Chapter 61

The learning process: key phases and elements

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ABSTRACT
This article is a commented analysis that seeks to present, point out, and discuss the main features of the stages of the learning process that occurs gradually in an interconnected way: motivation, interest, attention, acquisition, understanding, assimilation, application, transference, and evaluation. It presents some own arguments, as well as others at every stage. The document is particularly aimed at those who in one way or another perform everyday teaching activities at different educational levels.

Keywords: formal learning, learning process, learning phases, acquisition of knowledge, behavior change, learning evaluation.

1 INTRODUCTION

The human being lives in one way or another the learning experience throughout his life. In such an experience, a series of internal and external factors converge that accelerate or hinder it. All learning always constitutes a complex process, which is finally expressed in behavior modification.

For every teacher, knowledge of the different stages of learning as a process is of paramount importance. This makes it easier for teachers to achieve optimal learning for their students.

All formative work in an educational institution is ultimately based on helping the student to be constantly formed, completed, and perfected. This has been a process that has deserved a deeply philosophical, anthropological, psychological, and educational reflection (Yánez, 2016). But perhaps the clearest thing about all this reflection is that the human being is not a finished, prefabricated being who develops a simple genetic code during his life, but rather, on the contrary, his wealth consists in being able to build himself. Intellectually according to his experiences with the environment that surrounds him, which constantly require him to remain flexible to changes and dynamically propose and do things to obtain a way of life that allows him to develop internally.

This self-construction is based primarily on the adequate development of the learning process in different daily circumstances, in a world that interacts with the human being, and both condition each other.

In the development of this complex process, different phases can be distinguished, and closely linked to each other, so much so that it is sometimes difficult to locate the limits between one and the next; An adequate development of the process comprises at least nine: motivation, interest, attention, acquisition, understanding-interiorization, assimilation, application, transfer, evaluation (Pozo and Monereo, 1999).

2 PHASES AND FUNDAMENTAL ELEMENTS

2.1 THE MOTIVATION

It constitutes a fundamental and primal requirement that triggers learning. The desire to learn, individual needs, and prospects drive the individual to learn faster and more effectively.

Some thinkers such as Maslow (1991) consider motivation as a state of impulse, in which motives are manifested to reduce tension caused by a need. the stronger the tension, the more intense the motivation tends to be.

Motivation is usually an individual process and is felt by each human being according to his personal history. Given this situation, a facilitator (teacher) can very well provoke or maximize such a need in his disciple through the use of appropriate pedagogical strategies.

It is relatively easy to verify that each human being has different motivations that can be influenced by different factors, one of which is the maturity to capture new information, which a subject has. Some researchers even associate the presence of different types of motivation considering the different types of thinking present in individuals (Yánez, 2018).

Different investigations have shown that the motivation for a certain activity is greater the more intensely the expected success of the such activity is anticipated. Understanding "success" to the reduction of the tension created by needs or the total satisfaction of the need in question (Sperling, 1972; Maslow, 1991). From this can be deduced the negative effect that false anticipation can have on motivation; For example, if some students expect a lot from a certain activity and are motivated towards it (by the teacher's action), but when they see the results they corroborate that the level of success did not respond to what they expected, in the end, they are so disappointed that henceforth they will avoid forming motivational pictures for themselves regarding this topic.

Consequently, the qualitative and quantitative anticipation of success must be as realistic as possible and confirmed by the corresponding experience of success, otherwise, it will generate a noticeable decrease in the pleasure that a student can feel during motivation. Thus, the teacher should not try to achieve in any way an intense motivation for the study by excessively accentuating the prospects of success, because then the harmful effect of the experiences of failure on the motor can cause a dangerous distaste for the study and a general weakening of motivation. However, the teacher can markedly intensify the student's pleasure in motivation through his reaction to his students' efforts to learn, expressing, for example, his joy and/or admiration for such efforts.

Therefore, the intensity of motivation increases with experiences of success and weakens with experiences of failure. However, we must take into account that failures can also occur, but that they must be carried out in such a way that the student feels a strong expectation to overcome them, which would also generate a continuous interest on her part...

One of the stimulating factors that the student can experience during learning is the constant support of her teacher to help him through different difficulties in the process. Frequently, the student obtains greater satisfaction in overcoming a difficulty than in avoiding it; In self-confident students this activity is pleasant.

On the other hand, in the case of students with a past of continuous failures, the motivating attitude of the teacher is essential for their recovery and future reaffirmation, stimulating them through progressively more complex activities, during which success occurs safely and thus allows a gradual and progressive vindication of the student's self-esteem. Here is the necessary and measured touch of the teacher, calibrating the level of difficulty of the different activities of the learning process in such a way that your student achieves objective and significant goals and feels constantly motivated to face new and increasingly complex future tasks.

For this reason, it is always advisable to carry out occasional tasks with increasing degrees of difficulty than before, accompanied by adequate teaching guidance, which seeks to promote constant personal and intellectual growth in the apprentice. Although in some of these activities, eventual failures could be verified, the role of educational institutions, through their teachers, would also constitute teaching to deal with failures, as part of human reality.

It is also interesting to note that motivation can be direct and objective (primary) or indirect (secondary); a motivation will be all the more favorable for learning the more objectively it is oriented and the less it depends on other people in the environment other than the learner.

Primary motivation is stronger because it seeks to cover short- and medium-term needs and secondary motivation is weaker because it focuses more on long-term needs; For example, in an average child, a primary motivation is to acquire and consume some sweet or food of her choice and a secondary one is to get a job. Even though in both activities the child needs to know the basic mathematical operations, such a boy or girl will learn them primarily rather than secondarily motivated.

The secondary motivation of "getting a job," however, can become primary for some young adults who want to learn mathematics (or English, drawing, gardening, computing, statistics, etc.) because this learning could depend on your work shortly.

Motivation for learning can be positively or negatively stimulated through different reinforcements, which constitute a pleasant or unpleasant consequence during the development of a certain activity. Positive reinforcements are verified through different gestures of admiration or interest by the teacher towards the student; negative reinforcements, on the other hand, are generally expressed through calls for attention or corrective processes; and the lack of reinforcement can be observed when the student responds and "nothing

happens", they are not rewarded in any way but they are not treated harshly either, the only unpleasant consequence being their lack of satisfaction (Beltrán, 2002).

Positive reinforcement is highly valuable as a cue that identifies correct responses and generally makes different learning activities attractive; however, it is advisable to increase positive reinforcement and rewards gradually in the process so as not to divert the student's attention, concentration, and interest in a blind and exclusive search for approval and rewards, which would ostensibly neglect their cognitive growth.

Negative reinforcement after a response that a teacher tries to eliminate has a different effect than no reinforcement. While punishment generally does not suppress a response in the situation in which it is received, a lack of reinforcement is often more effective in the permanent extinction of the response. Punishment can increase conflict and prevent clear thinking: students may become tense, disagree with the teacher, and even dislike the subject being studied.

2.2 THE INTEREST

The interest within the Learning Process expresses the intention of the subject to achieve some object or objective; For this reason, it is said that interest is closely linked to individual needs, which condition it.

Authors such as Tapia (1997) consider that stimulating a person's interest in learning allows them to better concentrate on their thoughts and intentions about a given object or situation, seeking to get to know it better and more closely.

The interest is related to the emotional sphere of the individual. This makes it manifest above all in attendance. Since interest is the expression of the general orientation of the personality, it encompasses and guides all other processes such as perception, memory, and thought (Tapia, 1997). It is here where we can perceive the intimate relationship that exists between different phases of the Learning Process.

This means that if a student works with interest, he does so more easily and more productively because all his attention and all his forces are concentrated on his work: the interest he feels drives him towards consistent activity.

The volume of interest usually also influences the development style of the individual. the concentration of interest in a single object leads to a one-sided development of the personality. The most favorable structure seems to be the one in which multiple and extensive interests are concentrated rather in a sector or domain, and this domain becomes so significant and linked to the essential aspects of human activity that a whole system of activities can revolve around this center. multifaceted and highly ramified interests (Rubinstein, 1967).

In the course of individual development, different specific interests are formed, some for children, others for adolescents, and others for adults. Certain interests, therefore, are causal factors of a formative process, and other interests may be effects or final products of the same process (Oleas, 2011).

Therefore, an adequate training process should be based on the interests of each person (according to their age and experience) to promote their training and intellectual and cognitive growth. At the same time, in the same training process, the final interests that the student develops at the end of each level of education must be taken into account and channeled little by little, in such a way that these final interests are connected as harmoniously as possible with the activities. of the higher academic level.

Therefore, it is very important that in the formal teaching-learning process the individual interests of the students are taken into account, take advantage of them as motivating elements, making them consciously contact their interests and learn to develop academic activities that cover or satisfy them. In the case of university students, for example, there must be a certain degree of freedom, observed by the teacher, that allows the development of academic topics of personal and group interest.

2.3 THE ATTENTION

All cognitive processes such as perception and thought are oriented toward objects or objectives (Boujon & Quaireau, 2004); This activity of the human being is widely favored by the development of attention and concentration frames that the individual presents to go through a certain event; therefore, attention forms a facet of the Learning Process closely linked to cognitive activities such as perception and thought.

The selective orientation of concentration and thought is the main phenomenon of attention. Attention produces an interpretation of objects and events with special clarity and precision; being able to exemplify an adequate picture of attention when the individual passes from the state of hearing to that of listening and from the state of looking to observing (Boujon and Quaireau, 2004).

Within this context, the constancy and stability of attention are fundamental. In a formal teaching context, therefore, for stable attention to be produced, which promotes a journey of thought from one subject to another in an orderly manner, the teaching topics must form a cognitive universe whose elements are linked.

In addition, the stability of attention may depend on some important factors: the peculiarity of the subject under study, its degree of difficulty, familiarity with it, its comprehensibility, the subject's stance on the subject, the strength of his interest, and the individual personality traits.

Despite the natural fragility of attention, students must maintain prolonged attention on a certain topic or matter through a deliberate effort of their will, even when the content being discussed may, at first glance, not be Offering no particular interest to the student, this exercise plays an important role for the development of voluntary attention.

Likewise, the teacher must promote the interest of his students in a cognitive object (study subject) primarily starting from involuntary attention and later on scenarios of voluntary attention created during the teaching-learning process. This can only be achieved by fully exploiting the multifaceted values of both formal teaching subjects and the individual nature of its students.

The teacher must therefore make the most of any involuntary attention to promote the development of strong voluntary attention in the future. This requires continuous work by the teacher, reinforcing the interest and motivation of their students and even achieving a certain positive emotional charge (Boujon and Quaireau, 2004). For this, it is essential that the teacher continuously offers new content linked to topics of knowledge already known with pleasant memories and experiences for their students.

2.4 THE ACQUISITION

The acquisition of knowledge is a phase of the learning process in which the student initially comes into contact with the contents of a subject. Sometimes these contents can be presented so vividly that just once they are presented, the idea is fixed.

A simple concept can chain ideas in such a way that the amount of what has to be learned is reduced and new knowledge is retained longer and applied more effectively.

It is quite likely that the student will forget a fact that conflicts with some way of thinking that inspires confidence. This means that human beings retain the facts that adapt to our basic ideas of what is true and reasonable (Ausubel, 2002).

Retention tends to be very high concerning important and useful short-term ideas, and forgetting tends to occur mainly for knowledge that is not used.

2.5 UNDERSTANDING AND INTERIORIZATION

This phase is one of the most advanced in a learning process since it involves thinking: the ability to abstract and understand concepts, as well as significant memory. Understanding is also closely related to the critical capacity of the student. As you understand the content, helps you judge it, relate it to previous content, and conceptualize the new cases presented (Díaz et al., 2011).

As mentioned, the significance of the content taught plays an important role in its greater or lesser understanding. However, it can often be difficult to judge what is meaningful to one student or another. The only sure sign of understanding, therefore, is a transfer: a correct answer or an explanation of a new situation based on previously understood knowledge, or the reconstruction of a previously given answer.

Another way to verify that a correct understanding of knowledge has occurred is when the student can apply it in an unfamiliar case or situation. This understanding is deeper when you reach a degree of theoretical-practical knowledge.

The important thing during the comprehension phase is that the general is grasped together with the particular, the singular, and the essential. Therefore, a student who has understood a topic should be able to present it in the future, not necessarily in a rigid way, but correctly and precisely.

Therefore, abstraction consists of the division or separation of a certain facet of a treated subject, of a particular quality, of a data or factor, or of a phenomenon that explains it, as long as these are essential in any way. A good understanding must also include a critical judgment on the part of the student; from this

judgment, an adequate internalization of knowledge will originate; this means that the student has come to relate to the content in a personal way, only then will the individual be able to preserve the impression of knowledge (Marzano and Pickering, 2014).

2.6 THE ASSIMILATION

It constitutes a phase of the learning process in which the positive aspects of the knowledge and experiences to which the student or apprentice was exposed are stored or kept; the individual tends to keep these aspects in the medium and long term, either because they satisfy his needs, or because they cover his interests or because he can put them into practice in his daily life.

This is how not all knowledge or fact understood is assimilated or stored in the individual, but only some are kept inside.

The assimilation of a given knowledge in an individual will fundamentally affect his subsequent behavior since his internal SELF will have been enriched by the assimilated knowledge.

In this same sense, Talizina (1988) states that: the path from ignorance to knowledge is not characterized by the substitution of some errors for others, but by the substitution of forms of existence of new knowledge that differ by degree. generalization, reduction, etc. It is therefore worth mentioning that without correct assimilation, the complete learning process would not take place, since only after having achieved it will the student show new attitudes and criteria before the experiences that are presented to him based on the knowledge that he has assimilated.

2.7 THE APPLICATION

The behavioral changes that originated in the individual (student, apprentice) throughout the previous phases, almost always tend to be strongly affirmed when they are put into practice or "applied" in new situations, but similar to the original one, and have an effective and effective effect. positive in them, spontaneously originating a state of internal satisfaction in the individual.

Sperling (1972) proposed that: in many problem situations, failure to reach an adequate solution can result in more than just a nuisance. In many situations, our very survival could depend on our ability to solve the problem that is presented to us…

From this it follows that when assimilated knowledge cannot be applied in a new situation, it could cause a feeling of frustration in the student, causing said knowledge not to be affirmed and slowly to be lost.

Consequently, the correct application of knowledge or experience to a new situation will constitute an effective guideline to observe the behavioral change in a student and to verify if the Learning Process was indeed developed adequately. Thus, when assimilated knowledge is applied in daily life by the student, it enriches him and undoubtedly allows him to expand his human field of action.

2.8 THE TRANSFERENCE

It is the effect that a learning task produces on another; For example, we teach young children the sounds and names of letters so that they can later learn to read; likewise, we teach them to handle balls in a rudimentary way, so that later this proper handling allows them to learn to play soccer or basketball (Clifford, 1981).

It is often stated that transfer and learning are practically the same things, significant learning is the linking of the new material learned with the previously assimilated: the old will always affect the new in some way (Ausubel, cited by Clifford, 1981).

However, it is more practical to consider the transfer as a stage of learning and not as the learning itself, since the integrating unification of knowledge and diverse experiences come together in it to solve a new situation or problem.

Within this context, it should be noted that not everything that is taught in basic education schools, sometimes even in the university, is applied by the individual in subsequent situations, that is, it is not transferable; For this reason, teachers at different levels must make an effort to promote the development of useful behaviors -acquired through learning- in new subsequent situations.

2.9 THE EVALUATION

It constitutes the final stage of the learning process; Whether the process is redirected, modified, or maintained at the same pace depends on the observation and interpretation of its results. It constitutes an essential phase in a true learning process.

The activities and processes of evaluation of the quality and quantity of learning are usually a habitual and necessary part of pedagogical practice.

With the advent of various ways of assessment, it has evolved considerably from basic ways of checking results of fundamental acquired skills to more complex ways of evaluating results, such as understandings, attitudes, values, special aptitudes, advanced skills, personal traits, and social and moral.

Therefore, there are many ways in which teachers can try to assess the progress of our students, from mere direct observation, through systematic observation, to standardized tests that assess the development of specific skills (Villardón, 2006).

Finally, something very important that must be emphasized is that the effectiveness of any evaluation depends directly on the moment in which it is carried out and on the means used to apply it. If the moment and the means are appropriate, undoubtedly the results of the evaluation will reflect the new behavioral reality that the student has adopted in the face of the learning process that he went through.

3 CONCLUSION

The development of formal learning implies the generally conscious fulfillment of several phases intertwined with each other, sometimes with clear limits between them, sometimes with diffuse limits: motivation, interest, attention, acquisition, comprehension, assimilation, application, transfer, and evaluation.

Full compliance with these phases often requires different levels of effort and planning on the part of teachers and students; Likewise, it is worth mentioning that these phases can be completed inside or outside the educational center, depending on the theme of one or the other learning.

The interdependence between one and another phase is usually high, within a formal learning context (schools, colleges, institutes, universities), and the achievement of good results will depend on several factors: for example, at the beginning of the process the motivation and interest have been triggered in such a way that the expectation to learn something new is strong enough for the learner to invest the necessary subsequent time and effort to do so.

This is the only way to achieve sufficient levels of attention and collaboration that allow the individual (student) to be fully involved in the process, being able to later acquire, understand and assimilate the new knowledge integrally.

The application and transfer of new knowledge are later stages of the process, which allow observing the effectiveness of the learning developed, and applying the new knowledge in contexts made up of real daily situations, necessary to face and/or solve.

Finally, the qualitative and quantitative evaluation of the learning results constitutes a phase that makes it possible to systematically observe, characterize and even, when necessary, measure the scope of these results based on a mathematical scale. The degree of the scope of these, as well as the analysis of the comprehensive learning process, carried out, will then allow feedback from the educational system and the implementation of continuous improvement actions in new learning processes in the future.

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