

Learning styles. Its evaluation in students of the Bachelor's degree in Artistic Education

Estilos de aprendizaje. Su evaluación en estudiantes de la carrera Licenciatura en Educación Artística

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Fecha de recepción: 20.05.2023

Fecha de aprobación: 20.06.2023

Fecha de publicación: 03.07.2023

Cómo citar: Domínguez, E., Martínez, P. (2023). Learning styles. Its evaluation in students of the Bachelor's degree in Artistic Education. *UCV Hacer* 12 (3), e120302. <https://doi.org/10.18050/revucvhacer.v12n3a2>

Abstract

This article addresses learning styles and their evaluation through the Honey Alonso Learning Styles Questionnaire (CHAEA) in students of the Bachelor of Arts Education, starting from a general perspective of the term learning and the classifications of learning style, to later particularize in the CHAEA as an evaluation instrument in artistic educators. This research aims to describe the learning styles of the students of the Bachelor of Arts Education, thus contributing to the improvement of the quality of the teaching-learning process. The quantitative methodology is assumed in its descriptive expression since it seeks to specify the properties, characteristics and profiles of groups that are subjected to an analysis based on the use of methods and techniques of the theoretical and empirical level. A sample of forty-four students was selected through the intentional non-probabilistic method, who were studying at the governing center of the same; the Central University Marta Abreu de las Villas, Santa Clara, Cuba. It is considered that the CHAEA, as a learning assessment instrument, is a valid tool for determining the needs and potential of the aforementioned students.

Keywords: learning, learning styles, CHAEA.

Resumen

El presente artículo, aborda los estilos de aprendizaje y su evaluación a través del Cuestionario Honey Alonso de Estilos de Aprendizaje (CHAEA) en los estudiantes de la Licenciatura en Educación Artística, partiendo de una perspectiva general del término aprendizaje y las clasificaciones de estilos de aprendizaje, para después particularizar en el CHAEA como instrumento de evaluación en los educadores artísticos. Esta investigación pretende describir los estilos de aprendizaje de los estudiantes de la carrera Licenciatura en Educación Artística, contribuyendo así a la mejora de la calidad del proceso de enseñanza aprendizaje. Se asume la metodología cuantitativa en su expresión descriptiva pues se busca especificar las propiedades, las características y los perfiles de grupos que se someten a un análisis a partir de la utilización de métodos y técnicas del nivel teórico y empírico. Se seleccionó una muestra de cuarenta y cuatro estudiantes a través del método no probabilístico intencional, que cursaban la carrera en el centro rector de la misma; la Universidad Central Marta Abreu de las Villas, Santa Clara, Cuba. Se considera que el CHAEA, como instrumento de evaluación del aprendizaje es una herramienta válida para la determinación de las necesidades y potencialidades de los estudiantes antes mencionados.

Palabras clave: aprendizaje, estilos de aprendizaje, CHAEA.

INTRODUCTION

From the beginning of time until today, human beings have needed to improve the way in which they acquire knowledge, which is why high standards have been established in terms of global educational quality for all levels of education. Among the global organizations which ensure compliance with the rules and regulations for the effectiveness of education exercises an essential role: the United Nations (UN, 2018), who, in The 2030 Agenda and Sustainable Development Goals: an opportunity for Latin America and the Caribbean, propose among its goals: “Ensure inclusive, equitable and quality education and promote lifelong learning opportunities for all” (p.27).

Cuban education, complying with the guidelines above, has proposed to restructure the educational system from the base. It is currently developing the Third Educational Improvement gradually until it reaches all schools in the country. That is why higher education has played a decisive role because of the work carried out in the centres of this level of education in the training of professionals in the different branches of science, culture, sports and education; therefore, the Ministry of Higher Education of Cuba (MES, 2016) en su Documento Base para el diseño de los Planes de Estudio “E” establece que:

At present, Cuban higher education is committed to maintaining its ***model of a modern, humanistic, universalized, scientific, technological, innovative university integrated with society and deeply committed to the construction of a prosperous and sustainable socialism***. A university is characterized by the formation of values and by the quality assurance of its substantive processes in order to achieve a graduate who possesses personal qualities, culture and professional skills that allow him/her to perform with social responsibility and to promote his/her education for life. (p. 3)

This presupposes a challenge, considering that this improvement has been conditioned by the vertiginous development of Information and Communication Technologies (ICT) and the COVID-19 world pandemic. New learning scenarios emerged in which educational innovation was imposed to bring knowledge to each student.

In this context, following the line of development, career evaluation did not stop but intensified as a result of the accreditation process. Taking into account that the World University Web Ranking takes into consideration a series of factors associated with the quality of Education where the Central University “Marta Abreu” of Las Villas (UCLV) is ranked 187th in the Latin American area, of which the Faculty of Early Childhood Education is part, where the Bachelor’s Degree in Art Education is developed, whose students are the object of study of this research.

In the educational field, one of the most recurrent topics is learning at the different levels of Education. Simons et al. (2001) refer to this term as follows:

In reality, learning turns out to be a complex, diversified process, highly conditioned by factors such as the evolutionary characteristics of the learner, the situations and sociocultural contexts in which he/she learns, the types of contents or aspects of reality to be appropriated and the resources available for this purpose, the level of intentionality, awareness and organization with which these processes take place, among others. (p.31). (p.31)

Learning has been a concern for teachers; if it transforms students, the teacher will wonder how and under what circumstances it occurred. It is there where the act of educating university students expresses learning, and the teacher’s performance plays a significant role because it determines conceptual relationships, experiences and reflections that lead to a learning environment that recognizes others and their differences. (Cardozo et al., 2018, p.10)

Indeed, students learn in different ways, which causes each one to develop their own “learning style” This implies the need to teach taking into account individual characteristics, mental schemes, experiences and, above all, styles, which are particularly distinctive in each of them. (Miranda et. al, 2021).

On the other hand, after analyzing the normative documents of the career, the curriculum and the experience as a teacher guide of one of the groups of the Regular Day Course of the Bachelor’s Degree in Art Education, it was found that students have few skills for autonomous learning,

which affects the skills related to learning styles. Regardless of the grades obtained in the different subjects, there needs to be more participation in research activities, student scientific events, grade improvement exams and contests, and student publications, which are also scarce.

This is an issue that shows a problem. Therefore, this article aims to describe the learning styles of students with a Bachelor's Degree in Art Education, thus contributing to the improvement of the quality of the teaching-learning process from the synthesis of the research carried out by the authors.

Overview of Learning Styles

The notion of learning styles (or cognitive styles for many authors) has its etymological antecedents in the field of psychology. As a concept, it began to be used in the specialized bibliography in the 1950s by the so-called "cognitivist psychologists". Of all, it was H. Witkin (1954), one of the first researchers who was interested in the problem of "cognitive styles" as an expression of the particular ways in which individuals perceive and process information. (Albert and León, 2005, p. 2)

According to Felder & Brent (2005, cited by Tocci, 2015) learning styles are:

Cognitive characteristics and affective and psychological behaviours serve as relatively stable indicators of how learners perceive, interact and respond to a given learning environment. However, they say that one learning style is neither preferable nor inferior to another but is simply different, with different characteristics. The instructor must be the one who can equip learners with the necessary skills, regardless of the learners' personal preferences, as all will need these competencies to function effectively as professionals. (p.105)

Thus, there are several approaches to the classification or typology of learning styles. Dunn and Dunn (1978) elaborated a classification according to the way of capturing information into visual, auditory, and kinesthetic categories. Felder and Silverman (1988) defined 4 dimensions (processing, perception, reception and understanding), dividing them into two

components (active-reflexive, sensory-intuitive, verbal-auditory and sequential-global). Hermann (1990) defines it by cerebral quadrants: the left and right hemispheres and also the limbic and cortical brain. Kolb (1984), for his part, considers that learning uses four capacities (concrete experience, reflective observation, abstract conceptualization and active experimentation), which gives rise to four types of students: assimilator, convergent, divergent and accommodator. Honey and Mumford (1986) developed a model of learning styles from that described by Kolb, taking into account the dimensions of experiential learning (Cid, 2015).

Therefore, assessing the students' preferred styles for learning as part of learning provides the teacher with the particular characteristics of the cognitive process of each student, as well as the learning environments that are conducive to better learning and those that are not. This facilitates the improvement of the educational strategies planned in each subject since, although the same knowledge system is taught, the individuals in each school group differ.

From this perspective, the theories of Honey, Alonso and Gallego, dating from 1991-1994, stand out among the studies on learning styles and their forms of evaluation in university students since they are some of the most cited theoretical assumptions by researchers in Spanish language, consulted so far, due to the accuracy and clarity of their expositions.

The criterion for specifying learning styles is the one provided by Alonso et al. (2007), who defines them as: "Cognitive, affective and physiological traits, which serve as relatively stable indicators of how learners perceive, interact and respond to their learning environments". (p. 48)

These same authors designed the CHAEA, which distinguishes the four phases of Kolb's cycle and relates them to the ways in which students display a style:

- **Active style:** They integrate themselves into new experiences. They are open to change and dynamic and prefer to act in order to learn.
- **Reflective style:** They are focused on analysis and reflection. They adopt different perspectives of a fact and prefer to have good support before concluding an idea.

- **Theoretical style:** They build logical theories from their observations and the information they receive. They are analytical and systematic.

- **Pragmatic style:** They prefer the actual application of what they have learned to abstract theoretical concepts (Barría et. al, 2022).

However, the CHAEA is commonly used to describe individual and group student profiles, as well as to analyze the relationship between different learning styles and academic performance or to examine differences between students studying different disciplines and passing through different moments in their academic careers; reasons why, according to several researchers, it is an essential tool in university classrooms. (Hoffmann et al., 2020, p.330)

This questionnaire is one of the instruments to characterize learning styles and has been widely used in research after its creation, as can be seen in Garza et al. (2016), Apiazú and Seide (2017), Marcén et al. (2018), Talavera et al. (2021) and Carruitero et al. (2022).

According to Egaña et al. (2018), when conducting a study and analysis of the different tools for measuring learning styles, they concluded that the CHAEA is the most relevant questionnaire in research in Spanish.

METHOD

Design of the study

The present research assumes the quantitative methodology in its descriptive expression since it seeks to specify the properties, characteristics and profiles of groups that are subjected to analysis through the use of methods and techniques at the theoretical and empirical levels (Sampieri et. al, 2014).

Selection of subjects

Its application determined that the population would be the national enrollment of the career that has 451 students in the modality of Regular Course (RC). The sample was selected through the non-probabilistic intentional method, the 44 students of the RC who were studying the career in the rector centre of the same Marta Abreu de las Villas Central University, Santa Clara, Cuba.

Intervention

To determine the learning styles of the sample, an online version of the CHAEA restructured by the authors was applied. To analyze the results obtained, the general scale described by Alonso et al. (2007) and the methods of descriptive statistics were used.

Table 1

General Scale Alonso et al. (2007)

| Learning styles | General scale | | | | |
|-----------------|-----------------|-----------------|-----------------|-------------|------------------|
| | Very low 10% | Download 20% | Moderate 40% | High 20% | Very high 10% |
| Active | 0-6 | 7-8 | 9-12 | 13-14 | 15-20 |
| Reflective | 0-10 | 11-13 | 14-17 | 18-19 | 20 |
| Theoretical | 0-6 | 7-9 | 10-13 | 14-15 | 16-20 |
| Pragmatic | 0-8 | 9-10 | 11-13 | 14-15 | 16-20 |

The CHAEA (Alonso et al., 2007) was applied to a sample of 44 students of the Propaedeutic Course of the Bachelor's Degree in Art Education in the 2022 course; it consists of three parts:

1. Questions about personal data, socio-academic.
2. Instructions for completion: 80 items on Learning Styles to be answered + (yes) or- (no).
3. Numerical and graphical learning profile.

Having data on the subjects surveyed allows us to define a profile of the sample and analyze the learning styles of the participants. The questionnaire consists of 80 short items and is structured in four groups or sections of 20 items corresponding to the four Learning Styles (Active, Reflective, Theoretical and Pragmatic). They are randomly distributed, forming a single set, and when answering it, an absolute score is obtained for each group of 20 items, which will reveal the level in each of the four Learning Styles (Alonso, 2007).

The creators of the questionnaire applied Cronbach's Alpha coefficient to measure the internal consistency of the scale, applying it to each group of 20 items, obtaining for each Learning Style (Active: 62.72, Reflective: 72.75, Theoretical: 65.84, Pragmatic: 58.54). Declaring the reliability acceptable for the Cronbach's Alpha test. In checking the validity of the questionnaire, several analyses were carried out: Content, item, Factorial of the total of 80 items, Factorial of the 20 items of each of the 4 Styles and Factorial of the 4 Learning Styles from the total means of its 20 items; in this process, several inaccuracies were found by the specialists, which were corrected, conferring broad validity to the questionnaire (Alonso et al., 2007).

Cronbach's Alpha coefficient was used to establish relationships between the results of its application to the original questionnaire and the authors' adaptation, obtaining as results for the active style 0.757, for the Reflective 0.637, for the Theoretical 0.669 and for the Pragmatic 0.595, which provides reliability and validity to the questionnaire similar to that of Alonso et al. (2007).

Table 2

Cronbach's Alpha coefficient.

| Cronbach's alpha | Active | Reflective | Theoretical | Pragmatic |
|------------------|--------|------------|-------------|-----------|
| Alonso | 0.6272 | 0.7275 | 0.6584 | 0.5854 |
| Author | 0.757 | 0.673 | 0.669 | 0.595 |

Based on the analysis of the original method of applying the CHAEA, it was decided to use technology for its interactive possibilities, so the CHAEA was prepared as a Google questionnaire and the correct wording of the questions was checked according to the author of the questionnaire. The following data were added: name and surname, career, academic year, source of origin and municipality, as they were considered essential for the present research.

Next, the students and professors of the course were informed about the application of the questionnaire and the purpose of the research in order to get their approval. Next, the questionnaire was applied digitally through a link

in the computer laboratory of the Faculty of Early Childhood Education associated with UNESCO at the Marta Abreu de las Villas Central University, explaining to the students the importance of answering the questions consistently and reading the indications entirely so as not to leave any data without providing it. The application lasted approximately 15 days because the course was in the middle of the work practice process.

Methods of analysis and statistics

The information from each student's answers was collected at the same time as the application process since, as a Google tool, one of the options was instant data collection. Subsequently, we

moved on to the processing and interpretation of results, which led to the elaboration of tables and profiles of the styles, taking into account the scale above to finally carry out the writing process.

The derivations were extracted from the Google tool to Microsoft Excel format as a spreadsheet to perform a descriptive analysis in terms of mean, standard deviation and frequencies in order to identify the learning styles of the students of the Regular Day Course of the Bachelor's Degree in Art Education.

RESULTS

When analyzing the data obtained through the application of the CHAEA, they were divided by academic years for a better understanding.

It was determined that the group corresponding to the first year is formed by 13 students, of which only 1 did not participate in the application of the questionnaire for health reasons, which gives us 12 subjects; in them, the predominant style is Theoretical, present in 5 students, followed by Reflective in 4, Pragmatic in 2 and Active in 1. The most frequent relationship of styles was theoretical-reflective and Theoretical-practical and the least frequent was active-theoretical. The primary skills of the predominant style in these students, which is Theoretical, are methodical, logical, objective, critical and structured. The characteristics that define these students are:

- They adapt and integrate the observations they make into complex, logically sound theories.
- They think sequentially and step-by-step, integrating disparate facts into a coherent theory.
- They like to analyze and synthesize information, and their value system rewards logic and rationality.
- They need to be more comfortable with subjective judgments and lateral thinking techniques and activities outside of straightforward logic.

In the second-year group, which has a total of 10 students all present in the application, the Active, Reflective and Pragmatic styles predominate,

with 3 students each, followed by Theoretical, with only 1 student. The predominant styles were manifested in the very high and high ranges. The highest relationship between styles found was Pragmatic-Active and the lowest was Reflective-Theoretical. The primary skills that characterize pragmatic learners are experience, Practicality, Directness, Effectiveness, and Realism. These students possess essential characteristics of their learning style, such as:

- They like to try new ideas, theories and techniques and see if they work in practice.
- They like to look for ideas and put them into practice.
- They are immediately bored and impatient with lengthy discussions, endlessly discussing the same idea.
- They are basically practical, down-to-earth people who like to make decisions and solve problems.
- Problems are a challenge, and they are always looking for a better way to do things.

Within the third-year group, which has 10 students presented in its entirety to the implementation of the questionnaire, the Active, Reflective and Theoretical styles predominate with 3 students each, and only 1 student presents the Pragmatic style. It is a regularity that the styles are shown in the very high, high and moderate ranges. The Active-Pragmatic style prevails in terms of the relationship of styles. This group presents diversified learning styles since 3 of the styles described by Alonso et al. (2007) predominate: Active, Reflective and Theoretical, with different skills, among them animator, improviser, thoughtful, conscientious, methodical, and logical. In addition, they possess several characteristics, among which the following are emphasized:

- Active learners are fully and unbiasedly involved in new experiences.
- They enjoy the present moment and let themselves be carried along by events.
- Reflective learners tend to adopt the posture of an observer who analyzes their experiences from many different perspectives.

- They collect data and analyze it in detail before concluding. For them, the most important thing is the collection of data and their thorough analysis, so they try to postpone conclusions as long as possible.
- Theoretical learners adapt and integrate the observations they make into complex and logically well-founded theories.
- They think sequentially and step-by-step, integrating disparate facts into a coherent theory.

In the fourth-year group, composed of 12 students who were completely present in the application, the active style prevailed with 6 students, followed by the reflective style with 4 students, the pragmatic with 1 student, and the theoretical with 1 student. As for the relationship of styles, the Active-Pragmatic and, to a lesser extent, the Theoretical-Pragmatic. The Active style that predominates in this group is defined by the following skills: animator, improviser, discoverer, risk-taker and spontaneous. In addition, it possesses characteristics that differentiate subjects carrying this learning style from others:

- Active learners are fully and unbiasedly involved in new experiences.
- They enjoy the present moment and let themselves be carried along by events.
- They tend to be enthusiastic about what is new and tend to act first and think about the consequences later.
- They fill their days with activities, and as soon as the charm of one diminishes, they jump into the next.
- They find it tedious to deal with long-term plans and consolidate projects; they like to work surrounded by people but be the centre of activities.

Regarding the total sample of 44 subjects, it is observed that the predominant style is the Reflective, with 14 students representing 31.81 %;

this is followed by the Active style with 13 students for 29.54 %, continues with the Theoretical style in 10 students and 22.72% finally, the Pragmatic style with 7 students represented in 15.90%. Therefore, it is affirmed that the predominant skills of the students of the Bachelor's Degree in Education are Art Education are those of the Reflexive and Active learning styles: thoughtful, conscientious, receptive, analytical and exhaustive; animator, improviser, discoverer, risk-taker and spontaneous. This reaffirms the characteristics of these styles as those that primarily define these learners:

- Reflective learners tend to adopt the posture of an observer who analyzes their experiences from many different perspectives.
- They collect data and analyze it in detail before concluding. For them, the most important thing is the collection of data and their thorough analysis, so they try to postpone conclusions as long as possible.
- They are cautious and analyze all the implications of any action before moving forward.
- In meetings, they observe and listen before speaking, trying to remain unnoticed.
- Active learners engage fully and without prejudice in new experiences.
- They enjoy the present moment and let themselves be carried along by events.
- They tend to be enthusiastic about what is new and tend to act first and think about the consequences later.
- They fill their days with activities, and as soon as the charm of one diminishes, they jump into the next.

They find it tedious to deal with long-term plans and consolidate projects; they like to work surrounded by people but be the centre of the activities.

Table 3*Learning styles. General data.*

| Styles | Total students in each style per year | | | | Total | % |
|-------------|---------------------------------------|-----|-----|-----|-------|-------|
| | 1ro | 2do | 3ro | 4to | | |
| Active | 1 | 3 | 3 | 6 | 13 | 29.54 |
| Reflective | 4 | 3 | 3 | 4 | 14 | 31.81 |
| Theoretical | 5 | 1 | 3 | 1 | 10 | 22.72 |
| Pragmatic | 2 | 3 | 1 | 1 | 7 | 15.90 |
| Total | 12 | 10 | 10 | 12 | 44 | 100 |

When analyzing the data on the range of preference for each learning style in terms of the total sample, from the measurement using the general scale provided by Alonso et al. (2007), it can be seen that in the Active style, there are 12 students in the Very High preference and 1 in the High preference. In the Reflective style, 5 students have a High preference, 6 have a Medium preference, and 3 have a Very High preference, making a total of 14 students. In the Theoretical style, 9 students have a Very high preference, and 1 has a High preference, for a total of 10. In the

Pragmatic style, the range of preference is given by 7 students with a Very high preference. As for the total sample (44), 31 students are in the very high preference range, which represents 70.45 %, 7 students are in the high range at 15.90 %, and 6 students are in the medium range at 13.63 %. These results indicate that more than 50% of the students in the sample obtained a very high preference for each of the styles, which provides us with a profile of learning styles and their corresponding unequivocal characterization for the Bachelor's degree in Art Education.

Table 4*Preference by style.*

| Styles | Preferences by style | | | | | Total |
|-------------|----------------------|-------|--------|-----|----------|-------|
| | Very High | High | Medium | Low | Very low | |
| Active | 12 | 1 | - | - | - | 13 |
| Reflective | 3 | 5 | 6 | - | - | 14 |
| Theoretical | 9 | 1 | - | - | - | 10 |
| Pragmatic | 7 | - | - | - | - | 7 |
| Total | 31 | 7 | 6 | - | - | 44 |
| % | 70.45 | 15.90 | 13.63 | - | - | 100 |

DISCUSSION

The results achieved in the present research in the “very high” preference for the Active style is higher than that achieved by the Faculty of Fine Arts and the Faculty of Psychology, reaching 10% of the total sample in the original research of application of the CHAEA, Alonso et al. (2007); in the case of the present it was 27.27% of the total sample.

On the other hand, the derivations obtained are similar to those of the study conducted by Ocharán and Videira (2017) at the Universidad Peruana Unión (Lima) using a sample of 190 students of the Nursing and Human Nutrition careers, where the results show a high preference in the active style in 34.2%, in the reflective style 33.7%, in the theoretical style 32.6% and the pragmatic style 25.8%; being demonstrated the prevalence of the active, reflective and theoretical styles in the sample.

Likewise, similarities were found in the results achieved by Astudillo et al. (2018) in a study applied at the Catholic University of Cuenca (Ecuador) to students of the second cycle of Educational Psychology, implemented in a sample of 29 subjects, where the predominant learning styles correspond to the Active and Reflexive being between them 79.6% of the sample. The rest of the styles were a minority.

CONCLUSIONS

This article describes the characterization of the learning styles of the students of the Bachelor's Degree in Art Education through the application of the CHAEA, which yielded. As a result, a profile of styles for each year of the course and the general profile.

It was thus demonstrated that the evaluation of learning styles, as part of the process of diagnosis and psycho-pedagogical characterization, provides teachers with essential knowledge about students, indispensable for the correct elaboration of the objectives, methods, techniques and methodologies appropriate

for the development of the study plans of each career, since they provide the student's point of view regarding their learning.

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