Title: Academic goals and autonomous learning strategies for training future health professionals

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RESUMEN

Objetivo: determinar la correlación entre metas académicas y estrategias de aprendizaje en los estudiantes matriculados de primero a sexto semestre, durante el período académico octubre 2016 - febrero 2017, en la Facultad de Ciencias de la Salud, de la Universidad Nacional de Chimborazo. **Método**: estudio observacional correlacional, en el que se aplicaron los cuestionarios para la evaluación de metas académicas (CEMA) y de estrategias de trabajo autónomo (CETA), cuyos datos resultantes fueron analizados e interpretados utilizando métodos estadísticos del nivel descriptivo (frecuencias relativas y absolutas, medias, medianas y modas) e inferencial no paramétrico (Prueba de Correlación de Pearson). **Resultados**: los tipos de metas académicas y las estrategias de aprendizaje autónomo tuvieron un comportamiento homogéneo en casi la totalidad de las carreras de la oferta académica estudiada; predominó la categoría *algunas veces* en la mayoría de las dimensiones investigadas. **Conclusión**: La correlación entre las estrategias de trabajo autónomo y los tipos metas académicas de los estudiantes de la muestra resultó mayoritariamente *escasa o nula y directa*.

Palabras clave: metas, motivación, estrategia, aprendizaje.

ABSTRACT

Objective: to determine the correlation between academic goals and learning strategies in students registered from first to sixth semester, during the academic period October 2016 - February 2017, in the Faculty of Health Sciences, of the National University of Chimborazo. **Method**:

correlational observational study, in which the questionnaires for assessing academic achievements (QAAA) and autonomous work strategies (AWS) were applied, whose resulting data were analyzed and interpreted using statistical methods of descriptive level (relative and absolute frequencies, means, medians and modes) and nonparametric inferential (Pearson's Correlation Test). **Results**: the types of academic goals and the strategies of autonomous learning had a homogeneous behavior in almost all the majors of the academic offer studied. The category sometimes predominated in most of the dimensions researched. **Conclusion**: The correlation between the strategies of autonomous work and the types of academic achievements of the students of the sample was mostly scarce or null and direct.

Keywords: achievements, motivation, strategy, learning

INTRODUCTION

Human beings are under the influence of a set of processes that leads them to identify and establish certain purposes. Motivation helps improve the perspective of success in various learning activities, which are essential for them to adapt to their environment and modify it if necessary (Boza-Carreño and Méndez-Garrido, 2013, Valle et al., 2015a).

The study of the different types of achievement goals constitutes an incursion in the field of motivation. The focus on these are for general purposes that offer differentiated significance for success (Cáceres-Alvarado and Nieto-Gutiérrez, 2013). The behavior of young people is intentional when it is aimed towards the outcome of firmly defined purposes, which directly affect the fulfillment of the tasks of personal development, according to the perspectives of well-being at the objective and subjective levels (López-Mora et al., 2017).

Different authors agree in establishing two types of motivation: the extrinsic, which requires external incentives for the task being performed and becoming the means to achieve an end. While on the other hand, the intrinsic depends on stimuli inherent in the activity itself, being interesting and not requiring any reinforcement. However, both can be linked at the same time and context (Valle et al., 2015, León et al., 2013, Domínguez-Alonso and Pino-Juste, 2016).

People learn more efficiently when they do it consciously. They have a natural curiosity to know the phenomena that underlie and explain life. However, the motivation of individuals for this activity is not manifested with the same intensity in formal contexts of institutionalized education. Although various research links it directly with school performance, in addition to encouraging new goals and academic challenges (Boza-Carreño and Méndez-Garrido, 2013).

In this regard, some researchers such as Fernández et al. (2013, p.865) and Núñez et al. (2015, p.9) report that the academic success of students in higher education depends largely on the extent of the degree of motivation, which impels them to become involved and to commit themselves to reaching the goal of becoming professionals in some area of knowledge. What coincides with the criteria of the authors of the book Management of Human Talent: approaches and models (Corporación CIMTED, 2016) for whom the academic achievements of future graduates constitute an important input to be considered during the design of contemporary university educational models.

Durán-Aponte and Arias-Gómez (2015, p.23) establish that during the last two decades of the 20th century, different investigations confirmed that there are two motivational factors or types of goals: those of "learning" and those "oriented to achievement". In turn, the latter is manifested through two trends that encourage the effort to study. One is focused on the pursuit of material goals (good grades, decent employment, rewards ...) and the other is in the scope of social recognition from peers, family members, teachers, etc.

Another way of addressing the different types of achievements is given by Calderón and Casu (2011, p.285), who refer to two possible ways to manifest:

• The first one is oriented to the "domain" and it is characterized by the pursuit of learning, personal improvement and self-improvement through task mastery and the development of competences.

• The second has a more extrinsic character that is oriented towards "performance". This is distinguished by the need to demonstrate skills and personal abilities to obtain the approval of third parties and obtain secondary benefits.

In relation to the importance of the investigation about the objective of the study in question, López-Mora et al. (2017, p.445) references the results obtained by other researchers to conclude that a better understanding of the acts and behaviors of the students is needed through the early identification of their aspirations and goals.

According to Gámez et al. (2015, page 589) the goals do not necessarily generate a behavior, but almost always the behaviors are directed to reach a goal. In relation to those aimed at academic performance Valencia-Serrano et al. (2013, p.53) establish that students who use self-learning strategies focused on planning, elaboration, organization, supervision and metacognitive control can more easily achieve the aims of the professional training processes.

The presence of metacognitive traits in individuals facilitates the development of the ability to direct and control their own training process. Students tend to learn better when they know what and how to learn with high levels of autonomy, because they can make conscious decisions in relation to their knowledge, thinking and acting (Paz, 2014). In this regard, Garrote-Rojas et al. (2016, p.31) explains that learning is referred to as autonomous, self-directed, independent, etc., contributes significantly to the achievement of the academic success of the students.

Based on the previously mentioned arguments, in the Faculty of Health Sciences, in the National University of Chimborazo, research was carried out with the objective of determining the correlation between diverse academic goals and learning strategies in the students enrolled from first to sixth semester, during the academic period of October 2016 - February 2017.

METHODS

To reach the proposed objective, the task force developed a quanti-qualitative, correlational observational-type research, which worked with the entire student population of 1235. These students were enrolled in the first to sixth semester of the study. There were seven majors, in the Faculty of Health Sciences at the National University of Chimborazo, during the academic period of October 2016 - February 2017. The participates agreed to be surveyed and regularly attended teaching activities during the school term where the instruments were applied. The participates were distributed throughout the majors as shown below.

- Medicine   278
- Dentistry   338
- Nursing   186
- Physical and Sports Therapy   138
- Clinical and Histopathological Laboratory   137
- Clinical Psychology   120
- Physical Education   38

The data was obtained through the application of two instruments:

• The Questionnaire for the Evaluation of Academic Goals (QEAG) (Gaeta et al., 2015), which was designed based on the Dweck theory by Hayamizu & Weiner at the beginning of the 1990s. It was subsequently translated and validated by a team led by Núñez in 1994 through a process in which they obtained values of α (alpha) of Cronbach that oscillated between 0.78 and 0.89 in the indicators established for the four dimensions of study related to the oriented goals: "for learning", "for the self", "for the valuation" and "for the achievement and reward".

• The Autonomous Work Strategies Questionnaire (AWSQ), designed and validated by López Aguado (2010, p.150), whose reliability analysis yielded a coefficient α (alpha) of Cronbach of 0.898 for the established dimensions of the types of strategies made for the dimensions of: "expansion", "collaboration", "conceptual structuring", "planning", "preparation for exams" and "participation".

The indicators and dimensions of both instruments were analyzed statistically using a scale of five quantitative and qualitative categories:

• 1 ---------- Never

• 2 ---------- Seldom

• 3 ---------- Sometimes

• 4 ---------- Many times

• 5 ---------- Always

The four dimensions of QEAG have the following characteristics:

• **Learning-oriented goals:** it is the only one of an intrinsic motivational nature within the instrument. These are associated with the desire to learn, develop and improve abilities. The indicators "acquisition of competence and control" and "interest in the matter" will allow for the determination of their status.

• **Self oriented goals:** these are oriented to reach satisfactory levels of self-assessment and can be established from the following indicators: "the personal implication defined by a defense of the self" and "the implication of searching for self-enlargement".

• **Goals aimed at assessment:** these are aimed at demonstrating the capacity or protecting the personal image by seeking positive evaluations from others. The indicator is "the acquisition of social valuation".

• **Achievement of goals and rewards:** are those aimed at receiving external compensation or not losing certain privileges; The established indicators are " decent future work" and "avoidance of punishment".

The AWSQ is designed to study six dimensions that do not have established indicators and are conceptualized as follows:

Expansion strategies: relating to the search and selection of information that complements the data already compiled about the various objects of study.

• **Collaboration strategies:** involves the use of group work to achieve cognitive goals common to all members.

• **Structuring conceptual strategies:** is aimed at structuring systems of theoretical knowledge for better understanding, integration and application.

• **Planning strategies:** aimed at establishing mechanisms of organization and distribution of time and resources for more efficient application (evaluation plays a fundamental role in these).

• **Exam preparation strategies:** are related to the systematization of the present knowledge for the micro-curricular document guides, from the view point of obtaining good results for the evaluations at the end of the cycle or academic periods.

• **Participation strategies:** those focused on all the regular training activities (classes, seminars, others) and support (academic tutorials, clarification of doubts, etc.), with the objective of efficiently exploiting the teacher's guide.

The employed methodology used during the investigative process was based on the theory presented by Ramírez-Fernández (2016, p.1), where several stages are established for the performance of observational studies.

Firstly, the researchers carried out the bibliographic review that allowed them to establish theoretical positions based on the analysis and systematization of the information collected regarding the object of study in question.

Then, the instrument was applied to the individuals of the study sample, whose resulting data was systematized in a base created in Microsoft Excel, which was later imported into the Windows SPSS program using the corresponding tests of its statistical package.

Finally, a quantitative analysis of the systematized data was carried out through statistics at a descriptive level, such as relative and absolute frequencies, as well as measurement tests with a central tendency (means, medians and fashions) and a nonparametric inferential. (Pearson Correlation Test).

There are publications that show different scales of interpretation of the results for linear correlation tests. In this regard, the authors have based the presented research on the criteria of Martínez-Ortega et al. (2009, p.9), who argue that the interpretation of the coefficient r is defined as follows: 0 indicates absence of correlation, values between 0 and 1 indicate various levels of positive relationship (x increases as it increases, and vice versa); while between 0 and -1 it is negative (x then increases and decreases, and vice versa).

Scale for linear correlation ranges (independent from the sign of the values):

• 0 - 0.25: little or no

• 0.26 - 0.50: weak

• 0.51 - 0.75: moderate or strong

• 0.76 - 1.00: strong or perfect

The necessary ethical considerations were observed during the investigative process. Authorization from the given faculties was obtained from the vice deans office for the application of the instrument. The voluntary will of the subjects participating in the study were respected when requesting informed consent from the respondents and the information obtained was not used in a maleficent way.

Results

The selected instruments (QEAG and AWSQ) were applied to 1235 students of the seven academic majors in the Faculty of Health Sciences, in the National University of Chimborazo. The distribution of the number of individuals by training area depended on the enrollment status in the academic period in which the research was conducted. The largest number of contributing respondents were from the Dentistry major (27.37%), as well as 19.75% of the total of the students who attended the first semester. Whereas Physical Education was the least represented with only 3.08% participation.

The analysis of the data obtained from the application of the QEAG allowed us to observe that the corresponding study dimensions had a homogeneous behavior in almost all the majors. The category "many times" predominated in the case of "goals aimed at learning", while for the rest of the types of academic goals researched, "sometimes" was the one that dominated. The exception of that regularity was presented in most Dentistry students, whom considered "sometimes" to be motivated by goals "aimed at learning".

The indicators "competency acquisition" and "interest in the subject" were established to determine the status of the "learning oriented goals" dimension. In addition to what was defined as "decent future work", there was a value of 4.0 (many times) according to the median and the inherent mode of the totality of the study sample (table 1).

Table 1. Description of the types of academic achievements of the study sample

Trials n=1235	Aims:			
	Learning	**Self**	**Value**	**Reward**
Average	3.67	3.20	3.34	3.38

Median	4.00			3.25	3.29		3.38
Mode	4.00			3.00	3.00		3.00
Trials n=1235	Skill Acquisition	Interest in material	Self-defense	Self enlargement	Social Value	Future work	Avoid punishment

Table 4. Correlation between the types of autonomous work strategies explored in the study sample

Strategies for: (n=1235)	Extension	Collaboration	Conceptual structuring	Planning	Preparation for exams	Participation
Extension	1	0.665**	0.602**	0.608**	0.583**	0.591**
Collaboration	0.665**	1	0.622**	0.632**	0.570**	0.597**
Conceptual structuring	0.602**	0.622**	1	0.621**	0.572**	0.585**
Planning	0.608**	0.632**	0.621**	1	0.587**	0.526**
Preparation for exams	0.583**	0.570**	0.572**	0.587**	1	0.572**
Participation	0.591**	0.597**	0.585**	0.526**	0.572**	1

** Positive or moderate strong linear correlation.

Source: AWSQ applied in the study environment.

The study of the relationship between self-learning strategies were the object of the research that showed the existence of a "moderate or strong positive linear correlation" among them all" (table 4). This was a result that confirmed the hypothesis that students in this educational context do not focus on the use of a particular strategy but integrate them all during self-learning activities.

Table 5. Correlation between autonomous work strategies and the types of academic goals in the study sample.

Strategies:	Aims:			
	Learning	Self	Value	Reward
Extension	0.265*	0.167	0.173	0.214
Collaboration	0.110	0.250	0.252	0.161
Conceptual structuring	0.145	0.199	0.235	0.309*
Planning	0.137	0.212	0.216	0.205
Preparation for exams	0.199	0.168	0.198	0.225
Participation	0.172	0.182	0.199	0.215

*. Weak positive linear correlation.

Source: AWSQ and QEAG applied in the study environment.

In the context of training health professionals where the research was developed, the correlation between the strategies of autonomous work and the types of academic goals of the students in the

sample was mostly "scarce or null and positive". It is important to note that the two exceptions of this regularity were manifested with values very close to the lower limit in the "weak" scale range.

DISCUSSION

Psychological. For these authors, the way in which young people establish their academic goals depends on the socioeconomic and affective conditions in addition to the characteristics of the educational environment, the learning situations and the teaching methodology. Therefore, when facing certain tasks, they are not always motivated by the scope of a single aim towards a specific purpose, but rather a varied set.

Durán-Aponte and Arias-Gómez (2015, p.23) defend that students who emphasize the focus on the assessment towards the goal consider their skills and competences as sufficiently developed attributes to solve the academic tasks proposed. In turn, this influences students' confidence in their abilities, making them enjoy challenges or cognitive challenges with greater commitment and enthusiasm.

The authors of the research presented concur with the position that "goals oriented to learning" are intrinsic in nature. In this regard, Daura (2015, p.28) considers that this guarantees greater effectiveness for self-regulated learning. In a three-year study in which this dimension was analyzed, the researcher observed similar results to those expressed in the previous paragraph. It was concluded that motivation driven by interest in the professional field of university education, contributes to a better control over stressful situations that occur during the teaching-educational process, since they favor the establishment of more effective strategies for the achievement of academic purposes.

In relation to these results, other researchers who obtained similar values were Rodríguez et al. (2014, p.1) who established that high levels in "learning-oriented goals" and those aimed at "obtaining a decent future job" are commonly associated with success in academic performance. This does not usually happen for those students whose training process is mainly motivated by the scope of "self-oriented" and "avoidance of punishment" purposes.

Daura (2015, p.28) obtained similar regularities in his study with respect to the observed values regarding the correlation between the types of academic goals (table 2) as well as "little or no correlation" between academic goals linked to extrinsic motivation and those linked to intrinsic motivation.

Panadero and Alonso-Tapia (2014, p.11), based on the socio-cognitive theory of Bandura, argue that personal goals, the perception of self-efficacy and the expectations of results are the main sources of motivation for the individual to self-regulate during the fulfillment of learning activities. The latter state that the will, effort and clarity of the objectives alone are not sufficient for the attainment of academic aspirations on the students' part. They need to develop efficient strategies that allow them to regulate their own cognitive process.

A study conducted with undergraduate students at the Faculty of Education in of Albacete in the University of Castilla-La Mancha published by Garrote-Rojas et al. (2016, p.31) contained results that also reflected a homogenous behavior of the different autonomous learning strategies and equally around all the average categories of the scale used. In this environment, students also expressed the simultaneous use of various forms for the fulfillment of academic tasks during the training process.

The researcher Uribe-Meneses (2012, p.24) applied the AWSQ in Nursing students at the University of Pamplona. The observed results also indicated that the students used different strategies of autonomous work at the same level, but they did it more frequently than the students of the sample used in the present study.

About the relationship between self-learning strategies (table 4), the researchers Granados-López et al. (2017, page 29) observed the same behavior of these dimensions in their study. Their results also showed the existence of a "moderate or strong positive linear correlation" among all the autonomous work strategies analyzed by these authors. Suárez-Riveiro et al. (2016, p.421) explain that, students who are unable to manage their own motivation have high probabilities of academic failure, even if they made use of efficient learning strategies, and vice versa. Both categories are necessary to guarantee personal success during professional training. As previously stated, in the educational environment where the research was developed and presented it was possible to confirm the presence of elements inherent to them.

Navea-Martín (2017, p.1) conducted a study where he ventured into the relationship between autonomous work strategies and academic goals. The analysis of the results published by this author using the scale proposed in the present investigation allowed us to observe a similar predominance of values located in the "little or no and positive" relationship ranges. This evidenced that the regularities are interestingly coincident in at least two learning environments.

Theoretical references such as Schunk and Zimmerman (2008, p.122), in addition to Torrano et al. (2017, p.160), state that the autonomous learning of students is related to motivation and goals that are marked with emotions. Positioning which has complete support from various pedagogical and psychological thesis's and that in a general way could be totally valid. However, in trying to establish this relationship between specific strategies and certain academic goals in the training environment where the research was presented, it was found that at this level it was "weak, scarce or null", although "direct" and with predominant values of bilateral significance.

CONLUSIONS

• The "academic goals oriented to learning" were the ones that most frequently motivated the sample students to fulfill the teaching tasks. In this case the selection of the option "almost always" by the students involved in the study predominated.

• The Pearson correlation test showed the existence of a "moderate or strong positive linear correlation" between the types of personal academic goals to the extrinsic motivational elements. However, there was "little or no correlation" between the academic goals linked to extrinsic motivation and those linked to intrinsic motivation.

• The correlation between the self-learning strategies that were the object of the research resulted in "linear positive or moderate strong" among everyone.

• The analysis of the correlation between the strategies of autonomous work and the types of academic goals of the students in the sample was mostly "scarce or null and positive".

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