the unmarked version of passage and ask students to read it independently. Meet with each student individually and ask him or her to read the unmarked passage. Note phrasing, appropriate pauses, expression, and reading rate. Record the results in each student portfolio.

By using this strategy 10 minutes each day throughout the week the students are encouraged to work together, use constructive feedback, and the teacher is able to determine their ZPD by using each one of the strategies in the lesson. By the end of the week, the teacher can assess each student's fluency rate and note an increase or decrease.

As a reading and language arts teacher for 6-12 grade special education students, I have used this strategy in the classroom to enhance reading fluency and comprehension. Using this in a multidimensional setting provides a learning environment focused on a constructivist approach. The increase or decrease of levels allows for assessing the possibility of two or three different ability groups. Special education students are unique with their learning abilities in comparison to the general education peers. Their uniqueness requires more time to complete assignments, accommodating or supplementing different learning strategies to help them focus, and continued practice and explanation or review.

Conclusion

Constructivism represents a heterogeneous body, a theoretical approach across different disciplines for this alliance, as well as both attractive and antagonized vast audiences within these disciplines, including psychology and education (Vianna & Stetsenko, 2006). An overview of the different educational theories through the eyes of constructivism was provided highlighting the socio-historical or sociocultural theory of Vygotsky. Several assumptions and perspectives as they relate to constructivism were reviewed with an overview of the basic premise of constructivism.

The five major points of Vygotsky's theory are reviewed and highlighted the Zone of Proximal Development (ZPD). Scaffolding was identified as one of the support mechanisms within the ZPD and identified as being similar to that used in constructing a building. Classroom structure and the use of the acronym, TARGET, within the classroom setting to help affect learners' perceptions, motivation, and learning. Finally, an example is provided of how a model of ZPD could be applied to the classroom and incorporated in the classroom with the specific lesson focusing on reading comprehension and fluency.

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About the Author

Bradley W. Johnson, Ph.D., is a support facilitation teacher in an Elementary School for the St. Johns County School District in Florida. He works with students in grades K-5 providing instructional support in the areas of reading and math. Bradley has the opportunity to teach in the special education field for the past 10 years in the Autism Spectrum Disorder, Emotional/Behavior Disability, Specific Learning Disability, and Intellectual Disabilities. He serves as a board member of the Down Syndrome Association of Jacksonville provides many different service opportunities for families in a multi-county area.