

DOI: <https://doi.org/10.36719/2706-6185/50/98-111>

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## **The Learning Situation According to the Constructivist Theory and the Social Constructivist Theory in the Curricula of the Second Generation for Primary Education (From Conception to Application)**

### **Abstract**

The awareness of the teacher regarding the psychological and theoretical references adopted by the second-generation curricula in primary education is considered a fundamental prerequisite for achieving effectiveness in pedagogical practices in all their various forms. And if cognitive constructivism, as articulated by Jean Piaget, and social constructivism, as established by Lev Vygotsky, constitute the most prominent theoretical references for these curricula, then translating their conceptions and assumptions into classroom instructional practices remains an essential and necessary requirement in the planning, execution, and assessment of learning processes.

Educational activities are presented within the classroom through specific learning situations characterized by a particular distinctiveness, whether during the phase of constructing knowledge and concepts or during the phase of application and training. And in order to make the educational process more suitable and effective, it is essential that the teacher adheres to a set of pedagogical principles upon which both types of constructivism are based. This is in addition to being guided by the pedagogical directives that are adopted in the different stages of learning across all subjects and other educational activities.

From this standpoint, this paper aims to clarify the possible ways of implementing the conceptions of both the constructivist school and the social constructivist school into classroom practices, in light of what is proposed by the second-generation curricula for primary education in Algeria.

**Keywords:** *learning situation, constructivism according to Piaget, social constructivism according to Vygotsky, second-generation curricula for primary education*

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## **Konstruktivist nəzəriyyəyə görə öyrənmə vəziyyəti və ikinci nəsil kurikulumlarında sosial konstruktivist nəzəriyyə: ibtidai təhsil (konsepsiyadan tətbiqə qədər)**

### **Xülasə**

İbtidai təhsildə ikinci nəsil kurikulumlarının qəbul etdiyi psixoloji və nəzəri istinadlarla bağlı müəllimin məlumatlı olması pedaqoji təcrübələrin bütün müxtəlif formalarında səmərəliliyə nail olmaq üçün əsas şərt hesab olunur. Əgər Jean Piaget tərəfindən ifadə edildiyi kimi koqnitiv konstruktivizm və Lev Vygotsky tərəfindən qurulan sosial konstruktivizm bu kurikulumlar üçün ən görkəmli nəzəri istinadları təşkil edirsə, onların konsepsiya və fərziyyələrinin sinifdə tədris praktikasına çevrilməsi öyrənmə, planlaşdırma, qiymətləndirmə və icra proseslərində vacib və zəruri tələb olaraq qalır.

Tədris fəaliyyətləri, istər bilik və anlayışların qurulması mərhələsində, istərsə də tətbiq və təlim mərhələsində xüsusi fərqləndiriciliyi ilə xarakterizə olunan xüsusi təlim vəziyyətləri vasitəsilə sinif daxilində təqdim olunur. Tədris prosesini daha münasib və effektiv etmək üçün müəllimin hər iki konstruktivizm növünün əsaslandığı bir sıra pedaqoji prinsiplərə riayət etməsi vacibdir. Bu, bütün fənlər və digər təhsil fəaliyyətləri üzrə təlimin müxtəlif mərhələlərində qəbul edilən pedaqoji direktivləri rəhbər tutmaqla yanaşdır.

Bu nöqtəyi-nəzərdən, bu məqalə Əlcəzairdə ibtidai təhsil üçün ikinci nəsil kurikulumlar tərəfindən təklif olunanlar işığında həm konstruktivist məktəb, həm də sosial konstruktivist məktəbin konsepsiyalarının sinif praktikasında həyata keçirilməsinin mümkün yollarını aydınlaşdırmaq məqsədi daşıyır.

***Açar sözlər:** öyrənmə vəziyyəti, Piagetə görə konstruktivizm, Vygotsky-yə görə sosial konstruktivizm, ibtidai təhsil üçün ikinci nəsil kurikulumları*

## Introduction

The learning process is considered the central axis in any educational system and in curricular frameworks—especially those that adopt the best pedagogical approaches capable of enabling all educational practitioners to acquire the maximum possible teaching skills, with the aim of qualitatively improving learning outcomes.

Numerous educational studies in the field of the teaching-learning process have confirmed that the current reality of education tends to prioritize the logic of subject matter at the expense of the logic of the learner. This is evident in how insufficient attention is paid to the learner in terms of their interests, talents, and capacities, as well as in the ineffectiveness of the means employed in assessing them objectively.

And despite the ongoing reforms undertaken by the educational system in Algeria, it has become necessary to evaluate its teaching curricula in terms of the extent to which they are applied in classroom settings—as both a theoretical conception and a strategic approach.

## Research

The starting point for this evaluation lies in the attempt to create a new awareness among teachers of the need to possess knowledge of the psychological and theoretical references adopted by the second-generation curricula for primary education, and how these references relate to the various pedagogical practices in all their different forms and models.

And if the constructivism of "Piaget" and the constructivism of "Vygotsky" constitute this theoretical framework, then it is fitting that their conceptions and assumptions be translated into learning actions within educational activities.

Instructional activities are presented in the classroom in the form of a learning situation that possesses distinct characteristics—whether during the stage of constructing knowledge and concepts, or during the stage of application and practical implementation.

In order for the teacher to make their lessons more appropriate and effective, they must adhere to several fundamental principles that both forms of constructivism are built upon, in addition to the pedagogical guidelines proposed by those theories across the various stages of learning.

## First: Definition of Concepts and Terminology

### 1. Definition of the Learning Situation

It is every “problem that represents a challenge for the learner and enables him to engage in an active and constructive educational process, to receive information, and to discover rules of solution that are coherent and reasonable, elevating the learner to a better cognitive level.” It may be considered as a lesson through which learners acquire knowledge and concepts derived from the content of a certain subject at a particular level, in such a way that this situation is predominantly characterized by the learner’s interaction with knowledge, and also his interaction with the teacher and peers, if the situation calls for it. (Al-Wanass, 2016, p. 89)

### 2. Definition of the Second-Generation Curricula for Primary Education

The second-generation curricula in primary education are defined as curricula that have adopted the competency-based approach as a pedagogical framework and an instructional strategy. They

have been officially implemented in Algerian primary schools since 2016, within a broad initiative aiming to reform the educational system. (National Center for Curriculum Design, 2015, p. 4)

### **3. Definition of Constructivism**

The term “constructivism” is relatively recent; therefore, there is no single, fixed, and comprehensive definition for constructivist theory, with all it comprises of concepts, meanings, and psychological processes. However, constructivist theorists have attempted to define it as “a philosophy centered around the learner, assuming that learners need to construct their own understanding upon new ideas,” or as “a reception process that involves the learner's reconstruction of new meanings within the framework of their prior knowledge, previous experiences, and the learning environment.”

Constructivist theory is also defined as “a dynamic interaction process between three fundamental components within the educational situation: the learner’s prior experiences, the educational situations presented to him, and the environmental context within which learning occurs — all aiming to construct cognitive structures that are more comprehensive and general than previous knowledge, and that can later be utilized to face new situations.” (Ashour, 2005, p. 41)

Wheatley (1991) defines it as a theory of learning that refers to the adaptations that occur within the individual's functional cognitive systems in order to accommodate the contradictions arising from their interaction with the empirical world.

It is also defined as a philosophical orientation which assumes that learning happens internally within the learner, as the learner is the one who builds knowledge through reshaping his intellectual and cognitive structure.

### **4. Definition of Social Constructivism**

It is defined by Zaytoun as “a social process in which students interact with things and events through their senses, which help them to connect prior knowledge with present knowledge, including beliefs and ideas — since it is impossible to separate a person’s thoughts from the surrounding social components.”

In the framework of social constructivism, learning is viewed as “a process in which the internal knowledge of the learner is modified in response to the disturbances caused by both social and personal interaction. Learning is affected by others, and social interaction plays an important role in reconstructing knowledge based on experiences.” (Driver et al., 1994, p. 7)

## **Second: Contributions of Constructivism to Learning in Terms of Theoretical Conception and Practical Application in the Second-Generation Curricula for Primary Education**

### **1. From the perspective of theoretical conception:**

The constructivist theory as articulated by Jean Piaget affirms that knowledge is neither imposed nor transmitted from teacher to learner. Rather, it is the learner who constructs knowledge for themselves through their interaction with environmental stimuli that are planned by the teacher in the form of educational-learning situations or problem-based situations that include obstacles the learner is asked to overcome. This is done by linking previous learnings with the new targeted knowledge.

Instead of delivering ready-made knowledge that is stored in memory for retrieval during the exam and then forgotten, it is more effective to employ the strategy of problem-solving, which aims at stimulating the learner’s cognitive capacities and activating them to construct new concepts and learning outcomes.

### **1-1: Assumptions of the Constructivist Theory**

What has been stated by (Zaytoun and Zaytoun, 2003, pp. 32–36) regarding the two fundamental assumptions from which the constructivist conception arises can be summarized as follows:

#### **The first assumption:**

The informed or aware individual constructs knowledge based on their own experience and does not receive it passively from others. This implies that the individual is a builder of their knowledge, and that one’s knowledge is indicative of their personal experience. In other words, experience is

the fundamental determinant of this knowledge, and that concepts, ideas, and other components of the knowledge structure are not transmitted from one individual to another with the same meaning.

### **The second assumption:**

The function of cognitive processing is adaptation to the empirical world and the organization of that world — not the discovery of absolute existential truth. This means that the process of constructing knowledge is essentially a search for harmony and compatibility between one's knowledge and reality, and not a direct comparison between them.

From this, we can conclude that the constructivist theory is based on the notion that the individual builds their own knowledge through exposure to multiple experiences, which lead to the construction of internal knowledge within their mind. That is, the pattern of knowledge depends on the individual themselves and on what they already possess by way of previous experience regarding the subject.

Hence, we can consider constructivism to be among the most significant theories that help us understand and comprehend society, including its knowledge and technological aspects. This is because it embodies a strong relationship between the individual and society, and it seeks to adapt the individual to the environment in which they live. It also cultivates within the individual a spirit of belonging to this society, as the individual feels that they are an integral part of this environment and must always strive for its stability by solving problems through the employment of various concepts and types of knowledge.

### **1-2: The Learning Cycle as a Teaching Model Based on Piaget's Theory**

It is a teaching model directly derived from Piaget's model of mental functions and consists of three stages:

#### **Exploration or Data Collection (Exploration):**

This stage begins with the direct interaction of learners with new experiences that provoke questions that are difficult to answer. Through individual activities, learners begin to search for answers to their questions. They observe, interpret, experiment, predict, measure... etc. It is a stage of cognitive disequilibrium during which the learner seeks to acquire experience with the concept in order to resolve contradictions and answer questions through mental representation. In this stage, the role focuses on the learner, while the role of the teacher is limited to guidance, assistance, and encouragement as learners engage in these activities.

#### **Concept Introduction Stage:**

In this stage, the role of the teacher becomes more traditional, gathering information from the learners based on what they discovered during the exploration stage in order to arrive at the new concept. The teacher also provides additional information and specific terminology, while the learners engage intellectually and socially with the teacher to achieve equilibrium and compatibility.

#### **Concept Application and Expansion Stage:**

At this stage, the information and concepts previously acquired by the learners are applied in new contexts. The focus again returns to the learner, who generalizes what has been learned and emphasizes the transfer of learning to new situations (organization). This leads to new questions emerging for the learner, which propels them into a new learning cycle. (Abd al-Karim, 2000, pp. 2014–2015)

### **1-3: Constructivist Learning**

Learning, according to the constructivist theory, rests on the assumption that learners develop their understanding by making cognitive efforts to understand their prior experiences within the framework of learning a new concept—through clarifications, clear explanations, and assistance in discovery.

Constructivist learning is considered one of the key theoretical components in the teaching and learning of various subjects. At its core lies the notion that learners generate their own understanding of the activity while also assimilating and comprehending the ideas of others.

The generation of new ideas is stimulated through problem situations that create cognitive disequilibrium as a preparation for problem-solving, which triggers mental activity and

modification of existing ideas. This occurs simultaneously with the construction of knowledge by the group interacting with the individual.

This learning and understanding based on the constructivist theory includes certain directives for constructivist learning in mathematics, among them:

- Providing learners with opportunities and motivation to generate robust mathematical ideas, and to understand their potential as thinking individuals learning mathematics. This is achieved through active engagement in initial exploration of mathematical problems, generating ideas and hypotheses, and verifying those hypotheses, as well as generalizing and proving ideas.
- Varying presentations, physical models, geometric shapes, and mathematical analogies.
- Organizing mathematical thoughts verbally with the teacher or with peers.
- Using non-routine problems that encourage the use of new ideas in diverse contexts, thereby placing understanding at increasingly complex levels.

(Martin and Deborah, 1991, pp. 309–310)

## **2. Practical Applications of Piaget's Constructivism**

Hindi (2010) points out that constructivist learning according to Piaget (1991) proceeds through four procedural stages, which are as follows (Hindi, 2010, p. 85):

### **The Invitation or Engagement Stage:**

In this stage, the learner is invited to begin the learning process by being engaged cognitively with the phenomenon or the problem under investigation. This is done by stimulating their mental capacities, encouraging them to observe and inquire, thereby initiating scientific inquiry on the one hand, and revealing the learners' prior knowledge on the other—knowledge which may later pose a barrier if it remains unaddressed. Thus, the aim here is to assess pre-existing cognitive structures in order to identify potential misconceptions that could hinder subsequent learning.

### **The Discovery Stage:**

This stage relies on the principle of learner interaction with the materials and educational tools provided to them. Learners are expected to observe and experiment with these resources in order to discover the information, ideas, and concepts related to the subject or learning activity. During this phase, learners develop their manual skills, engage in group discussions, or work collaboratively in small learning groups. They are given opportunities to test hypotheses, explore possible alternatives to their inquiries, respond to both teacher and peer questions, and document their observations and insights.

### **The Explanation or Clarification Stage:**

Here, the teacher encourages learners to interpret and express concepts using their own words and mental frameworks. At the same time, learners are encouraged to seek clarification from the teacher regarding the accuracy of their interpretations. Eventually, the teacher provides the scientifically accurate explanation, which originates primarily from the learners' own efforts and intellectual investments. In this stage, the teacher also addresses and corrects learners' misconceptions that were identified during the earlier stages.

### **The Expansion Stage:**

At this stage, the teacher assists learners in organizing the knowledge and experiences they have acquired and connecting them with prior knowledge. This also includes identifying new applications for what they have learned by engaging them in situations that are either non-school related or embedded in real-life contexts relevant to the learners' lived experiences.

The fifth and final stage is the Assessment Stage, which includes helping learners summarize the relationships among the concepts addressed in the previous stages. This may include graphical representations, the development of concept maps, and the formulation of questions that target the higher levels of Bloom's taxonomy. Such tasks enable learners to conduct analyses and make informed judgments about their knowledge.

The teacher must define in advance the desired or targeted learning outcomes in order to facilitate the assessment process and to select assessment situations that will reveal learners' achievements. These outcomes will also help the teacher to make sound pedagogical decisions and judgments regarding instruction and progress.

### **Third: Contributions of Social Constructivism to Learning in Terms of Theoretical Conception and Practical Application in the Second-Generation Curricula for Primary Education**

#### **1. From the perspective of theoretical conception:**

Social constructivism is a theoretical framework that assigns great importance to language as a tool for transmitting experience and developing the learner's central zone of potential. It draws primarily on the learner's daily social experiences. This theory seeks to integrate social culture into school-based education.

The theory is embodied in what is known as the *Generative Learning Model*, which emphasizes the impact of non-cognitive (social) factors in the learning process and the development of teaching strategies that are employed in real classroom contexts. It also focuses on constructing meaning through social negotiation (Shepardson, 1997, p. 873).

#### **1-1. Assumptions and Foundations of the Social Constructivist Theory of Learning:**

Vygotsky was one of the earliest researchers to emphasize that a child's interaction with others—especially adults—plays a fundamental role in shaping their mental structure and in determining how this structure operates. He held that higher mental functions are gradually formed through a series of social interactions.

This conception is based on the premise that the conditions and mechanisms of cognitive development are not found within the individual but rather in their sociocultural environment. Development is achieved through the individual's participation in various socio-cultural activities and through the use of tools and instruments provided by the cultural environment. This is the central thesis that Vygotsky advocated.

On the methodological level, he regarded **social activity** as the basic unit of analysis. (Vygotsky, 1978, pp. 56–57)

Followers of Vygotsky distinguish between three levels in social activities:

- **The formal level**, where the patterned, systemic nature of behavior is governed by a dynamic structure that evolves and changes over time. The function of this structure is to guide the individual's behavior. An example of this would be the way educational activities are organized. The specific organization of these activities shapes the individual's view of learning and performance and defines the degree of personal responsibility attributed to them. This level represents the sociocultural framework in which the goal-directed action occurs.

- **The action level**, where the individual engages in behavior directed toward achieving a specific goal. An action differs from an activity in that it may vary while the activity remains relatively stable. A single action may also serve as a means to achieve various activities and goals.

- **The operational level**, which involves the procedures used to realize goals. While actions are associated with goals, procedures are associated with the conditions under which those goals are achieved. The term "proceduralization" refers to how an action is executed under specific circumstances. What distinguishes procedures is their variability according to the situational constraints the individual faces while striving to accomplish the same goal.

The concept of activity applies both to the individual and to the group. It is a social concept with a dual connotation. On one hand, it refers to its sociocultural content, and on the other hand, it denotes social interaction. Activity, in its first sense, forms the context that surrounds interaction.

When a child participates in a particular social activity, an interaction takes place between them and adults. These adults work to organize the interaction according to socially and culturally established patterns. The child gradually internalizes these patterns, leading to the progressive formation of higher mental functions.

"Every function in the child's cultural development appears twice: first, on the social level (as an interpsychological category), and later, on the individual level (as an intrapsychological category). This applies equally to voluntary attention, logical memory, and the formation of concepts. All higher mental functions originate from actual social interaction" (Vygotsky, 1978, p. 57).

## 1-2. Vygotsky's Experiments

Vygotsky conducted numerous experiments on children to confirm the validity of his theory. Among the most prominent of these experiments—those which clearly supported his thesis and demonstrated the inherently social nature of learning and cognitive development—were the ones that focused on the subject of memory.

He sought to prove that mediated memory, which is considered one of the higher mental functions and hence more advanced than natural memory (which does not rely on cultural tools), only appears in children who have been provided with opportunities for interaction with experienced adults.

During such interactions, children discover tools and strategies that assist them in remembering. This leads to a developmental leap, a cognitive shift from natural memory to culturally mediated memory. As a result, a child's memory capacity remains limited in the absence of interaction with those who possess high levels of knowledge and experience.

This idea holds significant implications for educators, who must understand that it is their responsibility to share their experience and knowledge with learners in meaningful and supportive ways.

Vygotsky observed that children who struggle to perform certain tasks independently often succeed in completing them when they work under adult supervision and guidance. He went so far as to assert:

“What children can do with the help of others may be more indicative of their mental development than what they can do alone” (Vygotsky, 1978, p. 85).

This is because the skills that a child is capable of executing independently are those that have already formed and matured; they are the fruit of prior development. These are what Vygotsky refers to as the child's actual developmental level.

However, identifying this level does not reveal the full extent of the child's potential for future growth. The skills that can only be achieved with the assistance of adults or more knowledgeable peers are those that are still in the process of forming and developing—skills that are in transition, moving from the external to the internal domain, and which the child is expected to internalize in the near future.

Vygotsky refers to these evolving capabilities as the zone of proximal development (ZPD), and he emphasizes that the distance between the actual developmental level and the potential developmental level constitutes the ZPD.

Thus, assessing a child's abilities should not be limited to what they can currently do on their own. Rather, it must also encompass what they can potentially achieve with support in the near future. In other words, the tasks that a learner completes today with assistance are the same tasks they will eventually perform independently.

Vygotsky repeatedly emphasized the theoretical and methodological significance of the concept of the zone of proximal development, and he called upon researchers and educators to adopt this framework in diagnosing educational challenges and in evaluating learner performance.

The importance of this concept lies in its capacity to account for both developed and developing abilities, whereas traditional evaluation methods and IQ tests only assess fully formed capabilities. These conventional techniques fail to indicate an individual's readiness for instruction, nor do they reveal their developmental potential.

Moreover, such static assessment methods cannot help us distinguish between two fundamentally different categories of learners:

- **Learning-disabled children**, who face difficulties but possess latent potential, and
- **Intellectually disabled children**, whose limitations are more profound.

The common denominator between these two groups is low performance at the actual level, yet the key distinction lies in the capacity of the learning-disabled group to benefit from instruction—something traditional assessments do not reveal.

The widespread reliance on fixed-capacity evaluation tools has led to the dominance of a belief that maturity is the primary determinant of learning, and that curriculum design should be based on learners' current developmental level.

Vygotsky opposed this belief, despite its popularity and acceptance in educational circles, warning against its negative consequences for both typically developing children and children with intellectual disabilities (Vygotsky, 1978, p. 89).

**In summary:**

Development does not occur automatically, as Piaget suggested; rather, it depends largely on the opportunities available to the individual for interaction with others and for benefiting from their experiences and support.

Vygotsky does not separate cognitive development from school learning—instead, he views them as processes that influence one another reciprocally. Just as cognitive development determines the capacity for learning, so too does learning contribute to development.

The learning process, which is necessarily open to the external world, becomes—through the internalization by the individual of the social and cultural constructs developed in their environment—a process of internal psychological growth.

Although Vygotsky distinguishes between the process of learning and the process of mental development, he strongly affirms their unity and the possibility for each to transform into the other.

The skills acquired by the individual through interaction with others are eventually integrated into the existing mental structure, giving rise to a new and more complex cognitive configuration. This new structure, in turn, enables the individual to acquire even more advanced skills.

There is, therefore, a dialectical relationship between learning and development, in which each supports and enhances the other.

Despite the richness and importance of Vygotsky's theory, it did not gain widespread acceptance in Western academic circles until relatively late. For many years, it was overshadowed by the dominance of Piaget's theory. This was due, in part, to the ideological background of Vygotsky's thought, which was rooted in Marxist philosophy.

It was not until the last two decades of the twentieth century that Western researchers began to take Vygotsky's work seriously. This led to the emergence of what is now known as the **Neo-Vygotskians**, who revisited his theory and came to regard him as one of the foundational thinkers in the field of social-cognitive psychology (Daniels, 2001, p. 4).

**2. From the perspective of practical application:**

The teaching method based on Vygotsky's theory can be defined as an approach that involves dividing learners into groups, whereby the teacher begins by stimulating the learners through oral questioning aimed at evaluating their pre-existing, spontaneous concepts and ideas.

After this initial cognitive activation, each group is asked to engage in internal negotiation to arrive at an accurate definition of the targeted concept. Following the group discussions, the teacher receives the answers from each group and proceeds to **revise or correct** them, involving all learners in the process, with the ultimate goal of achieving a shared, accurate understanding of the concept and how it may be applied in real-life situations.

**2-1: The Generative Learning Model as an Application of Vygotsky's Theory**

The **Generative Learning Model (G.L.M.)** embodies a vision of learning that aligns closely with the principles of Vygotsky's social constructivism. This model consists of four instructional stages, each playing a vital role in the progression of learning (Shepardson, 1999, p. 626):

• **The Preliminary Stage:**

In this stage, the teacher introduces the lesson through dialogic discussion and by posing stimulating questions. Students respond either orally or through written reflections in their personal journals.

Language, in this context, becomes a psychological tool for thinking, speaking, acting, and perceiving.

During this phase, students' everyday concepts become evident—concepts that they bring with them from prior experiences. These are revealed through language, writing, and classroom

activities. The focus here is on individual thinking and how students initially perceive the targeted concept.

- **The Focus Stage:**

In this stage, the teacher directs students to work in small groups, linking their everyday knowledge to the targeted academic knowledge. Students concentrate on the core concept of the lesson while being introduced to scientific terminology and encouraged to engage in peer negotiation and dialogue. This stage allows learners to experience the concept firsthand through collaboration and social exchange.

- **The Challenge Stage:**

At this point, the teacher facilitates a whole-class discussion, providing opportunities for all students to share their observations, interpretations, and insights based on their prior group work. The teacher offers appropriate instructional scaffolding and reintroduces scientific terminology, helping students to confront and reconcile any disparities between their initial understandings (formed in the preliminary stage) and their newly constructed knowledge from the learning process.

- **The Application Stage:**

Here, the acquired scientific concepts are employed as functional tools for solving problems and generating outcomes in new, real-life situations. This stage also helps learners to expand the scope of the concept, transferring it into broader and more diverse contexts.

In this study, the four stages of the model were implemented through a carefully designed instructor's guide.

We observe that this model vividly embodies Vygotsky's theoretical principles. The preliminary stage highlights the importance of identifying learners' everyday concepts as a critical gateway to formal academic knowledge, with language serving as the primary tool of thought.

The focus stage emphasizes peer collaboration and negotiation, thereby actualizing the constructivist belief in the social nature of learning and the co-construction of knowledge.

The challenge stage provides room for learner contributions, critical reflections, and alternative viewpoints in the knowledge-building process.

Lastly, the application stage fulfills the ultimate aim of all instructional theories: to empower learners with the ability to solve real-world problems and apply concepts in diverse and novel situations.

## **2-2: Generative Learning Strategies**

Generative learning is a theory that involves the active integration of new ideas with the learner's existing schemata. The strategies of generative learning are composed of four key elements, each of which may be used independently or in connection with the others to achieve the desired learning outcomes (Ryder, 2005, p. 3):

- **Recall**

Recall refers to the retrieval of information from the learner's long-term memory. The goal of recall is to help the learner retain factual knowledge. Recall includes a variety of techniques such as repetition, practice, review, and memory reinforcement strategies.

- **Integration**

Integration is the process by which the learner incorporates new knowledge with their prior learning.

Its aim is to transform information into a format that is easier to remember. Common methods of integration include:

- **Rephrasing** content in narrative form
- **Summarizing** by retelling and accurately explaining the content
- **Generating questions** and
- **Creating analogies** that connect new ideas to familiar ones.

- **Organization**

Organization involves the learner linking their prior knowledge with both existing and new concepts in a meaningful structure. This includes techniques such as:

- Analyzing main ideas
- Summarizing content
- Categorizing information
- Clustering similar concepts
- Constructing concept maps

- **Elaboration**

Elaboration refers to the connection of new material with existing thoughts and knowledge in the learner's mind.

The objective of elaboration is to add depth to the learner's understanding of new information.

Strategies for elaboration include:

- Creating mental imagery
- Constructing elaborate sentences that integrate the new material with previously stored ideas

The construction of knowledge depends on the learner's active cognitive processing of concepts, which leads to comprehension through generative processing. This processing entails linking new information with prior knowledge in order to construct more refined and integrated cognitive structures.

Such structures are essential for:

- Translating new information
- Solving problems
- Promoting deep understanding

A generative learner is distinguished by the depth of processing applied to information. In fact, material is remembered more effectively when it is generated by the learner through active mental work than when it is presented to them in a prepackaged or abstract form.

(Jonassen, Mayes, et al., 1993, p. 14)

Among the distinctive features of generative learning, as noted by Griff (2000, p. 3), is that learners actively participate in the learning process. They generate knowledge by forming mental connections between concepts.

When students analyze new material, they integrate new ideas with their prior learning. When these ideas align, new relationships and cognitive structures are formed.

There are two types of generative activities:

1. **Activities that generate organizational relationships** between different parts of the information.

Examples include:

- Creating titles
- Formulating questions
- Stating objectives
- Writing summaries
- Designing diagrams
- Identifying main ideas

2. **Activities that generate integrative relationships** between what the learner hears, sees, or reads (i.e., the new information) and what they already know.

Examples include:

- Rephrasing
- Drawing analogies
- Making inferences
- Providing explanations
- Creating applications

The key difference between the two types is that the second type processes educational content at a deeper level, leading to higher levels of comprehension.

Generative learning is thus a dynamic process, one in which the learner constructs links between new knowledge and existing knowledge, or determines the extent to which new ideas align with their existing cognitive framework.

At the heart of the generative learning model, as Wittrock (1989, p. 348) explains, lies the belief that the mind or brain is not a passive consumer of information. Rather, it actively constructs its own interpretations based on stored information and forms inferences from it.

The teacher’s role, therefore, is to assist learners in generating these connections—helping them link new ideas to one another and to their prior knowledge. The teacher becomes a facilitator, directing learners to form those essential mental associations.

Thus, instruction shifts from the mere transmission of information to the facilitation of knowledge construction (Seifert, 1995, p. 3).

From this perspective, the focus of the educational process moves away from the teacher and towards the learner, who becomes the central agent of meaning-making.

This expanded understanding of generative learning provides a comprehensive foundation for the effective implementation of the model in educational settings.

**Fourth: Points of Comparison between Piaget’s Theory and Vygotsky’s Theory**

The following is a summary of the major points of difference between Jean Piaget’s constructivist theory and Lev Vygotsky’s social constructivist theory, presented in the form of a comparative table that highlights key distinctions between the two perspectives:

Aspect of Comparison	Piaget’s Theory	Vygotsky’s Theory
<b>Theoretical Foundation</b>	An epistemologist concerned with the origins of knowledge. His central focus lies in the internal cognitive processes of the individual in knowledge construction (i.e., cognitive constructivism). Central concepts include equilibrium and disequilibrium.	A Russian psychologist interested in the origins of consciousness and awareness. His focus lies in the interpersonal, socially structured processes that enhance learning through social interaction (i.e., social constructivism). Central concept: zone of proximal development.
<b>Cognitive Development and Its Influencing Factors</b>	The driving force behind cognitive development is internal. Piaget attributes cognitive growth to a biological perspective, seeking internal databases within the individual for knowledge construction. • Maturation is considered a major factor in cognitive development, and thinking is affected by it. • He acknowledged that social and linguistic factors could contribute to development and stage transition, but only if the necessary cognitive structures were already in place. Concepts evolve independently in the learner’s mind without direct external intervention.	The driving force behind cognitive development is external, and Vygotsky rejects biological determinism. He emphasizes the role of culture and society as the primary agents in constructing knowledge. • Social interaction is the primary factor in cognitive development. • He rejects Piaget’s claim that thinking is mainly shaped by maturation. • Language and social interaction are central to knowledge construction, with knowledge being collaboratively built and shaped by cultural tools.

<p><b>The Role of the Teacher</b></p>	<p>The teacher's role is to facilitate student activity during learning tasks.</p> <ul style="list-style-type: none"> <li>• Guides students' thinking after they explore a concept.</li> <li>• Helps learners enter a state of cognitive disequilibrium through questioning or presenting problems, encouraging them to use hands-on tools to reach solutions.</li> <li>• Promotes open-ended activities.</li> </ul>	<p>Vygotsky assigns great importance to teachers, parents, and the broader social environment.</p> <ul style="list-style-type: none"> <li>• He values both informal education from parents/peers and formal education in schools.</li> <li>• The teacher acts as a social guide and participant, organizing classroom activities, encouraging small-group collaboration, and facilitating students' progress.</li> <li>• Promotes open-ended exploratory activities as well.</li> </ul>
<p><b>The Learner</b></p>	<p>Early speech in children is egocentric.</p> <ul style="list-style-type: none"> <li>• The learner's internal mental structure enables adaptation and the construction of new knowledge.</li> <li>• For a learner to receive new knowledge, there must be a pre-existing cognitive structure to accommodate it; for example, advanced concepts cannot be taught to a five-year-old lacking the necessary mental schema.</li> <li>• The learner behaves like a young scientist, exploring their environment.</li> <li>• Learner performance is evaluated subjectively.</li> </ul>	<p>Early speech in children is social, later becoming egocentric, and then internal speech (i.e., thought).</p> <ul style="list-style-type: none"> <li>• The learner's inner personality allows for collaborative thinking, problem-solving, and decision-making, leading to new knowledge.</li> <li>• The learner can receive knowledge through language or direct instruction from a more knowledgeable person, provided they are cognitively ready.</li> <li>• True learning is seen in the difference between what the learner can do alone and what they can achieve with guidance (zone of proximal development).</li> </ul>
<p><b>Misconceptions and Preconceptions</b></p>	<p>Focuses on correcting learners' misconceptions in the presence of an expert teacher.</p> <ul style="list-style-type: none"> <li>• Challenges students' preconceived notions about reality.</li> <li>• Uses cognitive conflict or contradictory events to create disequilibrium and foster new understanding.</li> </ul>	<p>Emphasizes the importance of learners' daily concepts and lived experiences as familiar entry points for meaningful engagement.</p> <ul style="list-style-type: none"> <li>• Teachers work cooperatively with students to generate new meanings.</li> <li>• Encourages recognition and adaptation to students' misconceptions.</li> </ul>
<p><b>Learning Activities</b></p>	<p>Real learning occurs through genuine experiences that involve:</p> <ul style="list-style-type: none"> <li>• Representing knowledge</li> <li>• Developing new mental schemata</li> <li>• Adapting cognitive structures to new experiences</li> <li>• Reflecting on material and society</li> </ul>	<p>Genuine learning arises through creative engagement, both physical and social:</p> <ul style="list-style-type: none"> <li>• Understanding reality (i.e., culture)</li> <li>• Open-ended inquiry with peers and the teacher</li> <li>• Deep reflection on knowledge construction through collaboration</li> </ul>

(Adapted from: Abd al-Karim Gharib, 2000, pp. 224–226)

Despite these clear differences between the theories of Piaget and Vygotsky, they do **converge** on several essential points:

- Both Piaget and Vygotsky were born in the same year: 1896.
- Both theorists believe that the learner constructs knowledge through understanding.
- They agree that knowledge construction is an active process.
- Both affirm that the key to learning lies in the learner's active engagement in the process.

### Conclusion

In conclusion, it is important to point out that educational curricula in Algeria—particularly at the level of **primary education**—clearly rely on the theoretical foundations of both **cognitive constructivism**, as developed by **Jean Piaget**, and **social constructivism**, as developed by **Lev Vygotsky**. This reliance is reflected in the adopted teaching methods and in the organization of classroom activities.

Nevertheless, the **implementation** of this educational vision faces a number of **practical challenges**, most notably the **insufficient theoretical and practical training** among some teachers. This lack of preparation makes it difficult for them to **translate theoretical principles into effective instructional practices** within the classroom.

In this context, constructivist theory emphasizes two **distinct principles**:

- The **first**, as formulated by Piaget, focuses on the learner's **interaction with the natural environment** as the primary driver of cognitive development. In his view, **social interaction and language** play only a **secondary role** in this process.

- The **second**, according to Vygotsky, holds that cognitive development occurs primarily through **social interaction**, with **language functioning as a central cultural tool** for thought and the construction of knowledge.

Constructivists broadly agree that exploring learners' **personal experiences** is a **necessary entry point** for building scientific understanding within the classroom. This foundation of understanding is what enables **learning to be internalized, consolidated and developed** over time.

### References

1. Abd Al-Karim, N. (2000). *Modern teaching strategies in education* (1st ed.). Amman: Dar Al-Fikr for Printing and Publishing.
2. Al-Fatlawi, S. (2003). *Teaching competencies* (1st ed.). Amman: Dar Al-Shorouk.
3. Al-Laqqani, A., & Muhammad, F. (1999). *Environmental education: A duty and a responsibility* (1st ed.).
4. Al-Wanass, A. H. (2016). *Modern pedagogy: From objective-based instruction to competency-based instruction*. Algiers: Dar Al-Wa'i.
5. Ashour, H. (2005). *Constructivist theory and its educational applications*. Cairo: Dar Al-Fikr Al-'Arabi.
6. Daniels, H. (2001). *Vygotsky and pedagogy*. London: Routledge.
7. Driver, R., Asoko, H., Leach, J., Mortimer, E., & Scott, P. (1994). Constructing scientific knowledge in the classroom. *Educational Researcher*, 23(7), 5–12.
8. Gharib, A. K. (2000). *Constructivism and science learning*. Beirut: Dar Al-Kitab Al-Jami'i.
9. Griff, S. J. Mc. (2000). Using written summaries as a generative learning strategy to increase comprehension of science text. College of Education, The Pennsylvania State University.
10. Hindi, M. S. (2010). *Constructivist theory and its application in education*. Cairo: Dar Al-Fikr Al-'Arabi.
11. Jonassen, D. H., Mayes, T., & McAleese, R. (1993). A manifesto for a constructivist approach to uses of technology in higher education. In T. M. Duffy, J. Lowyck, & D. H. Jonassen (Eds.), *Designing environments for constructive learning*, 231–247. Berlin: Springer.
12. Martin, W. G., & Deborah, S. (1991). Problem solving: It's not just solving word problems. *Arithmetic Teacher*, 39(1), 309–310.
13. National Center for Curriculum. (2015). *Framework of the pedagogical curriculum for primary education: Second-generation curricula*. Algeria: Ministry of National Education.

14. Ryder, M. (2005). *Instructional design models*. University of Colorado at Denver, School of Education.
15. Seifert, T. (1995). *Human learning and motivation: Readings* (1st ed.). St. John's: Memorial University.
16. Shepardson, D. P. (1999). Learning science in a first-grade science activity: A Vygotskian perspective. *Science Education*, 83(5), 621–638.
17. Vygotsky, L. S. (1978). Interaction between learning and development (M. Lopez-Morillas, Trans.). In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.), *Mind in society: The development of higher psychological processes*, 79–91. Cambridge, MA: Harvard University Press.
18. Wheatley, G. H. (1991). Constructivist perspectives on science and mathematics learning. *Science Education*, 75(1), 9–21.
19. Wittrock, M. (1989). Generative processes of comprehension. *Educational Psychologist*, 24, 345–376.
20. Zaytoun, H., & Zaytoun, K. (1992). *Constructivism: An epistemological and educational perspective*. Alexandria: Dar Al-Ma'arif.
21. Zaytoun, H., & Zaytoun, K. (2003). *Learning and teaching from the perspective of constructivist theory* (1st ed.). Cairo: 'Alam Al-Kutub.

Received: 21.04.2025

Accepted: 05.08.2025