A Vygotskian perspective on learning, culture and an education that matters

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A largely unacknowledged, and erroneous, basic assumption is that child development is the same across all cultures and all times. But cognitive development is not just an unfolding of biologically given ability, adding more information and memory capacity, or acquiring language. Nor is it passive absorption of external input. The psychologist Lev Vygotsky (1896–1934) would characterise it as a co-construction between an individual and society in its various manifestations. This article explores what the Vygotskian perspective tells us about early learning in very young children.

Vygotsky (1978, 1934/1987) emphasised the social, cultural, and historical origins of thought. The central process in his theory of human development is linguistic mediation. This is a unique stance, illustrated by Vygotsky's discussion of a child pointing. His stance significantly differs from Piaget's analysis of an infant's earliest attempts to grasp an object. In Piaget's (1952/1963) account, first the child gropes, but gradually eye–hand coordination emerges so there is a increasing congruence between what the child sees and what he or she reaches for. This coordination of the thumb and forefingers continues until the child can reliably reach for an object and grasp it. The focus is on the individual interacting with the physical world.

Vygotsky (1978) also begins with an infant moving his or her hand in the direction of an object, but his discussion illustrates how even the most basic activity is social and cultural in origin. The baby's movement means something to the mother; her response to an unsuccessful grasping movement establishes its function as pointing. Eventually, the child begins to understand that the movement communicates intention. The function changes from an object-oriented movement to communication with another person.

In addition to using language to communicate, we think through language. As children develop, they move beyond pre-verbal 'practical intelligence' to use speech to organise thought. Vygotsky (1978) emphasised that sign use changes how psychological functions are related to each other and how activities are performed. Young children use direct action to approach problems they cannot solve. Language use is limited to verbally expressing desires or directly addressing an object. This is followed by attempts to use a tool (for example, to hit a problematic object) or talking about something they've done after doing it. Sometimes children will stop their own attempts and ask an adult for help, or ask a question. Asking a question or asking for help keeps the activity going and indicates that a child has a plan, but cannot totally enact it. Once children can talk about something before they do it, they have better control over what they're doing. It helps in understanding both objects and goals, as well as contributing to monitoring one's own behaviour. Speech that originally had a social, communicative function is internalised and used in thought. When speech and action become integrated, the child can use words to create a plan; this affords much greater flexibility in solving a task or attaining a goal.

Play and learning from peers

Play is a major contributor to cognitive and social development, yet it is seldom given adequate attention by school administrators and policymakers. In play, children step away from the here and now; it is not only a symbolic achievement, but also helps children deal with unrealised desires. Vygotsky (1978) thought that imaginary play reconfigures the young child's 'relation to reality'. Rather than stimuli eliciting a response, meanings come to mediate between perception of a situation and action; in other words, action arises from ideas.

Vygotsky argued that, to be fully engaged in play, children have to notice things that they do not usually attend to, increasing awareness of social roles and changing their relations to objects. Instead of acting upon immediate impulses, the child follows the rules of the imaginary situation, and this requires a great deal of self-control. Because the child's desires are related to the imaginary situation, meaning comes to dominate action.

Children cannot always live in an imaginary world. But such immersion provides opportunities for learning that instruction cannot. Play prepares the child to have a relationship to the meanings introduced in school. Furthermore, imaginative play prepares a child to see beyond current realities in society. This has the potential to be the beginning of socialisation towards full participation in a democratic society.

Learning from adults
According to Vygotsky, learning is not a process of direct transmission of information and skills, or passive intake of external information, as in traditional learning theories. Both Vygotsky and Piaget believed that development is an active process, but they differed in how they depicted it. Piaget emphasised individual discovery and invention, or, in his terms, construction of knowledge. Vygotsky (1978) emphasised guidance and personal agency combined in a process of co-construction.

The basic process of guided instruction casts the teacher and learner as interdependent. The teacher's primary function is not the presentation of new information. In the early years, a major responsibility of the adult is properly directing the child's attention. A good teacher must carefully observe how a child approaches a task and intervene in a way that not only validates and encourages correct aspects of the performance, but also re-directs whatever is not successful by suggesting an alternative approach. Systematic supports are provided for a child to accomplish a goal, starting with general cues but providing more specific details as required by the child.

In the earliest social interactions, such as breastfeeding, we witness what Daniel Stern (1977/2002) called the 'dance' between mother and infant. The mother must adjust the baby's position in relation to her own to optimise the baby's suckling movements and facilitate success. Just as in the earlier discussion of pointing, where adult mediation creates a meaningful communicative function, the adult works with what the child can already do.

With development, the child is expected to assume new responsibility commensurate with improved physical coordination. For example, adult facilitation of initial use of utensils for eating might include placing one's hands around the child's as he or she picks up a cup of liquid. Utensils themselves are also modified to aid in the transition, for example child-sized spoons or 'sippy cups' (training cups with a semi-covered opening). Similarly, tying shoes might proceed by the adult partially completing the task so that the child can more easily perform a crucial step. The adult might create two loops in the shoelace and bend one over to create a 'tunnel' through which the child must push the other loop (a difficult task for the child in itself, requiring both continuing to pinch the loop together and threading it through the opening). Such a technique differs markedly from asking the child to observe and replicate an action, and works more effectively.

This instructional approach can also be used when working with a child on more complex tasks. An adult can guide a child in solving a picture puzzle by suggesting features to focus upon (such as a specific curve or searching for part of a central figure). Similarly, adults can ask focused questions or otherwise provide cues to facilitate performance on a classification task, or while coaxing a child to tell a more complete story (an important pre-literacy activity), or helping a child who cannot yet reliably count to decide which of two arrays of items 'has more' (for example by starting a pattern of one-to-one correspondence). Such techniques are not exclusively Vygotskian, although the social nature of learning and the close interdependence of teacher and learner are given much greater emphasis.

The Zone of Proximal Development
The most widely discussed Vygotskian concept among educators is the Zone of Proximal Development, or ZPD. In contrast to modelling of behaviour, adults assist children by cuing or even by showing them how to do something, but in a way that emphasises overcoming obstacles rather than simply copying behaviour demonstrated by an adult. Ellen Langer (1997: 85–87) offers a compelling argument for not just showing

When speech and action become integrated, the child can use words to create a plan. Photo • Jon Spaull/Bernard van Leer Foundation

how and expecting a child to do it. She discusses the presentation of a simple task under two different conditions, one where a solution is demonstrated, another where it is suggested that there are many ways to accomplish the goal. Participants in the first condition mostly replicated what they were shown. In the other condition, a substantially greater range of creative solutions were generated.

According to Vygotsky (1978), first we should look at what children can do on their own, a measure of development that is already completed, which he calls the actual developmental level. This is the endpoint in most testing situations, where a student only gets credit for what they get right; near misses don't count on an IQ or Achievement test. Vygotsky added something new, pointing out that there are problems that a child cannot solve independently, but can solve with assistance. For example, a child might complete something the teacher or a peer has started, or use cues to solve a problem. The distance between the child's current functioning and what the child can do with assistance is the child's potential functioning. This is the Zone of Proximal Development, the area in which development occurs.

Vygotsky (1978) gives the example of two 10-year-old children who both tested at an 8-year-old mental level on

an IQ test. When the children were assisted on problems they did not get right on their own, one child could do problems up to a 9-year-old level and the other could do problems up to a 12-year-old level. Vygotsky thought that these two children were not mentally the same. If you work with one child, she can improve a little. But the other child has potential to work at an advanced level.

The ZPD has profound implications for education. Most adults have some notion of matching the material they are trying to teach to the child's mental level. This is common sense. The danger is that the child is never really challenged. On the other hand, all good educators know that children cannot learn something that is beyond their understanding. But what a child can do with assistance is *not* beyond him or her. Accordingly, teachers, parents, and others working with children should determine what they do on their own and the limits of what they can do with adult assistance, and then concentrate on what lies in between. By using the ZPD as a guide for instruction rather than a more punitive assessment scheme, schools can work toward children's potentials.

Notable cultural differences in the use of such insights with young children have been found. Rogoff *et al.* (1993) conducted a study of contrasting styles of interaction between caregivers and toddlers (12–24 months). Toddler–caregiver dyads of middle-class urban and non-educated rural residents of India, Turkey, Mexico, and middle-class dyads in the USA were characterised in rich detail, revealing differences in how children acquire some semblance of adult knowledge. In formal education, such as that found in Western-style schools, adults specifically structure situations for instructional purposes. Informal instruction typically takes place where children are not excluded, allowing them to observe and participate in activities with caretaker support. For example, Mayan girls in Mexico learn to weave by observing and then assisting (to various degrees) adult women. Adults adjust tasks according to their perception of a child's ability to accomplish them, and support attempts to do new things and acquire new skills.

With the youngest children, much of this support takes the form of directing their attention and participation in task-related talk. This form of guidance is evident both in natural settings and research situations where a child was posed with tasks including operating a novel object and putting on clothes. A particularly interesting finding is that non-middle-class toddlers were superior in sharing their attention among complex ongoing events; this contrasts with the Westernised middle-class pattern of focused attention primarily on one thing.

In a pivotal study of somewhat older US children who differed in socio-economic status, key differences were found in interaction with adults, including the kinds of questions children were encouraged to ask and how adults responded (Heath, 1983). In this case, lower-SES children, segregated from adult activities, were found to be less inquisitive and engaged in less elaborated talk with adults than middle-class children. In this case, the middle-class pattern of interaction has a clear advantage for children at school.

Explicit knowledge of the ZPD is important in developed countries, where children are isolated from adult activities. Curricula are devised by experts largely removed from contact with children. It is especially pertinent as an alternative to the emphasis on testing currently dominating schooling in the USA (see Kritt, 2011). Instead of drill and practice teaching-to-the-test that yields a numerical summary of performance (for purposes of comparison to a group, prior performance, or normative standards), its primary objective is contributing to a child's intellectual development.

Formal instruction and the trajectory of cognitive development

A more complete understanding of a child's current functioning requires an understanding of both the origins of current performance and the trajectory of where development is headed. Spontaneous understandings are acquired very early through personal experience and simple social interactions (Vygotsky, 1934/1987). This thought is functional, sufficient for doing specific things in daily life. Accordingly, young

children think in a situational way that is inflexible. Things that occur together in the child's experience are remembered, and these groupings are defined by visual similarities, not by linguistic categories and distinctions. When they begin to group objects, it is not systematic: first it focuses on one attribute, then on another. In late preschool and early elementary grades, children tend to make collections in a haphazard way. Let's say a child selects a green feather, followed by a red one, next a red apple, and then a blue ball. The connections between items make sense when we take them in that order, but there is no coherence to the group, which is based on appearances and practical experience rather than words and logic.

While young children do not make the distinctions that adults do, it is often difficult to get a student to replace what works perfectly well in everyday life with abstract conceptualisations. During the early years of schooling children are first introduced to what Vygotsky (1934/1987) called 'scientific' concepts, which are part of a formalised system. This is thought divorced from practical experience, flexible and generalisable to many situations. Emotional involvement is removed from deliberation. By adolescence, the student isolates attributes and can consistently use them to form categories. These categories are organised by abstract relations between things, not concrete or functional properties. A category has a lot of coherence and its relation to other categories can be well defined and, often, is implied. We can group things in one way, then in another, and then in another. We could divide up everybody in a room by gender, then by height, then by eye color, then by who is a vegetarian, and so on. Sometimes a person might end up in one group and sometimes in another.

The requirement of adhering to the rules of a rational system is more likely to appear in school than in most real-life situations. Consider the problem: John has three apples and Mary has two apples – how many do they have in all? Children in the early grades might get distracted by surface appearances like the size, and the taste of the apples. By the time children are approximately 7 years and older, they should begin to be able to use logical

rules without regard to specific content, ignoring all of the things that provide texture to real-life experiences. A schooled person approaches a problem by isolating essential aspects of the situation.

Schoolchildren with parents who are not literate may be especially resistant to using this sort of thinking. A favoured method to bridge this gap is the use of manipulatives (for example using buttons as counters) to help a student solve problems by providing a concrete referent or analogue to the abstract problem. But manipulatives are not used spontaneously; the teacher usually has to suggest their use and sometimes how to use them. And even if the student can perform the task with them, it does not necessarily mean that moving on to abstract problem solving in their absence is an automatic next step.

Practical activity and theoretical analysis might be compatible in some situations, but the emphasis in school-like tasks is on putting aside personal experience, which is difficult to do. It is possible that even students who are smart enough simply shut down when confronted with a situation like that. This helps explain why so few students go on to take Maths beyond the basic minimum. When a person's problem solving can no longer rely on specific content, it can lose its relation to everyday reality. In his historic study of unschooled adults in remote rural areas, Luria (1976) noted that sometimes individuals respond that they can use a suggested category system when directed to do so, but do not because it is not meaningful to them.

New conceptual tools such as set theory and algebraic equations facilitate more complex mathematical thinking. Similarly, biological classifications allow us to get beyond surface similarities to make new kinds of distinctions between animals. But these new ways of thinking are not immediately appealing. The teacher must figure out how to make the new way of understanding important to students. Optimally, the child will confront real problems where the older ways of thinking are insufficient and it becomes apparent that the new ways are useful.

Further considerations

Vygotsky's insights into learning and culture are provocative. They suggest new ways of working with children, but cannot be used in a formulaic way. Adults must be sensitive to the child's needs, what children can do and understand, and what they might be able to achieve with focused guidance. For most parents and teachers, simply reading about co-construction and the Zone of Proximal Development cannot be expected to change their practice. They too require guidance in using new ways of interacting with the children in their care.

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