

FACTORS THAT AFFECT LEARNING IN HEALTH SCIENCES UNIVERSITY STUDENTS

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Abstract

Meaningful learning through formal instruction depends not only on teacher's knowledge, but also on other factors like how motivated students are to learn. Considering that learning is not the same thing that getting a passing grade, the objective of this research was to determine the factors that affect Health Sciences student learning. This research was qualitative. The participant sample was composed of 180 Health Science students from the University of Malaga (Spain), enrolled in different degrees: Nursing (31%), Physiotherapy (10%) and Occupational Therapy (59%). There were 129 women (72%) and 51 men (28%) with a mean age of 21.22 years (SD=2.58). A small survey with open questions was applied as a data collection tool. To analyze the data obtained, the constant comparison method of Lincoln and Guba was followed. The main question of this research was: Which are the main factors that affect learning in Health Sciences university students? Results shows that the main categories of factors that affect learning in Health Sciences university students are: the class methodology (55%), including interactive classes; the curricular content (theme or topic) studied in class (17%); the teacher profile (13%), including implication with students; the own student profile (4%), including their intrinsic motivation; the classmates profile (4%), including the sensation of being with friends; the future expectative (4%), including the pressure to get a scholarship and; some physiological needs (3%), including been in class sleepy or hungry.

Keywords: Learning Factors, University students, Health Sciences Education.

1. INTRODUCTION

Learning is a fundamental process for humans because we born with an immature brain, therefore many of the strategies needed to survive are not innate, but learned through life itself (Sylwester, 2008). Learning can be achieved through different strategies such as experimentation, observation, and, of course, formal instruction. While life itself is a natural space for learning, formal instruction through educational institutions, is the flagship activity to acquire the knowledge necessary for a productive life. In theory, children, youth and adults attend educational institutions with the primary objective to learn, to acquire the necessary skills to cope with their life in better conditions. However, circumstantial evidence of many university professors allow them to affirm that a large percentage of college students are more concerned on approving than on learning. Getting passing grade does not necessarily reflect the same as learning. Surely, must approved students obtain the expected knowledge but probably not all of them. It is clear that society requires competent persons, people with the knowledge, skills and attitudes that enable them to run their production processes, not only graduates.

While the responsibility for ensuring the quality of graduates falls largely in educational institutions, learning by instruction is a collective activity that involved not only teachers and students, but also other actors and factors that can affect the learning in the classroom. The objective of this research was to identify the factors that favor the learning of Health Sciences students.

2. THEORICAL FRAMEWORK

From the perspective of cognitive psychology, learning is the product of the interaction between what

students already know, the information they receive and what they do while they learn. Learning is not so much the acquisition of knowledge, but the construction of meaning. What motivates learning is the search for meaning (Bruning, Schraw, Norby y Ronning, 2005).

Meanwhile, motivation is an internal state inferred, postulated to explain the variability of behavioral responses (Kandel, Schwartz, & Jessell, 2008). In education, motivation plays a critical role in the accumulation of human capital and the principle of generation of learning from more learning (Howard-Jones, Washbrook & Meadows, 2012). In this sense, motivation is crucial for the emotions that predispose encourage students to absorb as much knowledge as possible.

Some researches on education in college suggest that students' pre-college personal attributes, their academic characteristics, and their perceptions of the classroom climate, have influence on their learning, academic achievement, and persistence in college. Tapia (1997) indicates that the analysis of classroom climate is important because it is very difficult to modify the student's motivation without adequate and coherent shaping of that climate. According to Klausmeir (1961, mentioned in Ripple, 1965) there are six factors in classroom learning: learner characteristics, teacher characteristics, learner and teacher behaviors, group characteristics, physical characteristics of the behavioral setting, and outside forces. In fact, *Classroom experiences* is a term that includes teaching practices, faculty-student interaction within the classroom, peer interaction, and students' own perceptions of the classroom environment (Barr & Tagg, 1995; Cabrera, Colbeck, & Terenzini, 2001).

Meanwhile, Jimenez Soffa (2007) showed a model with six aspects that influence in *classroom experiences*: teaching practices, connected knowing, feedback, collaborative learning, self-assessment and perceptions of the classroom environment. This model state the importance of considering students' background characteristics and pre-course levels of academic self-efficacy, as important factors that affect their experiences in their courses and levels of their academic confidence to be successful in their courses.

On the other hand, Pajares (2002) suggested that classroom teachers could influence and shape the environment, and therefore are in a position to have a powerful impact on students' academic self-efficacy. Even apparently common aspects, such gender of the teacher, can influence the classroom environment, Karp and Yoels (1976) sustain that students' classroom behavior is different with a man or a woman as professor.

However, not only teachers and students have an impact on learning in class, classmates are also important. Although faculty-student interactions affect the classroom climate and student learning, peer interactions also help shape the classroom climate, especially in courses that involve group collaboration (Colbeck, Campbell & Bjorklund, 2000). Actually, Dunn and Griggs's (1995) learning-style approach identifies five stimulus areas that affect how an individual learns effectively: environmental, emotional, sociological, physiological, and psychological.

When researching about learning and teaching processes we must, at some point, face the motivational aspects of the student and what drives him/her to learn. As Tapia (2005) indicates sometimes is not that students do not learn because they are not motivated, but are not motivated because they do not learn, and do not learn because their mindset to take on things is inadequate, preventing the successful experience that is felt to be progressing. Motivation has been a very important factor in enhancing learning, so it says a numerous of theories.

The social cognitive theory of Bandura (1999) tell us that we, as human-beings, are not just knowers and performers, but also self-reactors with the ability to motivate, guide, and regulate our activities. Bandura also refers that motivation is regulated through an anticipative mechanism of forethought. By anticipating the outcomes of their actions and by learning from others and from their own mistakes and successes, people can avoid actions they have seen fail and do the ones they have seen succeed. Besides the motivation, Bandura identifies the mechanism of self-efficacy as a key element in the human action. *Academic self-efficacy* refers to a student's belief that she can successfully engage in course-specific academic tasks, including accomplishing course outcomes, demonstrating competency in skills used in the course, satisfactorily completing assignments, passing the course, and meeting the requirements to continue on in her academic major. Moreover, if you do not believe in your capacities and abilities to produce some outcome you will not have the impetus to perform or to persecute your goals. In fact, Students who report positive perceptions of classroom environment will report higher levels of academic self-efficacy than students who report negative perceptions of the classroom environment (Jimenez Soffa, 2007; Pascarella &

Terenzini, 1991).

In another hand, Maslow (1943) recognized the question of motivation for human behavior when he developed the Hierarchy of needs. Maslow (1943) divided the basic human needs in five levels according to their importance for human survival. In an order from the most important needs to the less important ones, in the first level are the physiological needs, in the second level the safety needs, in the third level the love needs, in the fourth level the esteem needs and in the fifth and last level the need for self-actualization. The physiological needs includes homeostasis aspects, it is the needs to keep you alive in the first instance, such as the need to feed, to keep hydrated, to sleep, to breath, when in lack of all needs, these are the ones the human being will try to satisfy and the others will become non-existent or just pushed to the background. When the physiological needs are somewhat satisfied the safety needs emerge, in this level there are the security of the body (health) and the family, or other aspects to secure the human resources such as a job, saving accounts, safety and protection. The third level, love needs, includes the affection and belongingness, such as friendship, relationship (between lovers), and family affection. In the next level are the esteem needs, where the human need to have to be confident, to have self-esteem and self-respect, and at the same time the esteem and respect of others. Finally, the self-actualization level arises when all of the above needs are met. This level refers to the need for self-fulfillment, to do what we can and must be, it includes aspects like creativity, morality and spontaneity. Once all the five needs are fulfilled, the person will be fully satisfied.

Regarding the cognitive aspect, Maslow refer that we have the will to know and to understand, and that after we know something we are impelled to know even more. He adds that "the cognitive capacities (perceptual, intellectual, learning) are a set of adjustive tools, which have, among other functions, that of satisfaction of our basic needs" (Maslow, 1943, p.11), therefore any deprivation of these capacities will also threaten, indirectly, the basic needs themselves.

A study carried by Glynn, Taasobshirazi and Brickman (2011), provided understandings into how science and nonscience major students conceptualize their motivation to learn science. In the study five factors of motivations were identified: intrinsic motivation, career motivation, self-determination, self-efficacy, and grade motivation. Intrinsic motivation is seen as the motivation to learn science for its own interest, the career motivation are the drives related to the future career of the student, the self-determination as the control students think they have over their apprenticeship, the self-efficacy as the confidence students' have that they can achieve well in science, and the grade motivation as the motivation to have the best grades possible (Glynn, Taasobshirazi and Brickman, 2009).

"Motivation is recognized as an important factor in Health Science education because it helps students achieve good academic performance, well-being and satisfaction, and also helps them to become good professionals" (Campos-Sánchez et al., 2014, p.2). In Health professions, the long-term goal of a professional career practice is an important component of motivation. This is related more closely with future competencies, to be used in regulated professional practice, than with knowledge and skills to be acquired in the learning process during university study (Campos-Sánchez, López-Núñez, Carriel, Martín-Piedra, Sola, & Alaminos, 2014). In this sense, Henneman and Cunningham (2005) recognized that there is a significant gap between the theoretical component taught in the classroom and the complex realities of clinical practice.

2 METHOD

This research is qualitative. According to Creswell (2008), one of the advantages of qualitative research is the ability to achieve a holistic understanding of the phenomenon under investigation. This is why it was decided to continue the naturalistic paradigm as it provides an overview of the experiences, values and beliefs of the participants. In this type of research data emerge and develop, not premeditate (Lincoln & Guba, 1985).

The participant sample was composed of 180 Health Science university students (n=180) from three different degrees: Nursing (31%), Physiotherapy (10%) and Occupational Therapy (59%). There were 129 women (72%) and 51 men (28%) with a mean age of 21.22 years (SD=2.58). Written informed consent was obtained from the students in accordance with the Helsinki Declaration (2000 modification). This study had ethics approval from the Research Ethics Committee of the Faculty of Health Sciences of the University of Malaga (Spain). A small survey with open questions was applied as a data collection tool. To analyze the data obtained, the method of constant comparison of Lincoln and Guba (1985) was followed.

Given the identified problem, the objective of this investigation was to identify the drives for learning in health sciences students. To accomplish the objective, the main questions of this research was: which are the main categories of factors that affect learning in health sciences students?

3 RESULTS

4.1. Factors that affect learning in health sciences students

Seven main categories of factors that affect learning in a college class were identified: a) Class methodology; b) professor profile; c) student profile; d) future expectative of the student; e) classmates profile; f) curricular content of matter and; g) physiological needs of the student. However, given that some other factors with less recurrence also emerged, not intended to state that all factors that affect learning in a college classroom can be accommodated only in these seven categories, but they are the most representative who met.

Results shows that the main categories of factors that enhance learning in health sciences university students are: the class methodology (55%), including interactive classes; the curricular content (17%); the professor profile (13%), including implication with students; the own student profile (4%), including their intrinsic motivation; the classmates profile (4%), including the sensation of being with friends; the future expectative (4%), including the pressure to get a scholarship and; some other factors that affect the physiological needs of the student (3%), like the class schedule. The graphical distribution can be observed on the Fig. 1.

The following describes each of the categories that emerged from the responses of the participants in the study:

- *Class methodology.* Contains issues focused on methodological aspects. Some examples are: Class participation and intercommunication teacher-student dynamic and interactive classes, linking theory and practice, have well-structured course content, study actual experiences of the teacher, using multiple resources to teach.
- *Curricular content.* Refers to the contents approached in class. Some examples of why they find a particular issue important are: useful content for their future professional practice of his profession specific subjects, issues of personal taste of student subjects from other disciplines that are associated with the race, innovative topics
- *Professor profile.* Includes all the skills, attitude and knowledge of the teacher. Examples include involvement with students, security screening explanations, enthusiasm and motivation, clear communication capability.
- *Student profile.* Refers to the characteristics that describing the student himself. Some mentioned examples are: I am attentive to the classes, I have a vocation, I enjoy learning, and I am motivated to find out.
- *Classmates profile.* It concerns the characteristics of classmates that contribute to student motivation. Examples of this category are: a good classroom environment, peer support (fellowship), being surrounded by friends.
- *Future expectative.* It is everything related to future practice as professionals. Examples listed in this category are: I like to learn because I do my professional work well, learn something I can use in practice, if I get good grades able to access postgraduate scholarships.
- *Physiological needs.* It describes any matters do not comment previously. Examples of this category are: class schedules that affect been hungry or sleepy in class; appropriate classroom conditions to avoid bad climate conditions; audiovisual support; comfortable chairs, and new furniture.

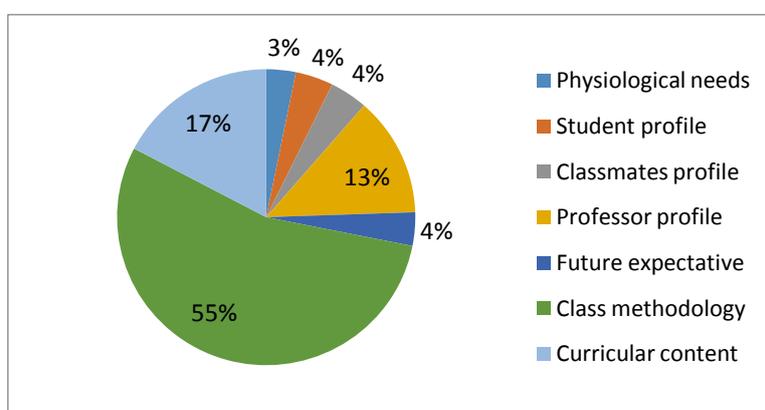


Fig. 1. Main categories of factors that affect learning in Health Sciences students.

The seven factors that affect learning originate outside the classroom. The student environment largely defines their personal profile, their future expectative and the level that they have covered their physiological needs. For its part, the university environment influences on learning to define: its educational policies, strategies for teaching and learning, curriculum content and profile of teachers. However, it is understood that, in a larger environment, social conditions surrounding the college student in turn influence the factors referred to above. For example, the current crisis in Spain certainly affects future expectations of college students.

4 DISCUSSION

It was found that the factors that affect learning are in a way related to Maslow (1943) and Glynn et al. (2009, 2011) studies. Contrasting the results of this study with the Maslow's hierarchy of needs, we can see that there are some matches. In this study, in the category of *class methodology*, the students interviewed agreed on the importance for them to feel free to make decisions about their own learning and be confident that the knowledge gained enables them to solve real problems; this coincides with the level of Self-actualization Maslow, including the need to be creative, spontaneous and solve problems. The categories of *student, professor and classmates profile* seem to respond to the level of esteem, in Maslow's pyramid; college students stressed the importance of both, their own attitudes and, feeling in confident and respected by their peers and their professor. Even the *professor profile* and *classmates profile* seem to respond to the level of Love/Belonging of Maslow; students reported that it is very important for them to feel a friendship with their peers and even feeling appreciated by their professor. *Future expectative* and *curricular content* categories are also well related to security level of Maslow; students refer the relevance that the knowledge acquired help to their future expectative, as employment. Finally, the category of *physiological needs* responds to the level of Maslow's pyramid that has the same name; students reported the importance of the class schedule and conditions of the classroom, avoiding them being in class hungry, with cold or tired.

Table 1 presents a summary of this comparison.

Table 1. Relation between the factors that affect learning and the Maslow's hierarchy of needs

Factors that affect learning	Maslow's hierarchy of needs (Maslow, 1943)
<ul style="list-style-type: none"> Class methodology (theory-practice relation, resources, self-management) 	<ul style="list-style-type: none"> Self-actualization (morality, creativity, spontaneity, problem solving, lack of prejudice, acceptance of facts)
<ul style="list-style-type: none"> Student profile Professor profile Classmates profiles 	<ul style="list-style-type: none"> Steam (self-esteem, confidence, achievement, respect of others, respect by others)
<ul style="list-style-type: none"> Classmates profiles Professor profile 	<ul style="list-style-type: none"> Love/belonging (Friendship, family, sexual intimacy)
<ul style="list-style-type: none"> Future expectative (employment, scholarship, empreneur) 	<ul style="list-style-type: none"> Safety (security of body, employment, resources, morality, family, health and property)
<ul style="list-style-type: none"> Physiological needs (breathing, food, water, sleep) 	<ul style="list-style-type: none"> Physiological (breathing, food, water, sex, sleep, homeostasis, excretion)

Regarding Glynn et al. (2009, 2011) this relation may also be established, for instance the *methodology* category can be well related with the *self-determination* component of these authors; i.e., when a student says that the methodology of the class "give us freedom", they somehow feel they have control over their apprenticeship. The *curricular content* and *intrinsic motivation* are also related; for example when the students say that they learn better because they like the class, or because the theme is interesting, we can see the reference to the theme but the motivation is intrinsic and related with their likes and interests. Also the *students profile* reflect Glynn's *self-efficacy motivation*; when the students say they learn better because they take notes, they are attentive and they do their homework. Finally the *future expectative* category is well connected with the *career and grade motivations*; students refer frequently that they improve their learning because they want to take better grades or to be better professionals. Some other categories as *professor profile* and *classmates profile* or *physiological needs* don't find relation in Glynn et al. (2009, 2011) studies. Table 2 present a summary of this relation.

Table 2. Relation between the factors that affect learning and the Glynn's motivation components.

Factors that affect learning	Glynn's motivation components (Glynn, 2009,2011)
Class methodology	Self determination
Professor profile	
Classmates profiles	
Students profiles	self-efficacy
Future expectatives	Career and grade motivation
Physiological needs	
Curricular content	Intrinsic motivation

5 CONCLUSIONS

Each student is different. They have different expectations about their future: some of them want to do graduate studies, others want to get an important job and some other wants to direct a family company. They have different personal realities: some, for diverse reasons, to be hungry in the classroom, to be tired, and others as to have personal problems that affect to the academic achievement. They have distinct personalities: some enjoy public speaking, other teamwork and other enjoy intellectual challenges. Therefore, do not sound like exist a single magic formula to maximize their learning in class.

However, from the perspective of the students interviewed in this study, appears to exist elements that make an academic class a learning place. We identified three key elements to facilitate learning of college student in the classroom: 1) an enjoyable class environment, 2) an attractive content, and c) a conviction of the usefulness of what is learned. But what exactly defines an enjoyable atmosphere, an attractive content, and a useful knowledge depends on the particular vision of each student. Besides, the particular vision depends largely on the social environment in which students live, their needs, and their expectations for their future.

In the process of learning in a college student, several actors are involved: the same student, the teacher, the classmates, the school authorities, the parents, and so on. However, in the classroom there are only the professor and their students, and the teacher seems to have the maximum liability of enhance the existence of these three factors. The university professor, in addition to considering the reality of their students, must deal with educational policies governing its university, the curriculum that he must meet with their subject, and their personal and professional profile.

Today, perhaps more than ever, the role of the university professor is essential for learning process of university students. Generate a friendly atmosphere, presenting compelling content and demonstrate the usefulness of the knowledge taught, depends largely on the use that the teacher makes of all inputs entering a university classroom.

A university professor is a like a chef that must prepare a feast for his guests with three demands: the dining environment should be pleasant, the food should be useful to stay healthy and dishes should be presented attractively. The Chef knows that receive, as ingredients, needs, personalities, expectations, academic guidelines, academic curricula, but he cannot choose the amount of needs or the sweetness of personalities, or the bitterness of the guidelines. The challenge for the professor is to mix all the ingredients to deliver the perfect banquet.

The conclusion must be analyzed taking account the limitations of this research. Some external elements could influence the results such as schedules in which the surveys were applied were not controlled. Because of the results of the survey were about perception, there is a possibility that is not the same along the day, week, month or year. To address this limitation, a possible future study would be to conduct a longitudinal research to analyze whether the academic moment has influence over the factors that students identified as important. Also, another possible future study would be to examine learning styles of the participants in the study. In this way could be found if the most important factors considered change according to the learning style of students.

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