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The importance of learning factors in higher clinical education

Bianca Beltrán Delgado[1], Ma Lilia Adriana Juárez López[2], Blanca Delgado Galíndez[3*], Ricardo Moreno Ortega[4], Armando Hernández García[5]

[1] General Physician Anahuac Diploma in Social Responsibility, University North of Mexico, Mexico
[2] Doctorate Degree of Dental Sciences, UNAM México City, Mexico
[3] Surgeon Professor Anahuac University North of Mexico, Master's Degree in Administration Health Institutions UNAM Mexico City, Mexico
[4] Intern, General Hospital IMSS Oncology Hospital, University Health Clinic UNAM, Mexico City, Mexico
[5] Intern, General Hospital La Perla of the Health Institute of the State of Mexico, University Health Clinic UNAM, Mexico City, Mexico

Abstract
Postgraduate education has as its purpose the academic training and continuous medical education of its graduates, throughout their professional lives. The internal doctor and the resident must develop clinical and/or surgical skills, adequately manage the doctor-patient-family relationship, theoretical-practical knowledge, ethical and moral values. All this baggage of knowledge is imperative for decision-making in medical practice to solve health problems. In order to be carried out properly, it is necessary to consider and influence the learning factors that intervene in the educational process, hindering or favoring it. This article investigates and analyzes these factors and their importance in the educational process.

Keywords: learning factors, higher education, learning, academic performance

Introduction

In the health sciences, the education of postgraduate degree is placed in one of the uppermost levels of higher education; these are established by medical specialties, master's and doctoral degrees. The student who is in a postgraduate training on the clinical field, must develop competences and technical dexterity based on previous theoretical knowledge, without forgetting the human relationship, interpersonal interaction, moral values and ethical behavior which must prevail in the clinical assessment of our patients [1]. This is a phase of a superior demand for the physician on training. These factors that influence learning, are intern and extern; these can favor or hindering this process. Undoubtedly the learning factors influence each student in a different way, impacting their academic performance and achievement directly.

The progress of knowledge, types of education and learning occur in a rushed way, therefore it is understood that these processes are dynamic and consequently an evolution and transformation are formed throughout this time. With these concepts is understood that the academic learning should be continuous, voluntary, and personal and the factors that influence the apprenticeship of a human being are closely related to the characteristics and life experiences of each individual, thereby generating their own personal way of learning.

This article implements a literature review in the light of the concept analysis in order to determine, elucidate and conceptualize the different factors that significantly impact the general and particular learning on the clinical training.

Learning

Currently, the study of learning from the perspective of the student, who is the one who gives meaning and sense to the materials he/she processes and who decides what he/she has to learn, as well as how to do it, is of great importance (González, 1997, p. 6) [2]. Students who are involved in learning through the use of cognitive strategies must be associated with the use of self-regulatory strategies. They build their own cognitive, motivational, and behavioral tools to achieve effective learning (Winne, 1995; cited by Gonzales, 1997). The theory of meaningful learning is the proposal made by David P. Ausubel in 1963, in a context in which, in the face of the prevailing behaviorism, he proposed as an alternative a teaching-learning model based on discovery that privileges activism and postulates that one learns what one discovers [1]. He characterized meaningful learning as the process according to which new knowledge or information is related to the cognitive structure of the learner in a non-literal way. Thus, producing an interaction between these new contents and relevant elements present in the cognitive structure. The attribution of meaning is only possible through meaningful learning. The student learns when he learns meaningfully from what he already knows. Obviously, the student must be interested, willing and motivated, and must have a harmonious and favorable environment for this to take place. In short, it is what the student must achieve.

Learning is the process through which skills, knowledge, behaviors and values are acquired. This is the result of study, experience, instruction, reasoning and observation. González R, (1997) [2], points out that in a recent study by Bruce and Gerber (1995), according to the opinions of university professors, there are six conceptions of learning, which are based on three components: what is learning, how it is obtained and how it is demonstrated. The conceptualization obtained and described are shown in Table 1.

Tabla 1: Conceptualization ion of learning (Bruce y Gerber, 1995, p. 9)

	Concepción	Estrategias
First	Acquisition of Knowledge through the use of study skills	▪ Reading ▪ Text learning ▪ Tasks ▪ Exams ▪ Analytical capabilities
Second	Assimilation of new knowledge and ability to explain and apply it.	▪ Note taking structure of the reading. ▪ Review and answer questions ▪ Troubleshooting
Third	Development of thinking and abstraction skills	▪ Ability to argue ▪ Practical experiencie
Quarter	Development of beginner profesional skills	▪ Exercise of basic skills and assimilation of concepts ▪ Real contexts
Fifth	Change in personal attitudes, belief and behaviors,	▪ Intra and extracurricular participatory individual experiences
Sixth	Participatory pedagogical experience	▪ Learning by doing and experimenting

Own source

This study shows the conceptualization of learning from the teachers' point of view and in a specific context. The analysis of these teachers' conceptions of student learning highlights some significant differences in relation to other previous studies, particularly in relation to the first and last categories, which may be a consequence of the fact that the subjects employed in the study are teachers [2].

Clinical learning

This is the learning that takes place during clinical practice, which is conceived as a set of international guidelines that ensure that the results of a clinical trial are reliable and that patients are safe. The physician who attends patients must understand, based on his experiences, the relationship established between the degree of mastery with which the clinical method is executed, the quality and success of his care management resulting in patient satisfaction and personal professional fulfillment [3].

The essence of clinical performance is the ability to use reason to access the decisions that the physician has to make in relation to the patient. From the collection of data by means of propaedeutics, he proceeds to its semiotic analysis and to a series of deductive, inductive, analogical and abductive inferences, with which diagnostic, prognostic and therapeutic conclusions are obtained that transcend the patient [4, 5].

The teaching of clinical competence must transcend traditions, modernize the clinical teaching process, use and take advantage of technological advances and modern teaching methods (online learning, simulations, videos, etc.). [4] Teachers should always preserve ethics, humanism and professionalism, clinical learning implies the ability to make decisions despite uncertainty, technical mastery, supported by compassion and respect, consideration for the individuality of the patient, taking responsibility for their care to the limit of their own abilities.

Bloom´s taxonomy

Benjamin Bloom was an influential American psychologist and educator who made significant contributions to the Taxonomy of Educational Objectives. Taxonomy being understood as the science that deals with the principles, methods and purposes of classification, generally scientific; it is applied especially, within biology for the hierarchization systematics of the groups of animals and the plants (Oxford languages). Classification or arrangement in groups of things that have common characteristics.

Bloom´s Taxonomy is a list of objectives or levels that assess the learning process of students and is also a useful starting point for logically designing activities and exercises to achieve, meaningful, lifelong learning. At the end of the 50s, there was a psychological current in the United States headed by the Chicago school that was concerned by how to learn and assess learning. They verified that not all cognitive actions had the same complexity.

Then Bloom developed a hierarchy of educational objetives that they wanted to achieve with the students, he divided them into three áreas: cognitive, affective and psychomotor. It is in the first área that Bloom´s Taxonomy table arises (Gobierno de Canarias. Org, 20015). It is from the first level that the Table of Bloom´s Taxonomy arises, it consists of six categories (actions that can be carried out at each level). The evaluation is carried out from actions or concrete tasks of lesser to greater complexity. It is then described in Figure 1.

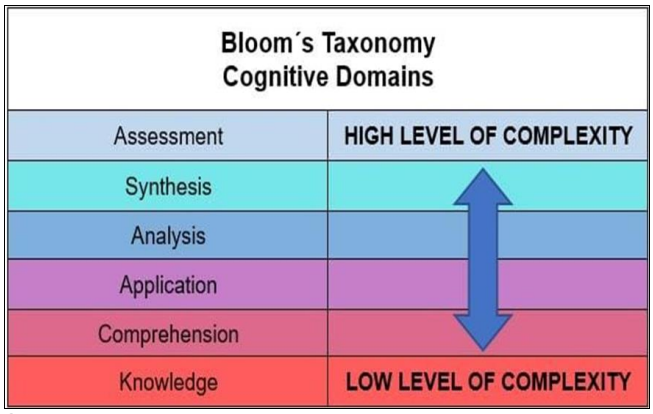

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Fig 1: Bloom´s Taxonomy levels

http://sitios.itesm.mx/va/calidadacademica/files/taxonomía.pdf

Knowledge

ability to remember specific and universal facts, methods and processes, schemes, structures, or frames of reference without elaboration of any kind, since any change already implies a higher level process.

Comprehension

the ability to understand facts, communications, actions, requires a transfer and generalizations process, which demandas a greater capacity for abstract thincking (translation, interpretation and extrapolation).

Application

It implies the number of novel elements that will have to be gathered in the task to be carried out. It requires the use of abstractions in particular and concrete situations. It is given through the solution of problems in particular and concrete situations.

Análisis
it consists of breaking down a given problem into parts and discovering the relationships between them. The solution emerges from the relationships that are discovered between the constituent elements. It implies the división of a communication into its constituent elements in such a way that the relative hierarchy of ideas appears clearly and that the relationship between them is explicity expressed.

Synthesis
it is the process of working with fragments, parts, elements, organizing them, ordering them and combining them to form a whole, a scheme or structure that was not clearly present before. It requires the coming together of the elements and the parts to form a Whole

Evaluation
it is measured through the processes of análisis and synthesis. It requieres making judgments about the value of materials and methods, according to certain purposes. It includes quantitative and qualitative judgments according to the criteria that are sugessted or assigned.

- Judgments based on internal evidence: logical accuracy, internal criteria.
- Judgments based on external criteria: selected, comparison of theories, comparison of a work with respect to norms.

Achievement and academic performance
The academic performance are the abilities or achievements that students have acquired throughout the training process, in this cases in their clinical training. It constitutes one of the main variables in education, those associated with the student and those related to the family and educational enviroment. Those a motivational order, the related with IQ and cognitive processes, as well as the methods and habits of study and the pedagogical capacities of the teacher have an influence [5, 6, 7]. When evaluating academic performance, the factor that affect it should be considered, since it is a multifactorial process.
The concept of performance contextualized in education, it is inferred that is it the relationship between the value of the contribution (intelligence, personality, motivation, interests), and the level of achievements obtained. In summary, academic performance is an indicator of the level of learning achieved by the student (Porcar, 2020, p. 16).

Learning factors
Learning factors are all those circumtances (variables) that, to a greater or lesser extent, condition the learning process, favoring or hindering it. Learning is obtained with thought operations, concentration and memory capacity, appropriate techniques and strategies. The factors that influence learning can be seen in Figure 2.

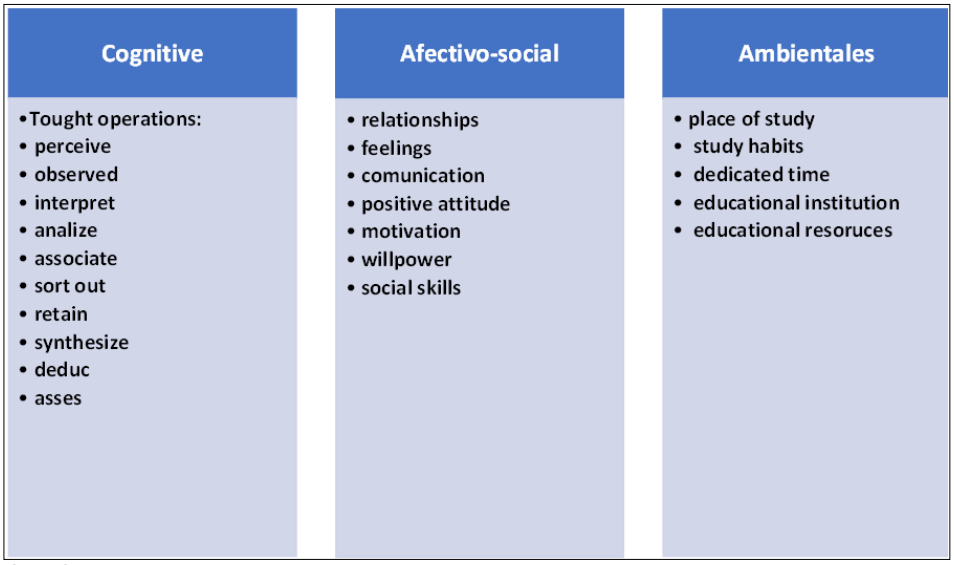

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Fig 2: Factors that influence learning

Most researches state that motivation is one of the main factors influencing academic performance. Another of the related factors is the intelligence. Ayala, Servín *et al*, citing to Goleman, state that its concept is very broad and implies the individual´s ability to successfully complete a goal. Includes the cognitive and the emotional intelligence (Martínez *et al*, 2020, p. 108) [5]. The former is made up of faculties such as attention, memory, language and abstraction while the latter includes social and emotional elements. Studying requires great effort, dedication and discipline, but also impulses generated by the expectations and motivations of the students [5].

Motivation
According Woolfolk, motivation is defined as "something that energizes and directs behavior". Thus, it becomes an active part of the student´s actions Motivation in learning. Motivation in learning must be throughout the school year. It is decisive, it requires effort and perseverance and of course it shows the evolution and the developtment of each students. The teacher must used the motivation as a learning strategy. A motivated student investigates, learns and experiments by discovery.
On the other hand, it is important to understand that there is an emotional climate that increases or decreases the ability to learn. The motivation is divided into: intrinsic and extrinsic. The intrinsic is the natural tendency to seek

personal interests and exercise abilities and skills with a view to seeking and conquering challenges. The extrinsic is the motivation that arises from external factors and is related to behaviors aimed at accomplishing the task to obtain a secondary gain.

Motivation is an important element to consider in the teaching – learning process.it is understood as the intention to produce in the student the execution conscious and desired activity [8]. Teachers, as an essential part of the teaching-learning process, need to know the level of motivation of their students, whatever the discipline they teach [8, 9]. In this way, they Will be able to participate effectively in the training intelectual and affective of the students and in the creation of profesional values, indispensable morals for the development of their profesión and to become comprehensive and to become. Teachers, due to the role they have to play, need to know the level of motivation of their students, whatever the discipline they teach to be able to intervene in the intellecual and affective formation of students, in the creation of essential professional, moral and ethical essentials for the development of their profesión and the formation of integral citizens [9]. The type of motivation of the students before a task is related to the quality of its involvement and the effective way in wich it has been oriented. The students should feel desire to do their homework to execute them [10]. The literatura consistently shows a significant effec of motivation on the learning processes. The diversity of ways of understanding motivation responds to theorical perspectives as well as to questions and intentions different. While some describe the natura of the phenomenon in general, others are specific and aplicable to the context of academic learning [11]. Finally, among the factors that affect student motivation, to be taken into account by the teacher are: the personal situation of the students, he personal situation of the student, they study activity and previous experiences.

Intelligence

For learning to be generated, the intelligence factor is important, being necessary other aptitudes such as memory, motivation or attitude to favor study and learning. The intelligence is the faculty by which the human being is capable of developing certain functions, such as adapting, assimilating, associating, producing, ordering, analyzing, understanding and general intelligence includes specific factors: spatial, verbal and emotional (pedagogycorner en Aprendizaje, 2015) [9]. Today, the theories about the development of intelligence admit that there are hereditary, psychological and environmental factors that condition it. On the other hand, the memory is the cognitive capacity that allows us to learn new information, store it and retrieve it when need it. The memory is an important factor in the teaching-learning process, since it has the ability to assimilate, fix, retain and evoke facts and concepts (learning units).

Another importan aspec is the socio-emotional problems that cause school failure even in individuals with a high intelectual level, therefore it is also necessary to consider emotional intelligence.

Goleman (1985) [12], he wonders ¿why isn´t the most intelligent student always the most successful?, ¿why some are better able than others to face setbacks, overcome obstacles and see the difficulties from a different perspective?, this is achieve with emotional intelligence, which can and should be cultivated by every by every human being. The emotional intelligence allows us to become aware of our emotions, understand the feelings of others, tolerate the pressures and frustrations that support at work, accentuate our ability to work as a team and adopt an empathetic and social attitude, which Will offer us greater possibilities of development staff. Emotional intelligence refers to a person´s ability to use emotion proactively, both their own emotions and those of others around them and both on a conscious and subconscious level, as a tool to improve reasoning and decisión making of decisions [12].

This concept has also had a huge impact in the educational field, introducing the question of emotional elements in the relationship between teacher and student and the importance that this has at the momento of cognitive learning. Both the emotional intelligence of the teacher and the student have a significant weight in the successful outcome or not of the teaching process (source: https://concepto.de<inteligencia-emocional)

Discussion

Higher education in the clinical área implies a great commitment and enormous responsibility, the clinician-professor must analyze and evaluate that this educational process in clinical practice is carried out with a rigorous methodology, since the clinical activities are carried out with patients, in real context and in an educational hospital institution. In addition, in the search for a formative ideal, the teacher must be attentive to the cultivation and application of the values that have to do with human rights and respect for life the purpose of medical work.

Academic factors such as personal, social and institutional determinants must be taken into account in educational processes, these have to do with academic performance. This is the result of different and complex factors that interviene in the students and that results in the dropout, the delay or academic success in each student, which finally leads to transparent what is learned and achieved [13]. Knowing the posible factors that frequently affect the academic performance of students is useful for predicting academic results and analyzing their incidence on educational quality, as well as a useful tool for decisión-making.

Conclusions

The factors that influence clinical higher education are of great relevance since they highlight high or low academic performance, which is a complex process with an important participation of motivational types, those related to study habits and techniques and those related to the pedagogical aspects.

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