The knowledge of learning strategies as an alternative for the strengthening of heutagogical competences in university students in virtual mode

El conocimiento de estrategias de aprendizaje como alternativa para el fortalecimiento de competencias heutagógicas en estudiantes universitarios en modalidad virtual

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Abstract

The article analyses the importance of knowledge of learning strategies to develop heutagogical competences in virtual university students. The manuscript raises as a fundamental problem the lack of development of heutagogical competences or the necessary skills and abilities that allow university students to learn in an autonomous and self-directed way. In response to this problem, the author proposes a number of strategies such as problem-based learning, collaborative learning and the use of technology to foster autonomous and self-directed learning. She theorises some questions about the philosophical, sociological, psychological, and pedagogical foundations of learning strategies; she makes a conceptual approach to heutagogy, its characteristics, principles and

history. It examines the pillars of education as the main reference for understanding the formulation of learning strategies with a view to achieving an integral education of the human being. It is research with a qualitative exploratory approach that is supported by theoretical level methods such as the analytical-synthetic method and the inductive-deductive method and empirical level methods such as the direct experience of the researcher, content analysis, documentary analysis and literature review. Relevant findings include the need to propose various intentional, autonomous, metacognitive, contextualised, active and duly evaluated learning strategies in order to support the development of heutagogical competences, contribute with mechanisms for the adaptation of students to social changes, promote self-learning, enhance the sense of commitment and internal motivation, and, ultimately, promote the development of critical-creative-propositive thinking.

Keywords

Learning, autonomy, virtual education, strategies, heutagogy, metacognition.

Resumen

El artículo analiza la importancia del conocimiento de estrategias de aprendizaje para desarrollar competencias heutagógicas en estudiantes universitarios en modalidad virtual. El manuscrito plantea como problema fundamental la falta del desarrollo de competencias heutagógicas o habilidades y capacidades necesarias que permiten a los estudiantes universitarios aprender de manera autónoma y autodirigida. Ante este problema, la autora propone una serie de estrategias como el aprendizaje basado en problemas, el aprendizaje colaborativo y el uso de la tecnología para fomentar el aprendizaje autónomo y autodirigido. Teoriza algunas cuestiones acerca de los fundamentos filosóficos, sociológicos, psicológicos, pedagógicos de las estrategias de aprendizaje; realiza una aproximación conceptual a la heutagogía, sus características, principios e historia. Examina los pilares de la educación como principal referente para comprender para la formulación de estrategias de aprendizaje con miras a lograr una educación integral del ser humano. Es una investigación con enfoque exploratorio cualitativo que se respalda en métodos de nivel teórico como el método analítico-sintético y el método inductivo-deductivo y en métodos de nivel empírico como la experiencia directa de la investigadora, el análisis de contenido, el análisis documental y la revisión bibliográfica. Como hallazgos relevantes están la necesidad de proponer diversas estrategias de aprendizaje intencionales, autónomas, metacognitivas, contextualizadas, activas y debidamente evaluadas con la finalidad de apoyar al desarrollo de competencias heutagógicas, contribuir con mecanismos para la adaptación de los estudiantes a los cambios sociales, propiciar el autoaprendizaje, potenciar el sentido de compromiso y la motivación interna, y, en definitiva, propiciar el desarrollo del pensamiento crítico-creativo-propositivo.

Palabras clave

Aprendizaje, autonomía, educación virtual, estrategias, heutagogía, metacognición.

1. Introduction

In recent decades, and even more so in the last four years due to the events experienced during the health emergency, virtual studies have overcome geographical and space-time barriers, providing diverse opportunities to people from different latitudes and corners of the world. In the educational field, a set of training proposals supported by technology were

generated, and several educational programs and complementary courses were proposed with quality didactic tools and resources for those who had access to them.

However, despite the benefits derived from the flexible nature of this mode of studies in terms of time and schedules that facilitate the usual work performance of people, allowing them to take care of the family and the fulfillment of other acquired responsibilities, not all people who study in virtual or online mode have developed the necessary skills and abilities to learn in an autonomous way. Direct experience shows that 98% of a total of 225 postgraduate students in master's degree programs in education have not developed self-directed learning competencies to advance in their academic process; there are cases of university students at postgraduate level who enter master's degree programs without the necessary heutagogical competencies to assume their self-learning, which ultimately degenerates into obstacles for their academic performance.

One of the frequent problems detected in the teaching work with twelve groups of university graduate students linked to education and the humanistic area (master's level) under virtual study modality of four universities (3 private and 1 public) was that 98% of the postgraduates have serious difficulties to solve situations related to learning to learn, predominantly the ignorance and lack of application of learning strategies, the lack of knowledge of study techniques, the lack of reading, writing and research habits. To this problem is added the resistance presented by the student to "become more actively involved in their own learning and the scarce experience in the realization of metacognitions" (Aguilar, 2017, p. 51). In order to respond to this problem, we propose the formulation of learning strategies that allow the strengthening of heutagogical capacities in university students in virtual mode.

In a digital world like ours, the generation and application of learning strategies allow students to learn independently, adapt to technological development and approach complex problems with critical thinking. The knowledge of learning strategies becomes an alternative for the strengthening of competences that allow learning to learn and that enhance autonomous learning in the learning subject, hence, the objective of the manuscript is to analyze the importance of the knowledge of learning strategies as an alternative for the strengthening of heutagogical competences in university students in virtual modality.

The topic is topical, it is proposed to respond to the supreme objective of education: "learning to learn" as one of the main approaches made by Delors in the text Learning: The Treasure Within (1997) of the Report to the United Nations Educational, Scientific and Cultural Organization (UNESCO) from which the four fundamental pillars of education, essential for the development of people and societies, are derived. In this sense, talking about the strengthening of heutagogical competencies implies considering the four pillars of education as follows:

The **learning to know** pillar refers to the development of critical thinking skills, problem solving and knowledge acquisition in various areas; it aims to encourage curiosity, research, reflective, critical and innovative thinking, aspects that in terms of Martin (2008) "involves acquiring certain metacognitive skills, ..., capabilities that allow the student to know and regulate their own learning processes" (p. 73).).

The **learning to do** pillar focuses on the development of practical skills and the ability to apply knowledge in real situations; it explores the need to promote entrepreneurship, creativity and the ability to work in teams. To achieve this, Delors suggests that students

participate in professional or social activities in parallel to their studies, so that they can evaluate and enrich themselves.

The **learning to be** pillar focuses on the development of the whole person, including physical, emotional, ethical and spiritual aspects; it fosters autonomy, self-esteem and respect for oneself and others. This implies the need to explore oneself better.

The **learning to live** together pillar refers to the development of social, intercultural and global citizenship skills. According to Delors, the aim is to foster respect, tolerance, solidarity and the ability to live in harmony with others through the building of values.

Pillars considered by UNESCO as essential criteria for quality education and fundamental aspects for the sustainable development of societies. The implementation of these guidelines is intended to contribute to the integral formation of individuals in the complex society in which they live.

UNESCO considers that learning to learn is an essential competence in the 21st century, since the world is constantly changing and individuals need to be prepared to adapt to new challenges, "education must adapt at all times to changes in society" (Delors, 1997, p. 18). Some of the key skills included in learning to learn are the ability to identify and define problems; the ability to search for and process information; the ability to analyze and synthesize information; the ability to solve problems; the ability to think critically; the ability to learn from mistakes.

Methodologically, this study adopts a qualitative exploratory approach because it analyzes the autonomous learning problems of university students in virtual modality; it considers two main sources of data: one taken from the observation and direct experience of the author and the other, from the review of specialized literature on the subject; it relies on inductive-deductive methods to categorize common problems identified in direct experience and compare them with the literature on learning strategies; finally, for the analysis, understanding and interpretation of the information, the phenomenological and hermeneutic methods are used, respectively.

The manuscript is made up of three sections: the first section presents the theoretical foundation that approaches the understanding of the subject matter of the research, in this sense, it makes a conceptual approach to learning strategies, exploring their characteristics, principles and foundations; it addresses essential aspects related to heutagogy, its principles, origin, competencies and outstanding figures in the field of self-learning. The second section explains the methodology used in the research process and presents the analysis and discussion of the information gathered. The third section presents the results obtained in the research, explains the contributions of learning strategies to self-learning in virtual environments, with special emphasis on the general and specific strategies that can strengthen the heutagogical skills of students in the virtual modality.

1.1   Conceptual approach to learning strategies

Learning strategies refer to the actions that students use in a conscious and planned manner to improve their own learning process; these actions may include study techniques, organization of information, use of resources, self-regulation and reflection on their own learning. However, when it comes to defining a learning strategy, there is not always agreement on what is meant by it. Thus, for example, paraphrasing Monereo et al., (1999), it is found that learning strategies include different techniques and procedures used by students to learn and process information effectively. A learning strategy focuses on how

students will learn in an effective and autonomous manner, for which it is necessary to distinguish between methodological strategy, didactic strategy and learning strategy; the first refers to the general approach used by the teacher to teach or investigate; the second refers to the specific actions used by the teacher to facilitate learning; and the third refers to the actions used by students to improve their own learning process.

1.2   Characteristics of learning strategies

Learning strategies can be applied in different contexts, in different disciplines and can vary according to the needs, interests, motivations, learning styles and individual preferences of each student. Among the characteristics of learning strategies, the following can be pointed out:

They are used in a deliberate and planned manner by students to achieve specific learning goals. Valle et al. (1998) complement that learning strategies "have a conscious and intentional character in which decision-making processes are involved on the part of the learner adjusted to the objective or goal he/she intends to achieve" (p. 56). In other words, a necessary characteristic is intentionality.

They promote the independence and self-regulation of the student, allowing him/her to make informed decisions about the ways to approach and solve learning problems, i.e., they are characterized by the autonomous character that determines the actions of the learning subject.

They involve reflection and awareness of one's own learning process, which allows students to monitor and evaluate their own progress and performance. In this regard, Aguilar (2017) considers that strategies related to metacognition are those that "allow regulating and guiding learning through planning, monitoring and evaluation" (p. 50). Hence, one of its essential characteristics is its metacognitive tendency.

From the above, it is necessary to consider that the characteristics of learning strategies allow students to adapt to different learning contexts and propitiate the development of self-regulation skills.

1.3. Principles of learning strategies

The principles of georeferencing, diversification, dynamic perspective, finally, evaluation and feedback are essential to define the effectiveness of learning strategies. Among the basic principles of learning strategies, the following can be personally mentioned:

- Georeferencing, insofar as learning strategies must be contextualized and adapted to the specific characteristics of each learning task and situation, since there is no single strategy that works in the same way in all contexts, with all subjects and in all situations.
- Diversification, in that students must use a multiplicity of learning strategies to address different types of tasks and content, which allows them to develop diverse skills, abilities, competencies and approaches to face different learning challenges.
- Dynamic perspective, since learning strategies promote student participation in the learning process, involving them in activities such as the elaboration of summaries, the generation of questions and the practical application of the concepts learned.
- Evaluation and feedback, because it is important that students permanently evaluate their own learning and receive the corresponding feedback on their performance, aspects that allow them to identify strengths and areas for

improvement and adjust their learning strategies in accordance with the immediate and mediate reality in which they find themselves.

1.4 Fundamentals of learning strategies

A critical analysis of the subject shows that learning strategies have philosophical, psychological, pedagogical and sociological bases on which they are based.

1.4.1. Philosophical foundations of learning strategies

Learning strategies are based on several philosophical foundations that influence their development and application. Some of these bases are:

- The humanistic approach focuses on the integral development of the individual, emphasizing his or her needs, interests and capabilities. In the field of learning strategies, this implies considering the individual characteristics of each student and adapting strategies to his or her needs and preferences.
- The empiricist philosophical current, which holds that knowledge is acquired through observation and experience; according to this perspective, learning strategies focus on experimentation, practice and direct contact of the subject with the real world.
- The philosophical current of rationalism, which states that knowledge is obtained through reason, which has two fundamental characteristics: logical necessity and universal validity; according to this point of view, learning strategies are focused on reflection, analysis and problem solving.
- The philosophical current of critical thinking emphasizes the importance of questioning and critically analyzing existing ideas and knowledge. In the context of learning, this implies not passively accepting information, but examining it critically and looking for evidence and solid arguments. By applying criticality in learning strategies, students can develop critical thinking skills, evaluate the quality of information, and form informed opinions.
- Enlightenment, or the 18th century intellectual movement, which promoted reason, science, and education as means for human progress. In the context of learning, the enlightenment approach involves seeking knowledge through research, experimentation and logical reasoning. Enlightenment-based learning strategies encourage intellectual curiosity, the active search for information, the development of critical thinking skills, the evaluation of information, and the active pursuit of knowledge. These skills are essential for effective learning and for the development of a continuous learning mindset.
- Phenomenological philosophy and hermeneutic philosophy as important foundations for learning strategies by focusing on experience, interpretation, subjectivity, and critical reflection. These approaches can assist students in developing a deeper and more meaningful understanding of study materials, as well as enhance critical, creative, reflective, and purposeful thinking skills. They are essential foundations for learning strategies in several ways: a) Focus on experience and interpretation: both phenomenology and hermeneutics focus on understanding human experience and how we interpret the world. These philosophical perspectives help students develop a deeper awareness of their own learning experiences and reflect on how they interpret information. b). Attention to subjectivity: phenomenology and hermeneutics recognize the importance of subjectivity in understanding the world. By applying these approaches to learning, students can be encouraged to reflect on their own perspectives and to consider

how their experiences and beliefs influence their learning process. c). Interpretation and understanding: hermeneutics focuses on the interpretation and understanding of texts and contexts. By applying this approach to learning, students can learn to analyze and understand study materials more deeply, as well as to consider different perspectives and possible meanings. d). Critical reflection: both phenomenology and hermeneutics promote critical reflection and questioning of assumptions. By applying these approaches to learning, students can develop critical thinking skills and learn to effectively question and evaluate the information they encounter.

These philosophical foundations provide a theoretical framework for the design and implementation of effective learning strategies for autonomous and meaningful learning, and foster the integral development of students.

1.4.2. Psychological bases of learning strategies

Learning strategies are cognitive and metacognitive processes that students use to acquire, organize, remember and use information effectively. These strategies are based on psychological principles that explain how we process, store, and use information; in other words, they explain how the mind works and how information processing is generated. Among the psychological bases of learning strategies are the following:

- Information processing theory: this theory holds that learning involves the acquisition, storage and retrieval of information. Aguilar (2017) assumes that cognitive psychology offers interesting elements that favor "the analysis, description, understanding and explanation of the different mental processes that occur in human beings" (p. 53). Thus, learning strategies are based on the way we process and organize information in our mind.
- Social learning theory: this theory devised by Albert Bandura (1997) emphasizes the importance of learning through observation and imitation of others. Learning strategies may include observing effective role models and imitating their actions.
- Operant conditioning theory: this theory proposed by Skinner considers that a person's behavior is shaped by the positive or negative consequences that follow; it stresses the importance of consequences in shaping behaviors, states that through reinforcement and punishment, the consequences of a person's actions influence the likelihood that the behavior will be repeated or extinguished; it focuses on how the consequences of our actions affect our future behavior. Learning strategies may involve the use of rewards and reinforcement to motivate and strengthen learning.
- Motivation theory: motivation plays a fundamental role in learning; for Abraham Maslow, motivation is the human being's drive to satisfy his needs; he developed the theory of motivation based on the concept of hierarchy of needs that influence human behavior; he maintains that man is a creature, his needs grow during his life, and as they are satisfied, other higher needs will dominate his behavior. Maslow's theory, with an inward-oriented approach, represents a model for how people behave. Maslow's theory, McClelland and Herzberg approach motivation in a basic way; they believe that it is about a person's needs. A satisfied need does not give rise to any behavior; unsatisfied needs influence behavior and direct it toward the achievement of individual goals. Learning strategies may include techniques to increase motivation, such as setting clear goals, using rewards, and promoting self-efficacy.

- Memory theory: memory is fundamental to learning. Learning strategies may involve techniques to improve retention and retrieval of information, such as repetition, organization and elaboration.
- Autonomous learning theory: This theory focuses on the active role of the learner in his or her own learning process. The "learning to learn" approach promotes learner autonomy and self-regulation by encouraging the learner to take the initiative to seek and select relevant information, set learning goals, and evaluate his or her own progress.

Understanding these psychological underpinnings can help students develop effective strategies for improving their learning.

1.4.3. Pedagogical basis of learning strategies

The pedagogical foundations of learning strategies refer to the theoretical and conceptual underpinnings that support the use of learning strategies in the educational process. These foundations are based on an understanding of how students learn and how their learning can be enhanced through the use of effective strategies. The following are some of the most significant pedagogical bases of learning strategies:

Behaviorism: this approach focuses on observable behavior and how it can be modified through stimuli and rewards; it considers learning to be a simple stimulus-response association; the individual learns to know objective reality through the senses, but the learner is seen as a passive being who simply reacts to environmental stimuli. It has different approaches such as Pavlov's classical conditioning; Thorndike's connectionism; Gurthrie's contiguity principle; Thorndike and Skinner's operant conditioning; Bandura's observation and imitation. Learning strategies based on behaviorism focus on repetition, positive reinforcement and systematic practice.

Cognitivism: this pedagogical perspective focuses on the study of mental processes and how information is acquired, processed and stored. This theory holds that learning occurs through the gradual construction of knowledge. Among the different approaches, Piaget; Bruner with the well-known discovery learning; Ausubel with meaningful learning; Robert Gagné and his humanistic tendency; Gardner and the theory of multiple intelligences stand out. In the context of learning strategies, cognitivism refers to the use of techniques and strategies that promote comprehension, reasoning and retention of information.

Constructivism: this theory holds that students construct their own knowledge through interaction with their environment and the active construction of meaning. Among the approaches of this theory we find the radical constructivism of Vico, Von Foerster, Glasersfeld; the cognitive constructivism of Piaget with his micro and macrogenetics; the socio-cultural constructivism of Vygotsky in his historical-socio-cultural version and situated cognition; and the social constructivism of Max Sheler, Berger and Luckmann with their distributed cognition and the consequent learning communities that derive from their theories. Learning strategies are based on this approach, which leads to the understanding that students should be active participants in their own learning process, building their knowledge from their experiences and reflections.

Connectivism: this pedagogical basis is based on the idea that learning is a social and connected process, in which the individual benefits from interaction with others and access to digital resources and tools. This theory, promoted by Stephen Downes and George Siemens, is known as the learning theory for the digital age, and seeks to explain complex learning in an ever-evolving digital social world. In the field of learning strategies,

connectivism tends to promote collaboration, the exchange of ideas and the use of information and communication technologies.

Meaningful learning theory: according to this theory advocated by Ausubel, learning is most effective when students can relate new information to their prior knowledge and give it personal meaning. The "learning to learn" approach encourages students to be able to make connections between different concepts and apply them in different contexts, which facilitates meaningful learning. For the perspective of Valle, et al. (1998) meaningful learning involves a process in which the learner selects relevant information, organizes it into a coherent whole and integrates it into the existing knowledge structure.

Metacognition: Metacognition refers to students' ability to reflect on their own learning process, monitor their understanding and regulate their own learning. In the words of Aguilar (2010):

> .... the relating element in all the conceptions about metacognition is that it constitutes a mental activity composed of a series of capacities that the subject has to systematize, to organize by means of symbolic tools the processes associated with a mental activity of which we are conscious and can transmit it, communicate it to others; a mental activity constituted by a series of processes (thinking, analyzing, inferring, reasoning, solving problems, anticipating, perceiving, etc.) and their respective products (such as perceptions, thinking, ideas, models, concepts, etc.); a mental activity associated with the processes and products through which knowledge about the physical, social and psychological world is constructed; a conscious, organized and self-regulated mental activity of the processes being executed and the products being generated; a self-evaluative and self-corrective mental activity that allows the monitoring and evaluation of the results achieved according to the proposed goals; a mental activity that expresses reality through the use of signs, symbols and ideas, from which the representations on which the mind operates are constructed (p. 161).

Thus, interpreting Aguilar (2010), metacognition constitutes a mental process that involves a series of skills inherent to the subject to systematize and organize the processes related to a mental activity. Learning strategies promote metacognition by teaching students to be aware of their own thoughts, emotions and learning strategies.

Motivation: Motivation plays a crucial role in learning. Learning strategies seek to foster students' intrinsic motivation by making learning relevant, interesting, and challenging. They also focus on setting clear goals and providing positive feedback to maintain students' motivation.

These pedagogical foundations support the use of learning strategies as effective tools to enhance the teaching and learning process. By understanding and applying these foundations, educators can design and use learning strategies that are appropriate for the needs and characteristics of their students.

It is important to consider that the aforementioned foundations are not exclusive; on the contrary, many psycho-pedagogical approaches integrate different philosophical and epistemological elements. In this sense, by understanding the essential foundations of

learning strategies, educators can select and design strategies that align with their beliefs and theories about the way knowledge is acquired.

1.4.4. Sociological foundations of learning strategies

Learning strategies are cognitive and metacognitive processes that students use to acquire, process and retain information effectively. These strategies are not only influenced by endogenous individual factors, but also by exogenous sociological factors.

The sociology of learning focuses on how social factors, such as culture, structure and social interactions, influence the learning process. Thus, in the author's opinion, some sociological foundations of learning strategies include:

- The culture of a society that determines the norms, values and beliefs that influence the ways of teaching and learning. Learning strategies may vary by culture as societies value different approaches to learning.
- Social structure, including power distribution, hierarchy and social relations, also affects learning strategies. For example, in more egalitarian societies, learners are more likely to adopt collaborative strategies, while in more hierarchical societies competitive strategies may prevail.
- Social interactions, both within and outside the educational environment, may influence learning strategies; thus, direct interaction with peers and teachers may encourage the use of collaborative learning strategies, while lack of social interaction may lead to more individualistic strategies.

1.5. Elementary questions on heutagogy.

With the intention of clarifying the subject, this section refers to the definition, principles, characteristics, historical origin of heutagogy, heutagogical competencies, classes, representatives and other related aspects.

Heutagogy is an educational approach that promotes self-directed learning and learner autonomy. It focuses on the development of learning skills and provides a flexible and collaborative environment to support the individual learning process. Etymologically, according to Morales and Amaya (2019), the term heutagogy is derived from the Greek words "heuriskein" (discover) and "agogos" (guide), meaning "guiding discovery" (p. 557). Thus, heutagogy states that students are capable of learning autonomously and of directing their own learning and that the role of the teacher is to facilitate and support this process; accordingly, heutagogical educators must fulfill the role of facilitators of learning by providing students with the necessary tools and resources so that they can explore and discover on their own.

Heutagogy focuses on the development of autonomous learning skills, such as self-reflection, self-regulation and the search for resources, in this sense, it establishes that students are responsible for their own learning process, making decisions about what, how and when to learn and about how to evaluate their own progress. From this perspective, Palomino (2018) understands that heutagogy is a theory of self-determined learning that modifies existing knowledge to generate new ones. Likewise, Silvain and Díaz (2018) mention that andragogy is the main antecedent of heutagogy, and that, unlike pedagogy and andragogy, which focus on teacher-directed teaching and learning, heutagogy focuses on autonomous and self-directed learning performed by the learning subject.

As stated in preceding lines, self-learning is an educational approach in which students assume responsibility for their own learning and guide themselves through the acquisition

of knowledge and skills on an ongoing basis. For Morales and Amaya (2019) "the continuing education of the university professional implies the improvement and scientific, humanistic, sociological and cultural updating not only complementary but at the same time, deepening of the initial training" (p. 558). Self-learning is a broad concept, practiced by various subjects and in different contexts. Some of the significant representatives of this type of learning are:

Malcolm Knowles: prominent adult learning theorist who in turn promoted the concept of "andragogy", which refers to the teaching and learning process of adults. Dieck (2020) comments that Knowles emphasized the importance of self-direction and intrinsic motivation in the learning process. He described six principles that include need to know, self-concept, prior experience, readiness to learn, learning orientation, and motivation to learn.

Maria Montessori: Italian educator known for her pedagogical approach based on the search for the autonomy and freedom of the child; she argued that the innate potential for learning and development that every human being has should be valued; she designed a learning environment that encourages exploration and self-learning. The Montessori method emphasizes the strengthening of independence, the valuing of observation, monitoring and timely correction of the child, the prepared environment, the use of complete material and evaluation process according to the mentality of the subject.

Carl Rogers: American psychologist and therapist known for his humanistic approach to education, who according to Mcleod (2023) promulgated the importance of authenticity and empathy in the learning process, and advocated a learner-centered approach in which the learner takes responsibility for his or her own learning.

Each of them has contributed significantly to the development of theories and practices related to self-learning or self-directed learning.

1.5.1. Principles of heutagogy

It is important to remember that heutagogy focuses its attention on the development of fundamental skills for lifelong learning; skills such as the ability to research, analyze information, solve problems and communicate effectively become essential for the achievement of meaningful learning. To fulfill this purpose, heutagogy proposes to provide a flexible and adaptable environment that allows students to personalize their learning experience, considering them as "people with the potential to explore, change and transform the world" (Aguilar, 2010, p. 164).

Hence, from the author's perspective, the characteristic principles of heutagogy could be summarized as follows:

- Self-directed learning. This principle promotes regulated self-learning as a mechanism for the formative process. According to Mendo et al. (2019), self-learning is understood as "the way of learning by oneself" (p. 55), which implies that students are able to make decisions about their own learning, establish personal goals and objectives, select learning resources and evaluate their own progress. This principle becomes the dynamizing entity of the learning process to the extent that students assume responsibility for their own learning (self-directed learning). According to heutagogy, students should not depend on a teacher to guide their learning process. In this regard, Hase and Kenyon (2007) warn that the teacher should not control the student's learning experience; on the contrary, students

themselves should develop the ability to identify their own learning needs, seek and use resources, strategies and mechanisms to evaluate their own progress.

- Autonomy. This principle promotes the need for students to be autonomous and take control of their own learning as a fundamental basis for personal and social growth.
- Reflection and metacognition. This principle establishes that it is essential for students to develop the capacity to reflect on their own learning process, to identify strengths and weaknesses, and to make adjustments according to their contextual requirements (reflection and metacognition).
- Collaboration and social learning. According to this principle, while it is true that heutagogy focuses on autonomous or self-directed learning, recognizing that learning is an individual process, that each student has different needs and learning styles, it also values collaboration, knowledge sharing and social learning among students whereby students can benefit from interacting with others through networking, participating in learning communities, exchanging ideas with others, etc.

1.5.2. Historical origin of heutagogy

Heutagogy has gained recognition in recent times, however, according to Blaschke and Marín (2020) historically the term was coined in 2000 by theorists Stewart Hase and Chris Kenyon, who proposed heutagogy as a response to traditional teaching-learning approaches, approaches centered on the transmission of knowledge by the teacher. Hase was inspired by the self-directed learning theory of Malcolm Knowles and the self-determination theory of Edward Deci and Richard Ryan respectively.

In the 2000s, Australian educator Fredricka Reisman popularized the term and promoted heutagogy as an effective approach to learning in the digital age; since then, heutagogy has gained recognition and has been adopted by educators worldwide; it states that students are capable of learning autonomously and that the role of the educator is to facilitate the process and motivate students to achieve their learning goals. Hence, in agreement with Blaschke (2016) in heutagogy, the student is the one who establishes the curriculum and who develops his or her learning map, emphasizing the development of his or her capabilities.

The history of heutagogy dates back to theories of self-directed learning and self-determination, it has evolved over the years as an educational approach that promotes autonomous and self-directed learning. Over time, heutagogy has been applied in different educational contexts, in higher education, in vocational training and in online learning; it has been shown that heutagogy fosters intrinsic motivation, autonomy and lifelong learning capacity.

1.5.3. Heutagogical competencies required of university students in virtual mode

Heutagogical competencies are a set of skills and abilities that allow people to learn in an autonomous and self-regulated manner, highlighting reflection, continuous learning and adaptability. In this regard, Mendo et al. (2019) state that heutagogical competencies constitute "a process of acquiring knowledge, skills, values and attitudes that the person carries out on his or her own" (pp. 55-56). These competencies are related to the process of self-learning and the ability to reflect, make decisions and adapt to different learning situations. In the virtual modality, university students must develop certain heutagogical competencies to succeed in their learning, in this sense, Aguilar (2017) conceives that "the learner chooses the learning strategies according to his/her needs and criteria" (p. 51), so

that, the essential characteristics required in a university student with heutagogical competencies for his/her performance in virtual modality are the following:

- Autonomy: it is necessary to possess autonomy, to have the ability to direct their own learning, setting goals, planning their study and evaluating their progress, since according to Hase and Kenyon (2007) heutagogy provides students with the opportunity to determine what they want to learn. Students should be able to self-manage their learning by setting goals, planning their time and formulating initiatives to seek resources and solve problems.
- Self-regulation: it is required to have the capacity for self-regulation, to be able to regulate their own learning process, monitoring their level of understanding, identifying areas for improvement and applying strategies to overcome obstacles. It is essential that students have the ability to regulate their own emotions, motivation and effort; that they can stay focused on their learning objectives, overcome obstacles and adapt to different learning situations.
- Metacognition: students with heutagogical competencies are aware of their own thinking and learning processes. They can reflect on their own strengths and weaknesses, identify effective study strategies, and monitor their understanding and progress. In this way, as Aguilar (2010) asserts, the student becomes an active agent in his learning process, capable of reconfiguring his mental structures, assimilating the information he acquires from his environment and constructing knowledge, giving meaning and significance to every aspect of his educational experience.
- Reflection: develop the capacity to reflect on one's own learning, analyzing strengths and weaknesses, identifying thinking patterns and adjusting study strategies. Students should be guided to analyze and evaluate their own learning.
- Self-discipline: it is important that students are disciplined and committed to completing assigned tasks and activities, even without the direct supervision of a teacher.
- Continuous learning. Possessing the ability to engage in lifelong learning, having an attitude of constant learning, seeking opportunities to acquire new knowledge and skills throughout life.
- Adaptability: having the capacity for adaptability or adapting to different learning environments, taking advantage of learning opportunities in different contexts and using different resources and tools. Blaschke and Marín (2020) consider heutagogy as "non-linear learning because it is located in an open framework" (p. 57).
- Critical thinking: students must be able to analyze, evaluate, critically synthesize the information they find online, identifying reliable sources, questioning assumptions and making informed decisions supported by evidence. For Morales and Amaya (2019) "university education should enable the empowerment of the individual in their self-training and lifelong learning" (p. 560).
- Virtual collaboration: although learning in virtual mode can be individual, it is also important that students can collaborate effectively with their peers through the use of online tools, such as discussion forums, chats or group work platforms in order to take advantage of the strengths of others to enrich their own learning.
- Digital literacy and technology management: students must have the ability to adapt to new digital tools and platforms, possess basic skills in the use of information and communication technology tools, such as web browsers, online learning platforms and productivity software.

- Effective communication: in a virtual environment, written communication is essential. Students must be able to express their ideas clearly and coherently through e-mails, messages using different digital tools, forums and written work.
- Problem solving: students must be able to identify problems, come up with creative solutions and apply strategies to solve them.

These heutagogical competencies are essential for virtual university students to make the most of their learning experience in order to achieve their academic goals.

2.   Methodology

This study is based on theoretical methods, based on the method of critical review of the existing literature on the subject, we proceeded to the search for information, the assessment of various authors and outstanding works. It uses empirical methods, which in education are those based on observation and direct experience that were key to obtain knowledge; these methods have several important contributions for the educational field: they promote active learning; stimulate critical thinking; foster creativity; improve knowledge retention; develop practical skills, etc. Likewise, the analytical-synthetic method was used to process and evaluate the different points of view on the subject. This is an exploratory study, which analyzes different conceptions about autonomous learning faced by university students in virtual mode. It adopts a qualitative approach that combines the direct experience of the teacher with bibliographic verification, using the inductive-deductive and phenomenological-hermeneutic methods to understand in depth the challenges faced by students in their self-learning process.

From the data collected, the inductive-deductive approach allowed studying common problems identified in the direct experience to categorize them and subsequently, the data were compared with the existing bibliographic information on learning strategies that strengthen heutagogical skills in students in virtual modality.

Applying the phenomenological-hermeneutic approach, we deepened the understanding of the subjective experiences of students in the context of autonomous learning; we were able to observe significant patterns in their school performance, which were manifested, among other aspects, in the fulfillment of tasks and the results of the evaluations as indicators of their learning in graduate studies at the master's degree level. Finally, the results were interpreted based on previously documented pedagogical theories and experiences.

2.1 Collection of information

In order to obtain data, the researcher's direct experience as a teacher of master's degree programs in different public and private universities was the starting point for the diagnosis of the problem, the identification of limitations in the learning process, the absence of heutagogical competencies, the identification of alternative solutions regarding the dynamics, challenges and specific challenges faced by university graduate students in the virtual modality. Frequent interaction with university students, observations in virtual class sessions and direct dialogue with them allowed a deep understanding of their learning experiences.

As a complement to the direct experience, the respective bibliographic review was carried out on topics related to autonomous learning, intrinsic and extrinsic motivation, self-regulation of learning, availability of educational resources in virtual environments, as well as effective strategies for knowledge assessment in university students.

2.2 Analysis and discussion

The common problems associated with the aforementioned are linked to the following:

Lack of motivation: of virtual mode master's students, 98% have difficulties in finding the necessary internal motivation to learn autonomously; without the guidance and direct supervision of the teacher, they tend to lose the interest and discipline necessary to learn on their own. In the words of León (2023), many teachers focus on having students who are motivated to learn that they intend to impart and point out that it would be better if "… students are motivated to learn on their own" (p. 69).

The absence of self-regulation skills: 98% of the master learners evidence a lack of strategies for learning to learn, they require self-regulation skills that allow them to set goals, plan time and evaluate progress. Some students lack these skills and find it difficult to organize their learning effectively. Therefore, as Leon (2023) asserts, one of the tasks of teachers is to identify the needs of students and determine whether they are able to actively participate in the learning process.

Lack of resources and support: Autonomous learning may require access to adequate resources and support, such as libraries, study materials and guidance, aspects to which 98% of students do not have access, which hinders their ability to learn autonomously.

Difficulty in self-diagnosing knowledge: Learning to learn implies the ability to evaluate and diagnose one's own knowledge. 97% of graduate students in virtual modality demonstrate difficulties in accurately assessing their level of understanding and identifying the areas in which they need improvement.

Lack of previous experience in autonomous learning: 95% of master's students are accustomed to traditional and behaviorist educational processes in which the teacher provides the information and students uncritically receive the information. Learning to learn requires a change in the mentality and predisposition to apply study strategies that enhance self-learning.

Lack of development of reading, research and text comprehension skills: This is another problem present in 98% of students in virtual master's degree programs. In addition, the lack of knowledge of learning methods, techniques and strategies, present in 95% of the students referred to, is another problem.

3. Results

As results of the research, there are some contributions of the strategies for self-learning of students in virtual modality. In order to carry out self-learning processes, the student in virtual mode requires knowledge and application of strategies for learning to learn such as those explained below:

- The search and effective use of digital resources: in virtual education, there are a large number of resources available online, such as e-books, articles, videos and tutorials. It is necessary that the student learns to search and select the most relevant and reliable resources for study. With heutagogy, the teacher can also be "critically incorporated into the informational horizons and the use of technology" (Morales and Amaya, 2019, p. 563).
- Independent research processes: studies in virtual modality require students to learn to use tools and resources that allow them to search, identify, select and process relevant and reliable information; current times demand the development

of competencies on the management of electronic books, academic articles and specialized databases.

- Online courses: online courses and programs are an opportunity to strengthen the development of competencies, they adapt in a flexible way to the requirements, contexts and schedules of the student, for example, the use of virtual platforms such as: Coursera, edX and Udemy that offer a wide variety of courses in different areas of study.
- Search for online videos and tutorials: this activity allows understanding and incorporating new content, including an important categorical corpus through the use of platforms such as YouTube and Khan Academy that offer a diversified educational content.
- Use of interactive multimedia resources such as videos, simulations or interactive games to facilitate learning, as these resources allow students to explore, experiment actively and develop different skills and abilities.
- Participation: although learning in virtual environments can be mostly individual, participation in discussion forums, study groups and online collaborative activities related to the area of study also contribute to the development of heutagogical competencies, allowing the sharing of ideas, resolving doubts and enriching learning through online exchange with other students.
- Collaborative online interaction involves the creation of online work groups with classmates in which students can discuss, resolve doubts, collaborate and share knowledge to solve problems or carry out projects; through interaction with others, communication skills, teamwork, understanding of concepts and critical thinking are developed.
- Organization and planning: these are necessary in virtual studies, and can be carried out through the creation of schedules, the establishment of realistic goals, subdividing activities, reorganizing dates for the completion of tasks, etc. In this regard, Valle et al. (1998) agree that "learning involves an active process of integration and organization of information, construction of meanings and control of understanding" (p. 61).).
- Recording or taking notes and summaries: these are valuable strategies that should be executed before, during and after a virtual class to the extent that these techniques promote the development of fundamental cognitive skills in human beings. The elaboration of content summaries, synthesis, analysis, underlining, structuring graphic organizers and the use of other techniques allow processing and remembering information, and are effective to consolidate learning. These activities help to identify, process and systematize information.
- The self-assessment process understood as self-monitoring and self-regulation: Another significant aspect in the learning to learn process is the practice exercises for self-assessment of progress and understanding of the content through feedback activities. Self-assessment allows to identify strengths and weaknesses, focus on improving in the required areas and adjust the study approach. The use of strategies such as self-assessment, reflection and constant feedback allows monitoring learning and making the necessary adjustments for improvement.
- Self-care as an essential mechanism to care for physical and mental well-being, respect for rest time, exercise, nutrition and medically recommended sleep as requirements for effective learning.

- Establishment of short and long term goals and rewards as an effective way to maintain motivation insofar as self-compensation constitutes a key element for self-learning.
- Use of the strategy of reflective learning in order to achieve metacognition and the development of their skills and abilities.
- Application of problem-based learning (PBL): this strategy consists of presenting students with a challenging problem or situation related to the topic of study. Students must investigate, analyze and propose solutions, thus fostering their autonomy and capacity for self-directed learning.
- Application of project-based learning (PBL): in this strategy, students work on research or creative projects that allow them to apply the knowledge acquired in real situations. Students must plan, research, design and present their projects, which promotes their autonomy and capacity for self-directed learning.

These strategies should be adapted to the needs and characteristics of virtual mode students, and it is important to provide them with the necessary support and guidance so that they can develop their abilities to achieve effective self-learning, making true that "education consists of getting a person to do by himself what he should do, to develop skills and abilities that allow him to represent and understand the world; to interpret existence and to undertake in life itself,..." (Aguilar, 2008, p. 44).

The implementation of strategies for learning to learn autonomously in virtual mode requires discipline, responsibility and commitment. In virtual university education, there are several methods, techniques and strategies that can be used for self-learning. These strategies are useful for students to acquire knowledge autonomously, taking advantage of their learning styles and experiences in virtual environments. Self-learning in virtual education requires discipline and commitment, and the adequate use of learning strategies contributes to the strengthening of the necessary capacities of the human being for individual and social transformation.

4. Conclusions

Learning strategies based on heutagogy promote autonomous and meaningful learning in university students, contribute to the strengthening of heutagogical skills that promote the improvement of students' ability to learn independently and adapt to changing environments, however, the implementation of heutagogical strategies requires a change in the role of the teacher, who must act as a facilitator and guide instead of being the center of the teaching process.

Learning strategies play a fundamental role in virtual education, as they help students acquire and apply knowledge effectively; promote self-management and self-direction skills; facilitate the organization and structuring of information in a meaningful way, an aspect that helps them understand and retain information more effectively; encourage active participation in the learning process, by using techniques such as collaborative learning, online discussion and problem solving, students can interact with their peers and build knowledge together; improve motivation and engagement in virtual education by using techniques such as gamification, challenges and rewards, a more engaging and stimulating learning environment can be created; develop critical, reflective and creative thinking skills by employing techniques such as case analysis, problem solving and information evaluation, learners can develop their ability to analyze, evaluate and make informed decisions.

Learning strategies are fundamental for self-learning in virtual education, as they help students become more autonomous, organized, participative, motivated and critical in their learning process.

In addition, by fostering autonomy and responsibility in their educational process, students are better prepared for lifelong learning, a crucial skill for today's work environment. Likewise, the development of metacognitive skills improves understanding of the learning process and leads to deeper and more meaningful learning. Heutagogy is an educational approach that focuses on self-directed learning and learner autonomy. In the virtual education of university students, heutagogy can be of great importance because it fosters learner autonomy; active learning where students actively participate in the search for and construction of knowledge; promotes the ability to adapt to different learning environments and situations; fosters students' intrinsic motivation by allowing them to choose and direct their own learning.

4.1 Challenges

Teachers' lack of familiarity with and understanding of heutagogy can hinder its effective implementation.

Adapting curricular content and traditional assessment to heutagogical approaches is a challenge.

Resistance to change on the part of students and teachers may hinder the adoption of strategies for self-learning.

The use of teaching methods that encourage student participation.

Openness to opportunities for students to work on collaborative projects.

The use of technological tools that support autonomous learning.

4.2 Challenges:

The training of teachers in the use of heutagogical strategies.

The creation of flexible and collaborative learning environments that foster student autonomy and self-regulation.

Heutagogy-based learning assessment requires the development of new assessment approaches and tools that go beyond traditional tests.

In conclusion, heutagogy-based learning strategies can be an effective way to strengthen the autonomous learning capabilities of university students in virtual study mode.

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