UNIT 14 VYGOTSKY'S SOCIO-CULTURAL THEORY OF COGNITIVE DEVELOPMENT

Structure

14.1 INTRODUCTION

In this Unit, we will learn about Vygotsky's socio-cultural theory of cognitive development which focuses on how children learn through social interaction with others. We will first understand the basic principles of Vygotsky's theory and then read about two important implications of Vygotsky for teaching viz. Zone of Proximal Development and Scaffolding. Vygotsky's views regarding the role of play in advancing development of children are also discussed in detail. You will also be able to appreciate the differences between Piaget's and Vygotsky's views regarding how children learn.

Objectives

After studying the Unit, you should be able to:

- explain the basic principles underlying Vygotsky's theory;
- describe the meaning of the terms 'zone of proximal development' and 'scaffolding' and explain how they can be used in teaching-learning situations;
- describe Vygotsky's views on play; and
- understand some differences between Piaget's and Vygotsky's views on cognitive development of children.

14.2 HOW CHILDREN LEARN

You have read three theories regarding how children learn – behavioural theories, social learning theory and Piaget's theory of cognitive development. Can you recall what they say about how children learn?

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According to behavioural theories (Watson's and Skinner's) child's mind is like a blank slate. Children learn as their actions get positive and negative responses from the environment. In other words, children have a minimal role in their own learning, while the environment is all powerful. Therefore, we can shape children's learning and behaviour by:

- selectively reinforcing the desired behaviour/learning by providing positive results for it, and
- selectively inhibiting the undesired behaviour/learning by ignoring or punishing it.

According to Bandura's social learning theory, while we learn from our environment in the above manner, the person has a more active role in learning. According to him, we selectively learn from our environment according to our beliefs about our own abilities – that is, our self-efficacy beliefs. We make efforts to learn something when we believe that we will be able to learn it; otherwise we do not. He also proposed that we learn by observing others and imitating their actions – he called this 'observation learning' or learning through modeling.

Piaget, on the other hand, proposed that the children have a central role in their learning and construct knowledge by physically acting on their environment – physical action means touching, holding, manipulating, smelling and so on. In other words, children learn by "doing." Hence, unlike what the behaviourists say, children cannot be considered as passive learners and their mind cannot be viewed as a blank slate which accumulates knowledge depending on the response they receive from the environment. Rather, children actively create their own knowledge. In fact, we cannot impose any knowledge on children if they themselves are not interested in learning and are not actively involved in the learning process by making efforts to learn it.

In a nutshell, according to these three theories we learn:

- By the consequences of our behaviour. If our behaviour leads to positive consequences, we learn to repeat it; if it leads to negative consequences, we unlearn it.
- By observing others when they are doing things.
- By exploring the environment, acting on it or manipulating it.

Can you think of some other ways through which we learn?

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Do we not learn when we interact with our parents, siblings, relatives, friends, neighbours and teachers and they teach us, guide us or instruct us? **Yes, indeed we do learn when others teach us or give us instructions and this is the central feature of Vygotsky's theory. According to Vygotsky, children learn through social interaction with adults and more expert peers.** Now we shall read about the Vygotsky's theory in detail.

14.3 VYGOTSKY'S SOCIO-CULTURAL THEORY OF COGNITIVE DEVELOPMENT

Lev Semenovich Vygotsky (1896-1934), a **Russian psychologist** was a contemporary of Piaget during early 20th century (1920-1934). At this time, he read Piaget's publications extensively along with the works of some other well known psychologists such as Gesell and Werner and also the philosophy of Karl Marx. His reading combined with his own ideas about how children learn, led him to formulate the 'socio-cultural theory' of cognitive development.

Vygotsky agreed with Piaget's view that children learn by 'doing things' or 'by physically acting' on their environment, which is how they construct knowledge. However, Vygotsky stressed upon the fact that children also learn and acquire knowledge by socially interacting with adults such as teachers and parents and more expert peers and siblings. He held that social interactions with adults or more knowledgeable persons are essential to help children acquire knowledge effectively. At the same time, physical manipulation of objects is also helpful. Let us understand this through the following examples:

- Infants learn to do many other things by interacting with their caregivers and by following their instructions. For example, Radha, a 10 month old infant is playing with a musical toy and is trying to operate it to hear its music. She touches it at various places, shakes it and bangs it on the floor but is unable to locate the button which has to be pressed to hear its music. Now, the mother points towards the button and tells the child to press it. The infant understands the mother's instructions, presses the button and the music starts. Thereafter, the infant operates the toy's button several times to hear its music.

- Romola is a preschool age child wants to brush her teeth on her own. She has observed her parents, siblings and other people around her everyday brushing their teeth. Hence, she picks up her brush, puts toothpaste on it and starts brushing her teeth. Now, the mother gives her verbal instructions for the first few days so as to teach her how to brush

properly. She instructs the child regarding proper hand movements while brushing and so on. Now, in this situation, while the child has watched others brushing their teeth, she is able to brush her teeth more efficiently when the mother's verbal instructions guide her.

- Sarla is a preschool teacher who wants to teach her group of four year olds the concept of geometrical shapes 'square' and 'rectangle'. She arranges four cut outs of squares and rectangles in different sizes. The children will be seeing the cut outs, touching them and comparing them and will be able to judge by themselves that the shapes of some objects are different and some are similar but perhaps they will not be able to label them as 'square' and 'rectangular' shapes unless they have been told so specifically.

- Seema, is a preschool teacher and she wants her group of four year olds to separate a collection of things on the basis of some common property – in other words, she wants her children to learn to classify. She plans an activity of separating blocks according to a property. She arranges for blocks of two different colours and sizes and asks the child to group blocks according to some similar characteristic. One child starts grouping blocks according to their colour – she places blocks of red together and so on. Then the teacher intervenes and points out that though the blocks grouped are of the same colour, they are of different sizes.

Both physical manipulation of objects and verbal instructions from adults are essential for children to acquire knowledge

Now it is more likely that child will learn to distinguish blocks by their sizes along with their colour, and so start grouping blocks of same sizes and same colours together, making four categories – small red blocks, big red blocks, small blue blocks and big blue blocks. Hence, when the

teacher points out to specific properties, children are able to include them in her classification. In this example, the child has learnt to consider two properties of the objects together to classify them.

- Similarly, parents discuss many things with their children, answer their queries, guide and instruct them while telling them as how to do things or in other words as how to operate on surrounding environment and in the process, help children to acquire knowledge.

It is clear from the above examples that although children construct knowledge on their own by exploring their environment or by acting on the objects in their surroundings, they also need to socially interact with others to know more about many things. **This is the central feature of Vygotsky's theory – that both physical manipulation of objects and social interactions with more knowledgeable persons are important for knowledge acquisition by children. For example, if in the above example, we do not give children the opportunity to manipulate cut outs of square and rectangular shape and simply verbally explain 'shapes' to children, would the children be able to grasp the concept clearly? Perhaps not immediately.**

Can you think of some examples from daily life in which children learn through their own activity but they also need parent's or teacher's assistance to master those activities more efficiently?

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Observe a child as she is carrying out some activity on her own. Then request her friend/sibling/parent/teacher to help her do it more efficiently. Alternatively, you could help the child. Write down your observations regarding the difference in the child's performance in the two situations.

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Even we adults need verbal instructions from more knowledgeable others to master many skills. For example:

- Suppose you want to learn to drive a car. Now, can you learn to drive a car without any instructions from a person who is expert at driving? No. Similarly, can you learn to drive without actually driving it? Certainly not. Hence, both social interaction with an expert/more knowledgeable person and physical action by you are required to master this skill.
- Similarly, you will learn to cook much better if an expert in cooking guides you and if you practice cooking frequently.

Can you think of more examples from your daily life which show the importance of verbal instructions in mastering a skill?

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14.3.1 Why is Vygotsky's Theory Referred to as Socio-Cultural Theory?

Vygotsky's theory is called a socio-cultural theory. The above discussion explains the 'social' part of the theory. What does 'cultural' mean? Vygotsky believed that children do not construct all of their knowledge on their own, but acquire knowledge from their culture. Children in different cultures acquire knowledge and skills valued by their own culture – weaving, hunting, fishing, farming, reading, writing, driving, cooking or operating computers. For example, a child living in a village may follow the occupation of parents which may be farming or a craft such as pottery or carpet weaving. A child living in a coastal area and whose parents have fishing as their major occupation may learn to swim, row a boat, make a bait for the fish, clean the fish and so forth. A child belonging to a tribe will learn the tribal culture and its skills such as dancing and hunting and acquire its ways of living. Similarly, a child living in a city would pick up that city's culture, would go to school and gain academic knowledge if parents admit her in school. If parents do not send her to school but involve her in the family's occupation such as running a family owned grocery shop, the child will learn that. Similarly, a child belonging to a Chinese village would learn Chinese traditions and customs.

According to Vygotsky, through the ages it is through culture that each generation has passed on its knowledge, skills, values and beliefs etc. to the next generation. Each generation adds new knowledge and skills and passes them on to the next generation. Of course, social interactions with more knowledgeable members of the society are necessary for children to acquire the knowledge, skills and ways of thinking and behaving that make up a culture. **This idea that culture influences cognition and that it is**

transmitted through social interactions is crucial to Vygotsky's theory and that is why, his theory is referred to as the socio-cultural theory of cognitive development.

14.3.2 Basic Principles of Vygotsky's Theory

Through the above discussion we can cull out the following four basic principles underlying the Vygotskian framework:

a) Children construct knowledge through social interactions.

b) Development cannot be separated from its social context.

c) Language plays a central role in mental development.

d) Learning can lead to development.

Let us read about each of these principles.

A) The Construction of Knowledge

We have elaborated upon this principle in detail in the above discussion. To summarize here:

Vygotsky agreed with Piaget's view that children construct knowledge on their own and do not passively learn what is presented to them. Their mind is not like a blank slate on which any knowledge can be imposed. So here his theory is similar to Piaget's. However, Vygotsky also believed that children need to socially interact with more mature members of the society such as teachers, parents, more competent peers, and siblings to construct this knowledge. The adults may actively guide the child by giving verbal instructions, demonstrations and asking questions and help the child in constructing knowledge. Here, he differs from Piaget. Piaget's theory does not say much about the social context… of course when the child carries out an action, the social environment is often involved, but the point that we are making is that Piaget does not directly or explicitly focus on the role of others in the learning by the child.

B) The Importance of Social Context

Since learning involves interaction with others, according to Vygotsky, the *social context* or the social environment in which the child lives, has a big impact on children's learning. The social context/environment of the child includes her family, friends, neighbourhood, school and the general features of the society such as language, laws, customs, cultural beliefs and use of technology etc. The child's entire social world shapes not just what she knows but how she thinks and what she does. In fact, the child's needs and goals are largely influenced by her social environment. At the same time, whatever the child does, in turn, affects her social environment as well. We have discussed this aspect in the above discussion. Let us understand this through one more example.

Vineet is an aggressive child. Now if we hold the child's temperament only, as being responsible for his behaviour, we will look for the cause of this behaviour in the child. However, if we study the child's environment also we

may find that the child is showing aggressive behaviour perhaps because her parents are behaving aggressively at home or her friends in the neighbourhood are behaving in this manner. Hence, the causes of the problems are in the environment as well and not in the child alone. Further, the process is cyclical. The child's behaviour influences how others respond to her and their response further increases or decreases the possibility of child's aggressive behaviour. That is why we should study both the child and her environment.

Vygotsky realized this interrelatedness between the child and her social environment, and so he **considered the child and the social context as one unit. According to Vygotsky, we should not look at the child as separate from her social surroundings.** When we study the child alone and ignore her environment, we tend to study an incomplete picture of the whole situation.

An important point to note here is that the behaviourists — Watson, Skinner – as well as Bandura, in his social learning theory, have also emphasized the interaction between children and their environment. But the difference is that they consider the child and their environment as separate units which interact with each other to influence development. Similarly, Piaget viewed the 'child' as the smallest unit of study. He did not ignore environment but according to him, the environment is important because it is where the child acts to learn. But the environment is not seen as something which actively helps the child in learning. Piaget sees the child and her environment as separate entities. In contrast with these theorists, ***Vygotsky views the child and her social context/environment fused as one unit. The child in her social context was his smallest meaningful unit of study.***

Can you think of some other examples of how social contexts of children influence their thinking, goals and behaviour and how children, in turn, influence the social environment?

C) The Role of Language in Development

Vygotsky believed that language plays a great role in cognitive development. It is one of the ways of socially interacting with each other and sharing ideas. Language is needed for learning from adults/expert peers. Unless children and adults talk, they are unable to know each other's meaning. In other words, language facilitates the social interactions necessary for knowledge/skill acquisition. Read the following example to understand this point.

Reena, a 5 year old girl, is learning how to switch on the computer from her mother.

Reena says, "Mummy tell me, how to switch on the computer?"

Mother, "See the switch board on the side of the wall…, switch on the second button."

Reena, "Yes, I have switched it on."

Mummy, "Now look down at the computer table. Can you see U.P.S. there? Switch on the button in front."

Reena, "Yes, I have switched it on."

Mummy, "Now, there is a blue button on the C.P.U. Press it. The computer will get switched on."

Thus, the dialogue between the mother and the child helped the latter to learn to switch on the computer. The child will internalize (remember in her mind) these verbal instructions of her mother and then recall and use these instructions to switch on the computer by herself.

According to Vygotsky, in the process of internalizing these social and verbal interactions in their mind, children go through a phase when they speak the verbal instructions aloud to themselves. This phase is very common during the preschool age, i.e. from 2-6 years of age.

Preschoolers often speak aloud to themselves while playing or doing any work. Vygotsky called this self-talk as children's 'self-directed speech'. The following examples will make the meaning of children's 'self-directed speech' clear to you:

1) *A girl, 2 ½ years old, is playing doctor-doctor all on her own. She imagines herself to be a Doctor and her doll to be her patient. She says, "Now I will check your fever with this thermometer. Yes, you have fever! I should give you injection and medicine… Now, go to sleep for a while…"*

2) *A boy, 4 years old, is playing with blocks. While building the blocks, he says, "No these two do not fit together. Let me see this blue block… Yes it fits! Wow! I will show it to Grandma."*

3) *A girl, 5 years old, is colouring a picture with crayons. She says, "Now, which colour should I fill in the clouds? … Blue? But I have already coloured the sky blue. I will colour the clouds black? No…gray? Yes, gray. I shall colour them gray."*

Such self talk is very common. Vygotsky reasoned that children speak to themselves for self-guidance and self-direction. In the above examples also you can make out how children's 'self-directed speech' is helping them in regulating their own activities and in solving problems on their own.

According to Vygotsky, children speak out loud to themselves during preschool years and as children grow older, their loud speech changes into whispers and silent lip movements. Finally, children learn to think quietly in mind just like adults - they 'speak in their minds'. Vygotsky called this as 'inner speech'.

For example, you may have noticed a child, around 7-8 years old, writing her examination and whispering answers to herself. Now, if the teacher tells her to be quiet, the child may speak the answer to herself with silent lip movements. An older child, say 11-12 years old, may simply think of the answer quietly in her mind and may not whisper or speak with silent lip movements.

Vygotsky's perspective regarding children's 'inner speech' is widely accepted now-a-days. It is, however, now referred to as 'private speech'. It

has been found that children who use 'private speech' freely while playing or doing a challenging task, are more attentive and involved and do better than other children who do not use private speech.

Observe a child aged 2-5 years playing or doing something. Note down all that the child says loud to himself/herself. See how such speech is helping him/her in self-regulation or in solving a problem on his/her own. Record your observations here.

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Give addition/subtraction problems to solve to a child (aged 6-7 years) and a child aged 8-9 years. Notice, if any of the two children whispers or silently moves her lips while solving the problem. Similarly, give a mathematical problem to an older child (aged 10-11 years). Notice how she solves the problem – does she whisper or think in her mind? Is it not the beginning of abstract thinking? Note down your observations.

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D) The Relationship of Learning and Development

Several theorists believe that a certain level of maturation is required before the child can acquire new knowledge or learn a new skill. For example, Piaget's theory holds that a child must attain the stage of concrete operations before she can think logically. Thus, if a child below the age of 6 years is given conservation tasks (such as conservation of liquid, i.e. which of the two glasses, taller or wider, has more water), the child is unable to answer correctly. Only when the child has reached the stage of concrete operations (say by the age of 7 years), she is able to conserve and answer correctly. Thus, according to Piaget, when the information presented/ task to be done/concept to be acquired by the child is of a higher level compared to her stage of development, the child cannot learn until that developmental level/stage is reached. This seems to be quite reasonable and most of us would agree. But if you think about this a little bit more in detail, you will see that there are also other aspects involved and this is what Vygotsky has explored. Read further to understand how Vygotsky conceptualizes the relationship between learning and development.

Vygotsky believed that although for some specific cognitive tasks, a certain level of maturation is required, maturation does not totally determine cognitive development. In other words, cognitive development does not have to always wait for maturation to take place first. It often occurs much earlier

also depending on the availability of an appropriate environment. And this often does happen in real life because we often tell children things that they do not know, by describing those things at their level of thinking. For example, parents talk with their infants regularly, even much before their infants can speak, or show their baby how to operate a toy, when she can barely hold it in her hands. Parents may often give reasons for an event, ahead of the child's level. For instance, tell a preschool aged child how clouds are formed and how rain occurs, or explain to the child how bacteria can cause decay when she is reluctant to brush her teeth, or that plants are living beings which breathe like us. At times parents may guide their young child (who may not know to read and write) to operate a T.V. remote or a telephone! You would have often heard parents saying that their preschool age children can play games on the computer or operate the keyboard themselves! Children are able to do all this because the parents have guided them to learn this. You may say that children in middle class and upper class families have a stimulating environment and so learn these things early on. Children in lower SES families also learn though they may learn different things. A nine year old girl in a low income group family may be able to make the morning breakfast for everyone, take care of her younger siblings at home and do household chores (like sweeping, mopping etc.) while the mother goes out to work. The child is able to do this because she has been taught by the mother to do so.

All these examples reflect that in fact in our daily life very often we do not wait for our children to be of a certain age before we teach them things. In fact, children are so inquisitive about their surroundings that we may call them little scientists! They are constantly experimenting with something or the other. You may find them playing with their toys differently every time, putting objects in water and seeing which object floats and which sinks etc., playing a music with utensils and so on. They also ask questions to which their parents often reply in simple language. Hence, children continuously learn by interacting with their adults and peers and by exploring their environment and this learning further leads to development. ***Vygotsky therefore believes that learning leads to development. It is important to note here that this is different from Piaget's view that a certain level of development is required before learning can take place.*** **Vygotsky argues that if we insist that development must come first before learning, the following situations can arise:**

i) **We may not teach several concepts to the children at all** even if children are inquisitive about them. For instance, in the above examples, parents may not tell them about plants or how rain occurs and simply say to the child "you won't understand" or "It rains when God wills so" etc. believing these to be difficult concepts for the child to understand.

ii) **We may also present concepts that children already know or those which are very simple and uninteresting for them.** On the other hand, if we completely ignore the child's developmental level, we may present material that is frustratingly difficult for the child. Let us understand this through an example:

Suppose, a 5-year-old child has learnt to count objects up to 10 correctly. Now if the teacher keeps giving her different activities involving counting 10 objects repeatedly, because this is her developmental level, the child may get bored with that activity. *In this case, the teacher is teaching a concept which the child has already mastered and hence it is uninteresting for the child.*

Now suppose the teacher introduces the concept of addition of objects within 10. This activity would be challenging for the child as it involves going beyond counting and the child would do it again and again, to master it. *Here the teacher has introduced a concept which builds upon a concept the child has already mastered and advances the child's understanding to a more advanced level. Hence, the child is interested in the activity.*

Now suppose the child has not mastered the counting of objects up to 10 correctly and the teacher introduces the concept of adding objects, then addition becomes a difficult task for the child to learn and she may feel frustrated if she repeatedly gets wrong answers on adding. *This is a case of trying to teach a child something which is beyond her developmental level and understanding at that moment.*

These examples must have clarified to you that **according to Vygotsky, we have to continuously assess the child's developmental level and teach concepts which are just a little in advance of her developmental level. These will be tasks which the child is just ready to learn – neither too difficult to be frustrating for her and nor too simple that she gets bored. When the child learns these tasks or understands these concepts, it leads to learning, which in turn advances the child developmental level further.** Thus, we have to strike a delicate balance between the difficulty of the task or concept being presented to the child and her developmental level, which indicates to us her ability to grasp the concept. We hope this discussion clearly brings out for you the link between learning and development.

These ideas of Vygotsky about the relationship between learning and development are helpful in explaining why teaching is so complex. We have to teach new concepts to children, but at the same time, not any concept to any child. Each child's developmental level is different and the teachers must constantly adjust their methods and ways of teaching according to the child's needs and readiness to learn. Experienced teachers know that children quickly become bored when you teach a concept repeatedly that they already know or a skill they already have and they also become uninterested if the concept is difficult for them. Hence, teachers have to continuously check what the child already knows. The child will learn only when the task presented is neither too simple nor too tough, but builds upon the child's current level of understanding. This means that there is no readymade prescription for teaching children. This is indeed a great challenge for all educators. The implication of this relationship between learning and development for teaching has been explained by Vygotsky by using the concepts of **zone of proximal development** and **scaffolding. Understanding these concepts will help the teachers to get an idea about how to plan their teaching activities.**

Check Your Progress Exercise 1

1) Read the following statements carefully. Each of the statements stands for different aspect specified by different theorists. Write in the space provided below each statement, the theory from which it comes.

   a) Children's mind is like a blank slate. ……

   b) Children learn as their actions get positive and negative responses from the environment. …….

   c) We learn by observing others and imitating their actions.…….
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   d) A child constructs knowledge on her own by physically acting on the environment. ……..

   e) Children learn through social interaction with adults/more expert peers. …….....

2) In the space provided below, write why Vygotsky's theory is referred to as socio-cultural theory? What are the key principles of this theory?

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14.4 IMPLICATIONS OF VYGOTSKY'S THEORY FOR TEACHING

From the discussion in the above section, it must have been very clear to you that teachers cannot teach just any concept to any child. They have to teach according to child's readiness to learn a concept so as to advance the child's cognitive developmental level further. Now, how can teachers determine the child's readiness to learn a concept? And having determined the child's readiness to learn, how should they teach? Vygotsky introduces the concept of Zone of Proximal Development and Scaffolding to answer these questions. Let us read about these in the following Sub-section.

14.4.1 Zone of Proximal Development

Most school teachers make such decisions based on the child's performance in class. For example, suppose a teacher wants to assess the developmental level in Math of a child in Class V. She gives her an achievement test in Math and finds that the child's level of understanding in Math is at the level of

Class IV. Hence, she starts teaching math to the child accordingly. This approach seems quite reasonable.

Vygotsky however believed that traditional achievement and intelligence tests do not reveal the complete picture of the children's cognitive development. According to Vygotsky, these traditional tests simply show how much the child has learned so far — in other words, how much cognitive development has occurred until now which he called the child's 'actual developmental level'. These tests do not reveal or tell anything about the child's learning potential i.e. the ability to learn new concepts when offered some guidance or support. For instance, in the above example, if the teacher had given some guidance to the child to solve a problem which she was finding difficult, it is quite possible that the child may have done that sum correctly and scored more in the achievement test. This guidance could have been in the form of a question by the teacher to direct the child's attention to an important part of the problem, sum or a hint at the first step in the solution. However, traditional intelligence and achievement tests do not permit such assistance and so we can never know what the child can do when offered some assistance. According to Vygotsky, this is a shortcoming of traditional tests. All children can do some tasks independently and some with the assistance of adults (parents/teachers) or in collaboration with more expert peers.

Therefore, according to Vygotsky, there are two developmental levels with respect to children's intelligence:

1) The actual developmental level, which indicates what the child can do independently. It can be determined by the traditional intelligence and achievement tests; and
2) The level of potential development which indicates what the child can do with some assistance from adults/expert peers. This is the child's potential or ability to learn when offered some guidance or support by adults or peers.

Vygotsky defined the Zone of Proximal Development as the distance between these two developmental levels — it is the distance between what the child can do independently and what the child can do with assistance from adults or peers.

Let us understand this concept through an example. Ranjita and Rashmi are 8 years old. When administered an intelligence test, both of them score at the level of 8 years. Now the teacher who administered the test gives some additional problems to the girls to solve. The girls are unable to solve these problems on their own. The teacher then gives them some guidance to solve the problems, such as by asking questions which direct their attention to important parts of the problem and providing some clues as to how to solve these problems. Now Ranjita solves some of these new problems presented and scores at the level of a 9 year old; while Rashmi solves even more problems and scores at the level of 10 years. Now would you call the cognitive developmental level of the two girls to be similar? Obviously not! Rashmi's cognitive developmental level is higher than Ranjita's.

Vygotsky has called this distance between what children can perform independently and what they can perform with help as 'Zone of proximal development'. In this example, the 'zone of proximal development' for the first girl is one (9-8=1) and while for the second girl, it is 2 (10-8=2).

The zone of proximal development, according to Vygotsky, gives a much better picture of the child's cognitive development, as it reveals those cognitive abilities that the child is just beginning to develop – those which she can accomplish presently with support and be able to perform independently very soon. The zone of proximal development includes a range of tasks that the child cannot perform alone but can do with the help of more skilled partners. These tasks can be for example any type of play, work or school studies.

The next question that arises is how can the adult/expert peer help the child to move through ZPD and help in advancing the child's developmental level? This leads us to the concept of scaffolding.

14.4.2 Scaffolding

As you would have understood, the first step is to identify a task that the child can learn to master but which is presently difficult for the child to do independently. This means identifying the child's zone of proximal development.

i) Then the adult guides and provides support by several methods. For example, by giving verbal instructions to the child or by demonstrating how to do the task etc. We will discuss these methods in detail in the next section.

ii) As the child learns, the adult steps back, permitting the child to take more responsibility for the task and do it independently.

Thus we can see how learning takes place through social interaction.

Let us understand this idea through the following example.

Shyam and his father are playing carom together. Notice the way Shyam's father helped him learn to play carom:

***Shyam**: "Help me Papa. I can't get this one in." (points to a coin on the board)*

***Father**: "I think you should strike it from this point?" (points to a place on Shyam's line)*

***Shyam**: "Okay. Let me try." (strikes that coin from the point told by father. The coin does not go inside the corner pocket, instead it moves to the side on the board.)*

***Father**: "If the coin is near the pocket, you don't have to strike with such force. Now from where do you think, you should strike this coin again?"*

***Shyam**: "From here" (Points to a place on his line. Hits from there gently and successfully sinks the coin in the corner pocket. Tries to pot another coin by taking reverse shot but is unsuccessful in doing so).*

***Father**: "Good try. But for playing back shots, you should first understand where the striker would move after hitting the boundary so that it strikes the coin. Like for striking this coin, where do you think you should hit the striker on the boundary?"*

***Shyam**: "Here." (Points to a place on boundary wall. Father nods and then Shyam strikes and but he does not hit the desired coin. Shyam tries repeatedly till he is successful. Father watches him).*

In this example, Shyam's father is helping him in moving through the ZPD of the task of playing carom by giving him verbal instructions. **Notice how Shyam's father is offering help at just the right moment and in the right amount.** Hence, to be effective, the adult's guidance must be carefully coordinated with the child's current abilities.

Vygotsky referred to this process of providing external support for learning new knowledge within Zone of Proximal development and gradually withdrawing the support as the child learns as **Scaffolding.** Notice that this support or scaffolding is temporary.

The experts may provide scaffolding (temporary support) to the child in various ways:

- **Giving verbal instructions**: In the above example the father gave verbal instructions to Shyam to help him learn to play carom skillfully.
- **Discussing it with the child, asking questions, giving hints and clues**: In the above example, Shyam's father also asked questions and gave him hints and clues to teach him about effective shots.
- **Directing the child's attention to an aspect that was forgotten/ ignored by the child and pointing out critical features that show the difference between the child's performance and the ideal performance**: For instance, in the earlier example of the teacher giving instructions to the child for 'sorting blocks according to category', the teacher draws the child's attention to the aspect that blocks can be grouped according to their shapes as well and not only according to their colour. The child had ignored this aspect and had grouped blocks according to their colour only. Now, the child groups blocks according to both their colour and shape (ideal performance).
- **Demonstrating the ideal performance of the task or jointly participate in the activity**: For example, Shyam's father had also jointly participated in the activity by playing carom with Shyam. Now, it is very much possible that when he played his shots, Shyam observed him carefully and learned to play. The father's demonstration was in addition to his verbal instruction.
- **Reducing or simplifying the number of steps required to solve the problem so the child can manage them**: In the above example of 'grouping blocks according to shape and colour', suppose the teacher gives blocks of many colours and shapes to the child — say 4 different colours and 4 different shapes. The activity may become too complex for the child and child may not be able to master it. Now suppose the teacher

simplifies the activity and gives blocks of two different colours and two shapes only, as she did. Here the teacher has simplified the activity according to the child's level of understanding. Now gradually as the child learns to handle two colours and two shapes, the teacher can make the activity more complex by adding another shape or colour. In this way depending upon the child's response she can keep increasing the complexity of the activity.

- **Maintaining the child's interest in pursuing the task**: This is very important. If the child loses interest in the activity, she will not make efforts to master it and the adult guidance would be wasted. Hence, the adult should instruct in such a manner that the child's interest in the activity is sustained. For example, if the teacher talks in a tedious manner, the students may stop listening. Would they grasp the new knowledge being imparted by the teacher?

Can you think of some other ways of providing scaffold (support) to the child to help him in mastering new task?

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It is important to note that at the beginning of the learning process, the adult provides more scaffold (temporary support). The responsibility of the child's doing the task is largely on the adult/expert peer. As the child learns, the adult provides less support and allows the child to do the task more on her own. Finally he withdraws support completely and the responsibility to do the task is completely shifted to the child.

For example, let us suppose, a child has to learn to count 10 objects. In the beginning the mother may demonstrate to the child, how to count. Then at the level of maximum scaffolding, the mother may hold the child's finger, point to the objects and count with the child. The mother then gradually begins to withdraw support. The next time the child counts, the mother does not say the numbers, but still helps the child to point. If the child forgets any number in between, then the mother intervenes and mentions the forgotten number. The next time it is more likely that the child learns to say numbers correctly without missing any. Then the mother helps the child to point towards objects. Gradually, the mother stops helping the child in pointing towards the objects as well and the child learns to both point and count on her own.

In the above example, you can clearly see how and when the mother gradually removes the scaffolding as the child learns to count 10 objects. Hence, the adult/ teacher/expert peer has to understand when and how to remove scaffolding (support) to help the child to do task/acquire new knowledge/skill independently. In other words, the teacher should be able to judge the timing when she has to hand over the task completely to the child, so that the child does the task independently.

We would like to stress an important point here. Vygotsky pointed out that children are active partners in the process of acquiring new knowledge with the help of more knowledgeable others. It is not as if the adults are teaching the child and the child is learning passively. In fact, the amount of assistance provided by the adult to the child is dependent on the child. Let us understand this point further.

When the child is unable to do a task alone, she may invite the adult to assist her in doing it. Now suppose, the child does not invite the adult and adult comes on her own to help the child and child refuses to take help. Would the adult be able to help her? No. Hence, the assistance provided by the adult/expert peer depends on the behaviour of the child. If the child asks the adult for help and responds to adult's help and guidance, only then can the adult participate in the activity and give guidance to the child to move through ZPD for that particular knowledge/skill. Also, the adult adjusts the level of guidance according to the child's response and ability and as the child is able to master new knowledge/skill, the adult stops giving guidance and the child does the task independently. Thus, this process is bidirectional, i.e. :

child's response ↔ adult guidance

Notice in the earlier example of carom, that Shyam was unable to pot the coin on his own. He invited his father to help him. His father then started guiding him by giving verbal instructions. Shyam responded to his father's instructions well and tried to pot the coins as instructed by his father. His father asked him questions and kept giving him instructions according to his responses. Shyam gradually learnt to play the shots successfully. Then, his father stopped giving him instructions. Hence, Shyam was an active partner in the process of mastering the play of carom. He invited his father to give support, responded well to his instructions and his father guided him according to his responses. When the child started showing some success, his father stopped giving him instructions.

Can you think of some other situations of adults helping children in mastering new knowledge/skill? Note down how children's response affects adults' behaviour when they guide children?

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To summarize:

- scaffolding occurs within the ZPD – that is, scaffold is provided for those activities which the child is able to do with help but not independently. It is not provided for those activities which the child can do well or which the child is not able to do at all even with support.
- the amount of assistance provided to the child is gradually reduced as the child learns.
- responsibility for performance of the task is handed over completely to the child as the child masters the task.

14.5 VYGOTSKY'S VIEWS ON THE ROLE OF PLAY IN DEVELOPMENT

According to Vygotsky, play serves two important purposes.

i) Play creates the Zone of Proximal Development

In Vygotsky's words, "In play, the child is always behaving beyond his age, above his usual everyday behaviour; in play he is, as it were, a head above himself. Play contains in concentrated form, as in the focus of a magnifying glass, all developmental tendencies; it is as if the child tries to jump above his usual level… Play is a source of development and creates a zone of development."

From this description we can infer that play helps in advancing cognitive developmental level of children by helping the child to move through the zone of proximal development i.e. from lower actual developmental level to higher level of potential development. If we compare the child when she plays, to when she is not playing, we can actually see how the child moves to a higher cognitive developmental level from lower cognitive level through play. Let us understand this through a few examples.

- In the non-play or real-life situation, a child wants an ice cream, but her mother does not give it to her, so she cries. She cannot control her behaviour. On the other hand, while acting out a similar situation during make-believe play, the child can pretend to cry for an ice cream and then she can pretend to agree with her mother's instructions and not cry.

  In this example, in non-play situation the child is unable to control her behaviour but in the play situation, the child is able to do so. Play has thus allowed the child to agree with the mother's viewpoint, control her behaviour and act in a more mature manner. Hence, in this situation, play has created the zone of proximal development and is helping the child to move from lower level of not being able to control her behaviour to the higher level of being able to control her behaviour. It is likely that in the future the child will be better able to behave as per his mother's instructions.

- Another example of how the child moves through the ZPD is seen when the child is engaged in make-believe play. In make-believe play, children are no longer restricted by the appearance of objects. They may

symbolically use an object as another object. *For example, they may suppose that a cloth is a pillow or their doll is another child or their block is a real telephone, and thereby separate the object's meaning from the object itself.* Hence, make-believe helps in developing children's imagination and abstract thinking and helps in advancing children's thinking to a higher level. Imaginative thinking involves thinking at an abstract level. This is higher level thinking as compared to thinking at a concrete level where the child is restricted by reality. Thus the child has been helped to move through ZPD…from thinking at the concrete level to thinking at the abstract level.

- To give another example, while playing with more expert peers, children learn to master play skills. For example, a child does not know how to play hide and seek. Now as this child plays hide and seek in the company of other children who know how to play it, she learns to follow the rules of the game. Thus, her more expert peers help her to move through ZPD i.e. from the lower actual developmental level of not being able to play hide and seek and follow rules of the game to a higher level of being able to play the game by its rules.

ii) Play helps children in self-regulation

Play also helps children to practise self-regulation and master their own behaviour. While playing, children cannot act any way they please; they must follow rules of the game.

- For example, while playing games with rules such as ludo, snakes and ladders, bat and ball, the child has to regulate her behaviour and play according to the rules of the game.
- Similarly, let us suppose, a group of children are engaged in make-believe play. They are acting out a school situation. Then one of them decides to be a principal, another decides to be a teacher and rest of the children to be students. Now, each one of them has to act the role they have chosen. Hence, in even make-believe play children have to regulate their behaviour according to the role.

According to Vygotsky, play promotes:

i) **Cognitive development** by enhancing growth in the child's attention span, imaginativeness, concentration, impulse control, curiosity and problem solving strategies.

ii) **Language development** by increasing the child's vocabulary, language comprehension and verbalization.

iii) **Socio-emotional development** by providing opportunities for cooperation, empathy, and group participation which leads children to master their own behaviour.

Play promotes overall development of children

Observe some children as they engage in play. Note down how play is helping them in advancing their cognitive developmental level and regulating their behaviour. Also note how more expert peers are helping other children who are not expert at playing, in mastering the game.

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Check Your Progress Exercise 2

1) Play is very important for children's development. Do you agree or disagree with this statement? Explain in the light of Vygotskian perspective.

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2) A teacher decides to plan her class according to Vygotsky's theory. What do you think her class would look like?

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3) Define the terms:

a) Zone of Proximal Development

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b) Scaffolding

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14.6 SUMMING UP

According to Vygotsky, both physical manipulation of objects and social interactions with more knowledgeable persons are important for knowledge acquisition by children. The central idea of Vygotsky's theory is that culture influences cognition and it is transmitted through social interactions and that is why his theory is referred to as the socio-cultural theory of cognitive development.

Four basic principles underlying the Vygotskian framework are:

1) Children construct knowledge through social interaction.
2) Development cannot be separated from its social context.
3) Language plays a central role in mental development.
4) Learning can lead to development.

Vygotsky believed that learning leads to development. It is important to note here that this is different from Piaget's view that a certain level of development is required before learning can take place. Vygotsky argued that if we insist that development must come first before learning, then we may not teach several concepts to the children at all and also may present concepts that children already know or those which are very simple and uninteresting for them.

According to Vygotsky, we have to continuously assess the child's developmental level and teach concepts which are just a little in advance of her developmental level. These will be tasks which the child is just ready to

learn – neither too difficult to be frustrating for her, nor too simple that she gets bored. When the child learns these tasks or understands these concepts, it leads to learning, which in turn advances the child developmental level further. The implication of this relationship between learning and development for teaching has been explained by Vygotsky by using the concepts of zone of proximal development and scaffolding. Understanding these concepts will help the teachers to get an idea about how to plan their teaching activities.

According to Vygotsky, play helps in advancing cognitive developmental level of children by helping the child to move through the zone of proximal development i.e. from lower actual developmental level to higher level of potential development. Play also helps children to practise self-regulation and master their own behaviour. Play is essential for overall development of children.

14.7 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1) a) Watson
   b) Skinner
   c) Bandura
   d) Piaget
   e) Vygotsky

2) Vygotsky believed that children do not construct all of their knowledge on their own but acquire much knowledge from their culture. He also emphasized that both physical manipulation of objects and social interactions with more knowledgeable persons are important for knowledge acquisition by children. Therefore his theory is referred to as socio-cultural theory. The following are the four basic principles underlying the Vygotskian framework:

   a) Children construct knowledge through social interaction.
   b) Development cannot be separated from its social context.
   c) Language plays a central role in mental development.
   d) Learning can lead to development.

   Read Sub-section 14.3.2 to learn more.

Check Your Progress Exercise 2

1) Yes we agree that play is very important for children's development. According to Vygotsky, play serves two important purposes.

   i) Play creates the Zone of proximal development
   ii) Play helps children in self-regulation.

   Read more in Section 14.5

2) If the teacher believes in Vygotsky's theory she cannot teach just any concept to any child. She has to teach according to the child's readiness to learn a concept and advance the child's cognitive developmental level further. The first step would be to identify a task that the child can learn to master but which is presently difficult for the child to do independently and which she does with help presently. This means identifying the child's zone of proximal development. She will have to provide external support for learning new knowledge/skill within Zone of Proximal development and would have to scaffold, that is gradually withdrawing the support as the child learns.

   Read more in Sub-section 14.4.2

3) The **Zone of Proximal Development** is defined as the distance between what the child can do independently (actual developmental level) and what the child can do with assistance from adults or more expert peers (Level of potential development).

   The process of providing external temporary support to the children so that they may learn knowledge/tasks within their Zone of Proximal development and then gradually withdrawing the support as the child learns is referred to as '**Scaffolding'.**