Working in the zone: New insights into the Zone of Proximal Development

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Introduction

Experienced teacher: I have been reading about the ZPD. Do you know what it is?

Newly graduated teacher: We have studied the works of Vygotsky at university but also last year when I went on a professional learning course about sociocultural theory. It has changed my life.

Experienced teacher: I could do with a life change – tell me all . . .

One of the many important ideas introduced by Vygotsky was the Zone of Proximal Development (ZPD). This chapter examines this concept and some of the many other ideas developed by Vygotsky and those who have followed. The terms ‘co-construction’, ‘scaffolding’, ‘intent participation’ and ‘interpsychological and intrapsychological functioning’ are also considered in this chapter.

Research question 3.1 The depth of the ZPD

Record what you know about the ZPD. When did you first learn about this concept? Write a definition of the ZPD, and constantly go back to your definition as you journey through this chapter and the material in subsequent chapters. Your ideas will change as your understandings grow.
Vygotsky's ideas on the Zone of Proximal Development

Vygotsky broadened our gaze from simply thinking about the individual to paying attention to the sociohistorical culture in which the individual exists. He argued that social behaviours are learned, and the types of behaviours that children develop are strongly influenced by the child's culture and their family experiences.

Vygotsky suggested that in order to understand the individual we must understand the individual's social relationships. He suggested that the role of the adult or the more capable peer played a very important role in children's development and learning. Unlike Piaget, Vygotsky attributed great importance to the nature of interactions and culture in children's learning.

Vygotsky spoke about two interrelated concepts for explaining interactions and progression in learning:
1. interpsychological functioning
2. intrapsychological functioning.

Interpsychological functioning describes how children participate in the cultural activities of the community. For example, in some centres children may say grace before they eat their fruit. For some children this is a common centre practice or ritual. Children function at an interpsychological level by performing this act in the centre, in this case imitating the actions and words used and seen as important by others around them. They do not necessarily understand the full religious significance. However, when they have had broader experiences and more time studying religious practices within their own faith they will begin to develop an understanding about this practice – they will then function at the intrapsychological level because they now know why they say grace before meals.

A further example is when an infant is on a rug on the floor and moves his or her arms in the general direction of a toy. Even if the child has performed a random arm movement, most adults will respond by moving the toy closer to the infant. Over time the infant will gain a sense that moving the hand in a particular direction will afford it the object close by it. Eventually, this physical action will be constructed as a pointing gesture. The child will then use the social gesture of pointing in order to retrieve objects out of reach, but within the reach of the adult. The child has moved from an interpsychological level to functioning at an intrapsychological level. It is the 'light bulb' theory of realisation. It is this dynamic region (movement from interpsychological to intrapsychological) of activity that Vygotsky had in mind when he spoke about the Zone of Proximal Development, or ZPD.

The Zone of Proximal Development (ZPD) is the dynamic region of sensitivity in which the transition from interpsychological to intrapsychological functioning can be made (Wertsch 1985: 67–68).

It is possible to see, in both examples above, that the role of the adult (or more
Images of children: ‘A picture tells a thousand words’

capable peer) is critical for moving the child from one level of functioning to another. The way the adult or peer responds or guides the child’s thinking will be important for how and if the child makes that transition. In a much cited quotation, Vygotsky suggested that the:

**ZPD is the distance between a child’s actual developmental level as determined by independent problem solving and the higher level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers** (Wertsch 1985: 67–68).

However, Vygotsky didn’t just focus on the idea of a more capable peer or adult, but rather discussed several features of a ZPD. Chaiklin (2003: 50) states that what is important here is the:

- whole child;
- relationship between the internal (intrapsychological) and external (interpsychological) functioning;
- qualitative changes that take place internally, and how the child can as a result act on the world differently;
- age period as a ‘leading activity’ for the child’s actions (e.g. their interests or motives which may be operating within a particular age).

As such, the social context is much more than a capable peer or adult, but should be seen as a dynamic region of activity. Vygotsky (1997) also argued that it is in these relations, where higher levels of psychological functioning are developing (inter to intra), that social beings actively select those dimensions that interest them, and which they have been socially primed to notice and want to understand. For example, an infant may be around chess players, but he or she is unlikely to express interest in playing chess. Vygotsky foregrounded the importance of a ‘whole social context’ (rather than introducing fragmented and isolated skills or concepts) in which imitation is of great importance. However, Vygotsky had a technical definition of imitation in mind when he introduced this concept (see Chaiklin 2003: 52). He said we must:

*reject the opinion that reduces the essence of imitation to the simple formation of habits and to recognize imitation as a substantial factor in the development of higher forms of human behaviour* (Vygotsky 1997: 96, vol. 4).

Vygotsky argued that an individual can only imitate when she or he has developed some understandings. That is, ‘imitation is possible only to the extent and in those forms in which it is accompanied by understanding’ (p. 96). For example, a toddler may observe an older sibling playing with puzzle pieces and try also to solve puzzles. Puzzle solving is clearly positioned as important because an older sibling is doing it. Or a preschool child may observe their parents using a laptop computer, and when given the opportunity will press keys on the laptop, attempting to undertake the same actions, but will not necessarily have full understanding about how to use the laptop in the same way.
as the adults. In both examples, the toddler or preschool child participates in the social activities (interpsychological functioning), but does not have at that moment the capacity to perform as his or her older sibling or adults – but over time and with support is likely to undertake those tasks him- or herself with greater understanding (intrapsyhological functioning). There is sufficient understanding about the social context for imitation of the activities to be possible – unlike the chess playing example, where the infant is not socially primed or does not have understandings about chess playing to enable her or him to imitate that activity.

The dynamic region of sensitivity and activity – socially primed

How can you determine when a child is moving from an interpsychological level to an intrapsychological level? How do you know if he or she is operating within his or her zone of proximal development? What tools do we need to make these types of assessment about children? What would you look for? Discuss these ideas with your peers.

Remember that earlier in this chapter we noted that the ZPD is a hypothetical ‘space’ bounded by interpersonal functioning at one end and intrapersonal functioning at the other, or the distance between a child’s actual developmental level and their potential level of development. The implications of this are that early childhood professionals need critically to observe more than what individual children are achieving in terms of ‘expected’ developmental milestones. For example:

*Rohit counts rationally to 10; Ahmed can balance on one leg; Justine catches a large ball with two hands and extended arms; Sam cannot yet cut with scissors on or close to a line.*

Vygotsky called this retrospective development. He suggested that we should also be noticing what children are achieving prospectively with others and within groups. As a result we are then able to assess when children are operating within their ZPD – that is, not just what they are able to achieve alone (actual level), but how they are transforming and developing as they participate with others as they move towards higher levels of understanding and skill. In effect, observations and records thus become less time consuming, as well as more useful, as the focus is on groups of children rather than individuals. Further discussion of these ideas appear in Chapters 10 and 11.

As an example, in the anecdotal record below Brooke was able to gain a far more enhanced understanding of Connor’s potential level of development through her sensitive observations of the group of children, rather than just the individual.

*Aisha, Sarah and Connor are playing with the ‘Tap-tap set’. Aisha asks me to ‘count how many’, pointing to the nails in front of us.*

‘OK’, I say, ‘but I need a hand. Who is going to help me?’

Sarah looks up at me; Connor pauses in what he is doing.
Sarah and Connor count along with me as I start to count.
Connor counts ‘1, 2, 3 . . .’ and joins in again at ‘10, 11, 12, 13’.
Sarah counts every number up till 22.
At 22 I pause and ask, ‘What is next?’
Sarah says ‘23’.
Connor says, ‘then comes 24 . . . but that’s all I know’.
Sarah says, ‘Then 25’.
Connor says, ‘Oh, yeah . . . that’s right, 25 and then comes 26’.

Without noting the group interactions here, another observer might, in focusing on Connor as an individual, have noted down that he could count to three – when in fact while working with more capable peers within his ZPD he is able to move towards a much higher level of understanding. The observer, Brooke, has recorded not only his actual level of development but also his potential level. As she noted in her observation journal:

*By documenting and evaluating observations using the sociocultural approach it has highlighted to me that knowledge is held by a group of children not by individuals.*

The above observation . . . shows how I have progressed in my documentation method. I think that it also demonstrates that knowledge held by individuals supported by others is greater and more powerful than when taken in isolation.

As Barbara Rogoff (1998: 686) has said:

*To understand how individuals learn and develop through participation in the sociocultural world, it is necessary to grant that meaning is more than a construction by individuals.*

Importantly, this anecdote is an example of what Rogoff (1998) has called *transformation of participation*, in which development is viewed not as some endpoint which children must be helped to achieve but an examination of the transformation in understanding and skill as children participate with others in activities:

*it is necessary to think of cognitive development as a process, as people move through understanding rather than to understanding (seen as a platform, or level of achievement) (Rogoff 1998: 690, emphasis in original).*

Specifically, Rogoff describes transformation of participation as a process in which a person develops through involvement in shared endeavours, changing to be engaged in the situation at hand in ways that contribute both to the ongoing activity and to the person’s preparation for future involvement in similar events or activities. In the anecdote above Connor is developing through his engagement with Brooke, Aisha and Sarah. This development both contributes to the particular counting activity, but also is preparing him for his engagement in future counting activities, where he will probably count well beyond three.
This perspective on development, therefore, is very different from a Piagetian-inspired approach, where focus is on the child’s progress through a series of milestones or stages in cognitive development.

As Rogoff (1998: 691) further explains, from a transformation of participation perspective:

*the definition of development changes from one in which people ascend levels toward a given (often uniform) developmental endpoint, to a sociocultural definition in which transformations are qualitative developmental changes in particular directions. The direction of development varies locally in accord with cultural values, interpersonal needs, and specific circumstances, but it does not require specification of universal or ideal endpoints of development. Further, the applicability of sociocultural ideas about learning and development is not restricted to directions that are considered desirable by experts or other segments of the community. They apply also to explaining how people develop through participation in community activities that many would criticize. What is key is transformation in the process of participation in community activities, not acquisition of competences defined independently of the sociocultural activities in which people participate.*

This is an exciting notion to consider as it affords greater significance to observing and recording development in relation to children’s participation within activities that are seen as important within their community – rather than focusing solely on progress that, in the past, the early childhood profession has considered appropriate for *all* children, regardless of their particular sociocultural context.

**The scaffolding metaphor for organising learning**

In thinking about the importance of the role of the adult or the more capable peer in children’s learning, Wood, Bruner and Ross (1976), building on the work of Vygotsky, introduced the idea of scaffolding, detailing more fully the notion of guiding learning through adult modelling, through the joint construction of learning by the child and the adult, and through the child working independently. For example, the first time infants are given books they have modelled to them that ‘books are for looking at’, that you ‘turn the pages and look at the pictures’, that the adult will point to the pictures in the book and talk about what is there. This is in preference to mouthing the book and pushing it along the floor! Over many scaffolded interactions, in which the adult models what to do, the infants begin to assume some responsibility in the interaction sequence. They may turn the pages and later may point to items in the book. Many infants will begin to verbalise the names of some of the items. Finally, they will hold the book, examine the pages, turn the pages, point to items and verbalise what they see – reading the book in a similar manner to adults, as Holly (in Figure 3.1), who is nearly two years of age, has learned to do.
A further example of scaffolding relates to when children who have had their names scribed on their work (modelled) may, over time, identify or write the first letter of their names, with the adult writing the remainder of the letters (joint construction), and finally write all the letters themselves (independent). Figure 3.2 visually illustrates the scaffolding that Stephanie provides in assisting Holly to learn to use her new slide. Stephanie demonstrates, encourages, physically assists and then watches at arm’s length, until Holly can complete the task herself.

Family members are often skilled at scaffolding young children’s development and learning. In a study by Robbins and Jane (2005) focusing on how grandparents support young children’s learning in science and technology they reported that grandparents commonly appear to be well aware of the importance of their interactions within the child’s ZPD. Rather than instructing the child in how to complete tasks beyond their capabilities, grandparents in this project appeared to be asking children ‘to do only those things that they can already do reasonably well, thereby ensuring the child’s ability to participate legitimately’ (Gaskins 1999: 55) (see Figure 3.3). For example, one grandparent, in describing the support provided by her own parents (great grandparents) in working with Annika (two years old) to complete a foam clock puzzle, observed that:

*This is a clock puzzle made from craft foam. My parents (great grandparents) purchased it for the great grandchildren. Annika is with her grandfather who is helping her pulling it apart and then putting it back. There is always some ‘fiddling’ as the hands of the clock need some adjusting on the central knob. My parents understand that the number sequence is not understood by her but she will put the central section together. This is a clown’s face divided into several pieces.*
Scaffolding refers to the way the adult manages the learning sequence for children. It is a critical strategy for when children are working above their presumed developmental level. In contrast, interpretations of Piaget’s work assumed that children would be provided with learning materials and experiences at their demonstrated developmental level only (see also Chapter 13 for more discussion on these ideas). This ensured that children experienced success. However, it has been argued that children should work in their ZPD – that is, above their developmental level. If children are to experience success, then the role of the adult is critical for supporting them. In the example above, Annika may not have been provided by her early childhood teacher with the opportunity to work with a clock puzzle on the basis that this would be too difficult conceptually and in terms of fine motor skills for a two year old to complete. However, her grandparent and great grandparent here are conscious of her ZPD, and through providing sensitive scaffolding are gradually supporting her to work above her developmental level and
experience success. Over time she will move from the level of interpsychological functioning to intrapsychological functioning. Although scaffolding as reported generally in the literature was not introduced by Vygotsky (Verenikina 2004) it has provided a structure for thinking about adult’s interactions which support development.

Importantly, Hedegaard (1998) noted that adults choose which aspects of learning or development they support. Clearly, this is likely to match what is considered important and worthwhile within a particular social, cultural, institutional and/or historical context. For example:

In one society, the skill of rowing a kayak around the age of 6 years becomes an expectation for children; in another society, it is riding a bike. In societies where school is an educational institution for all children, the expectation to read and write makes adults choose tasks for children that are related to these skills (Hedegaard 1998: 119).

**Research question 3.3** Supporting learning in the ZPD

Think about the learning and aspects of development that, among all the things children do, you choose to focus on and support in the children you teach. Do you focus on pencil grip and scaffold their beginning writing skills? Do you comment positively when children are counting out their toys, modelling correct counting sequences? Do you join in with a child who has spontaneously begun to dance, clearing a space in the room to allow for freedom of movement? Do you provide balls for children to kick, cheering when they score a goal? Do you focus on social interactions that children are engaging in with each other? What materials and activities do you choose to provide in your program? What is missing? Discuss these with your colleagues. Reflect on
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whether the things you choose to focus on and support match the sorts of things that might be focused on and supported within children's families. Do you think some might choose to focus on issues that you don't? Are there implications in this for your conversations with particular parents?

Jordan (2004) has argued that the scaffolding metaphor is rather crude and does not come close to representing the dynamics or the complexity of adult–child interactions in early childhood settings, or the range of ways these interactions can be framed by teachers. She suggests that inter-subjectivity is a much more useful term for explaining how adults and children psychologically connect (or not as the case may be) when interacting. She has used the term co-construction to show how inter-subjectivity occurs between a child and an adult and represents her ideas as shown in Figure 3.4. Co-construction is a powerful conceptual tool for thinking about how adults and children interact together to support learning.

![Diagram](image)

**Figure 3.4** Co-constructing model

Funds of knowledge – the experiences that are available to children in their communities

Rogoff et al. (2003) argue that in many industrialised societies communities 'routinely segregate children from the full range of adult activities' and rely upon 'a specialized form of instruction that seems to accompany segregation of children from adult
settings, in which adults “transmit” information to children’ (Rogoff et al. 2003: 175). For example, it is common for many of us in Western societies to expect that children and adults will be separated from each other in work/school, leisure and even sleeping activities. As adults we go to work to ‘earn a living’, and perhaps for ‘fulfilment’. Meanwhile our children are placed in preschool early childhood centres or formal school where they are cared for and taught about society and eventually expected to take their place within their community or the wider world. This contrasts with many non-Western societies in which more value is placed on children and adults participating in activities of the community together, with children learning about their community and the wider world through apprenticeship and guided participation.

**Research question 3.4 Knowledge and skills shared between families and communities (funds of knowledge)**

Remember that in the previous research question you were asked to think about whether the things you choose to focus on and support match the sorts of things that might be focused on and supported within children’s families. Reflect on this issue again. What can you identify as the knowledge and skills that are valued by members of the community in which you teach? What knowledge and skills are shared between community members? To what extent do you use these skills and knowledge as an integral part of your program construction? How do you use these? How have you observed parents and other family members guiding the learning of the children you teach? What can you learn from this? Discuss these ideas with your peers.

Rogoff (1995) describes **apprenticeship** as a process where less experienced individuals are actively guided and supported in their involvement in culturally relevant activities towards mature participation in that community of practice. In these situations, through scaffolding children gradually acquire the skills and knowledge considered important within their community. This often occurs through a process of **guided participation**, a term describing the mutual involvement, communication and coordination of individuals and their partners as they participate in ‘socioculturally structured collective activity’ (Rogoff 1995: 146).

**Research question 3.5 Learning through apprenticeship and guided participation**

Try to identify what was valued within your own family and/or community when you were growing up. How did you learn about these things? To what extent do you think you learned these through apprenticeship? Who provided the guided participation, and what form did this take? Discuss this with your peers.

Learning from informal community involvement has been the subject of recent research and theorising by Barbara Rogoff and her colleagues (Rogoff et al. 2003). Their
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Figure 3.5  Children participate in culturally relevant activities in the home and in the community

Figure 3.6  Guided participation in families
work demonstrates the nature of 'intent participation' in different communities across cultures. Intent participation features: learning through observation during participation in shared endeavours; communication through joint action, and words and gestures about needed information; motivation in importance of activity there is a relation of steps to purpose; collaborative horizontal participation structures with fluid responsibilities; and experienced people guiding while participating, with learners taking the initiative (see Rogoff et al. 2003: 185). They argue that intent participation is a powerful form of fostering learning, one that has received limited research attention. They state that it 'seems often to be taken for granted or overlooked' (Rogoff et al. 2003: 176).

In a study that examined learning through informal community involvement, Fleer et al. (2004a, b) sought to document the home literacy and numeracy practices of preschool-aged children living in low socioeconomic circumstances in a region southeast of Melbourne, Australia, and compare these with the childcare and kindergarten programs developed by their early childhood teachers (see, for example, Fleer et al. 2004a; Fleer, Robbins & Ridgway 2004b; Fleer & Robbins 2004). The findings highlighted the multiple and complex ways in which literacy and numeracy were being constructed and enacted by families within their homes and communities. Families spoke about their intentional participation (referred to by Rogoff et al. 2003 as 'intent participation') in literacy and numeracy activities with their children. Families easily identified everyday experiences in which literacy and numeracy were embedded. For example, they outlined a range of contexts that provide opportunity for the building of 'funds of knowledge' (Moll & Greenberg 1990; Moll 1990, 2000; Moll et al. 1992) in relation to literacy and numeracy within everyday contexts.

Drawing on the work of Velez-Ibanez (1988) and Velez-Ibanez and Greenberg (1989) among others, Moll et al. (1992: 133) describe 'funds of knowledge' as the 'historically accumulated and culturally developed bodies of knowledge and skills essential for household or individual functioning and well-being'. These authors assert that the way in which families develop reciprocal social networks with other households and exchange resources or funds of knowledge enhances the families' ability to thrive. Within this context, children form 'multi-stranded' relationships with the same person or many persons.

*The person from whom the child learns carpentry, for example, may also be the uncle with whom the child's family regularly celebrates birthdays or organizes barbecues, as well as the person with whom the child's father goes fishing on the weekends (Moll et al. 1992: 133).*

While 'funds of knowledge' may include activities related to carpentry, cooking or fishing, they may also involve childcare, budgeting, farming, animal management, car repairing, folk cures and so on (for further examples see Moll et al. 1992). These cultural and cognitive resources not only have great potential usefulness for teaching in classrooms and early childhood contexts (Moll & Greenberg 1990; Moll et al. 1992), but
also serve to illustrate how rich learning is frequently embedded within household activities.

In Fleer at al.’s (2004b) study they were able to demonstrate the multiple ways in which literacy and numeracy were enmeshed in children’s daily home activities, including cooking, shopping, washing clothes, mending and going for walks. Further, the funds of knowledge developed in these families’ daily lives highlighted the importance of using literacy and numeracy within everyday contexts. For example, K illustrates the way in which numeracy is embedded in their family discourse:

_Well with the number thing, we go walking everyday and they got into the habit of counting the numbers on the houses and sometimes it would take us half an hour extra because they were counting (K)._ 

This is also evident as La discusses how she introduced her son to counting when discussing photos she had taken:

_He was allowed to take the photos – there’s the family dog [pointing to the dog in the photo]. But that’s how we started him counting, one dog, one cat, by two and a half he was able to count to ten! (La)._ 

In both examples the parents discuss the importance of ‘counting’ as a discrete numeracy outcome that they wish their children to gain. However, both examples illustrate the way in which families actively look for local environmental contexts that are meaningful to their child. La has featured the family pets, while K has discussed the houses in the neighbourhood – both as important concrete contexts in which to introduce the names of numerals. Both, as framed encounters with repetition, have the potential to build situated cognition.

In the example below, C also concentrates upon counting money. Although she mentions the word ‘teach’, the focus is on morals and the intent is not as illustrative of assembly line instruction (traditional schooling pedagogy), as discussed by Rogoff et al. (2003).

_He’s counting his money from his moneybox [referring to photo]. I let him spend his money, teach him about his money. [He must learn that] he can’t have everything, and I teach him to save his money, collect and count out the pocket money . . . (C)._ 

Rogoff et al. (2003) argue that ‘Children in industrialised communities are now excluded from many mature settings, making it difficult for them to observe the full range of their community’s activities’ (Rogoff et al. 2003: 180). In Fleer et al.’s study the Australian families were able to discuss everyday numeracy and literacy activities/conversations in the home and community. While the children do not participate in all facets of mature settings (such as going to work with a family member, or working with family members at home as the main income source), they were nevertheless participating in the day-to-day routine of ‘domestic life support tasks’ encountered in the home and community.
(e.g., cooking, cleaning, shopping). This latter aspect constitutes the lived experience of many of the families (for both parents in Fleer's et al.'s study are mostly without paid work). Using numeracy at the shops, using school-framed numeracy discourse for investigating artefacts (such as the calculator) found in schools (rather than seeing them used in the home) and engaging with rather than being instructed on numeracy and literacy for effective participation in games were all important community capital needed by children for purposeful engagement in everyday life.

The funds of knowledge available within communities are rich, important for families and meaningful for children.

SUMMARY

This chapter has illustrated how a sociocultural perspective encourages us to move away from thinking about an individual learner, and to begin to notice that:
1. Learning is more than an individual construction;
2. Grandparents and families organise many learning opportunities whereby children are always working beyond their individual developmental level;
3. Funds of knowledge are generated within communities and children are actively supported in these rich everyday contexts.

This chapter has also shown that these sociocultural learning contexts take place in embedded, everyday interactions, and that theorists have used different terms to conceptualise different dimensions of how adults work together with children to support learning. Some of the terms discussed were:
- Scaffolding
- Co-construction
- Intent participation
- Guided participation
- Apprenticeship in thinking.

Collectively, these terms highlight the complexity of identifying and connecting with children's zones of proximal development.

KEY WORDS

Actual development
Apprenticeship in thinking
Co-construction
Functioning
Guided participation
Intent participation
Interspsychological
Intrapsychological
Potential development
Scaffolding
Zone of proximal development
References and further reading


Fleer, M., Robbins, J. & Ridgway, A. (2004b) 'There is much more to this literacy and numeracy than you realise...': Family enactments of literacy and numeracy versus educators' constructions of learning in home contexts, paper presented at the Twelfth Australian Research in Early Childhood Education Conference, Monash University, 21–23 January.


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