Teachers' and students' perspectives on the mastery, employability, and strengthening of university students in skills for lifelong learning

Perspectivas de docentes y estudiantes acerca del dominio, la empleabilidad y el fortalecimiento de los universitarios en competencias para el aprendizaje permanente

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ABSTRACT

The strengthening of graduates' competencies is directly related to the teaching-learning process, in which the main actors are teachers and students. Therefore, the purpose of this research is to identify the perception of both actors, regarding the key competencies of lifelong learning required for employability. Therefore, the eight competencies for lifelong learning were considered as dimensions, as indicators: mastery, impact on employability and the need for strengthening. The study was carried out using a quantitative analytical methodology, with a cross-sectional, non-experimental and descriptive design. The instrument applied was a hierarchy of closed questions to university professors in Colombia and Mexico. The results were compared with previous research focused on the students' perception. This confirmed the hypotheses put forward, regarding the perceptions of lifelong learning competencies among teachers and university students. The academic community is invited to reflect on and question the function and functioning of universities; considering the perceptions of university students and taking into account gender and the conditions of the work environment, where technology becomes an essential actor.

Keywords: employment; gender; lifelong learning; skills; teacher perception**.**

RESUMEN

El fortalecimiento de las competencias de los egresados está directamente relacionado con el proceso enseñanza-aprendizaje, cuyos actores principales son los docentes y los estudiantes. Por lo tanto, el propósito de esta investigación fue identificar la percepción de ambas partes respecto a las competencias clave del aprendizaje permanente requeridas para la empleabilidad. En ese sentido, se consideraron como dimensiones las ocho competencias para el aprendizaje permanente y se utilizaron como indicadores el dominio, el impacto en la empleabilidad y la necesidad de fortalecimiento. El estudio se realizó mediante una metodología cuantitativa analítica, con un diseño transversal, no experimental y descriptivo. El instrumento aplicado fue de jerarquización de preguntas cerradas a docentes universitarios de Colombia y México. Los resultados se compararon con una investigación antecedente enfocada en la percepción de los estudiantes. De esta forma se confirmaron las hipótesis planteadas respecto a que las percepciones de las competencias del aprendizaje permanente entre los docentes y los universitarios son distintas. Se invita a la comunidad académica a reflexionar y cuestionar la función y el funcionamiento de las universidades considerando las percepciones de los alumnos y tomando en cuenta el género y las condiciones del entorno laboral, donde la tecnología se convierte en un actor esencial.

Palabras clave: aprendizaje permanente; competencias; empleo; género; percepción docente.

INTRODUCTION

According to the Organization for Economic Co-operation and Development (OECD, 2021b), lifelong learning will become increasingly important due to the accelerated adoption of technology, demanding the identification of currently needed skills and emerging trends, as well as distinguishing those industries and sectors that will require these skills in the future. Based on this premise, the OECD proposes that countries focus on the following key aspects:

- Placing students at the center of learning.
- Developing lifelong skills (also known as skills for lifelong learning).
- Carrying out highly coordinated work to achieve inclusive and high-quality learning (Ekos, 2021).

These aspects require the active intervention of teachers, which is why their perception is a significant element in implementing actions and strategies. This research aims to identify the teachers' perspectives regarding skill mastery, its impact on employability, and the need to strengthen university students' competencies for lifelong learning. Researchers compared assessments collected from educators with those of university students in a previous study by Díaz et al. (2023) called "Life skills from the perspective of university students" to improve understanding of this topic.

Previous studies were carried out to understand teachers' perceptions regarding competencias development and their impact on employability, as illustrated in **table 1.**

Table 1. Previous research.

No.	Authors	Publication date	Country	Sample profile	Research objective and variables analyzed	Instrument used	Conclusions
1	Leiva-Miranda *et al.*	2024	Colombia	Six teachers and six eighth-grade Alpha students (Leiva-Miranda *et al.*, 2024).	To understand meaningful learning of intercultural competence according to the pedagogy for encounter (Leiva-Miranda *et al.*, 2024).	Qualitative research, case study type. Semi-structured interviews, discussion groups, and participant observation. (Leiva-Miranda *et al.*, 2024).	Educational practices must adapt to recognize thinking beings who feel, act, and live with multiple realities influencing their ideologies and representations of a continually evolving globalized world (Leiva-Miranda *et al.*, 2024).
2	Del Valle *et al.*	2023	Argentina	Twenty-one teachers in educational programs related to the agricultural sector (Del Valle *et al.*, 2023).	To describe university teachers' perceptions regarding the skills students, develop through the comprehensiveness of university functions (teaching, research, and extension) (Del Valle *et al.*, 2023).	Qualitative research, with semi-structured interviews. The qualitative approach allowed comprehension of teachers' collaboration while developing students' competencies within the framework of substantive functions (Del Valle *et al.*, 2023).	Teachers' perceptions regarding competency-based training in students are fundamental because they are the main actors in developing future professionals; they enroll students in the different substantive functions of the university and unify criteria to adapt and implement courses' study plans to develop the competencies required by the future professional. (Del Valle et al., 2023).

3	Rivero	2020	Colombia	Ten secondary school teachers and 20 students (ninth grade) between the ages of 14 and 16 (Rivero, 2020).	To analyze teachers' and students' perceptions concerning pedagogical practices within the framework of developing scientific research skills in ninth-grade students (Rivero, 2020).	Qualitative research using phenomenography (Rivero, 2020).	Teachers must seek appropriate teaching strategies that provide students with the necessary spaces in the educational act that permit the integration of knowledge reconstruction with investigative processes and learning to respond promptly to problem situations in their environment (Rivero, 2020).
4	Mendoza-Llanos *et al.*	2020	Chile	1,837 students and 227 academics from a public university in two regions of south-central Chile (Mendoza-Llanos *et al.*, 2020).	Evaluate the perception of university teaching competencies from the perspective of students and the institutional one provided by teachers (Mendoza-Llanos *et al.*, 2020).	The research is quantitative, non-experimental, and cross-sectional. Researchers used the Teaching Competence Scale of Salazar et al. (2016), which has 50 items in a Likert-type format. (Mendoza-Llanos *et al.*, 2020).	Research indicates that teachers place greater importance on competencies than students. The latter, for their part, value creating a pleasant classroom environment and innovating in work practices, while teachers prioritize the transmission of knowledge and making assessments more flexible. Both groups consider that the least significant competency is planning lessons. Women place more importance on competencies than men. Interpersonal relationships between students and teachers beyond the classroom are also identified as fundamental, including in the transmission of knowledge itself (Mendoza-Llanos et al., 2020).
5	Domingo-Coscolla *et al.*	2019	Spain	Nine Catalan universities provide training for future teachers in Early Childhood and Primary Education teacher degrees (Domingo-Coscolla *et al.*, 2019).	To understand students' and teachers' perceptions about the relationship between digital technologies and methodological digital competence (Domingo-Coscolla *et al.*, 2019).	Mixed methods research through analysis of available documentation, discussion groups, and questionnaires (Domingo-Coscolla *et al.*, 2019).	Teaching must link the university with society and promote the professional development of university professors and students' digital literacy, encouraging collaborative learning and authorship. Research highlights the importance of prioritizing communication and collaboration in the teaching and learning processes using digital resources for assistance. At the same time, ethics and digital citizenship emerge as new dimensions for consideration in educational practice (Domingo-Coscolla *et al.*, 2019).

6	Valencia-Arias *et al.*	2017	Colombia	Teachers of the Faculty of Economic and Administrative Sciences of Uniminuto (Valencia-Arias *et al.*, 2017).	To know teachers' perceptions regarding research processes carried out by the university, with the participation of teachers and students (Valencia-Arias *et al.*, 2017).	In-depth interviews with teachers to investigate knowledge, promotion, perception, expectation, and motivation, concerning research processes (Valencia-Arias *et al.*, 2017).	Teachers' and students' dissatisfaction with their expectations about the research processes was evident, requiring restructuring and changing previous approaches to some lines and higher sharing with other research communities in the country and abroad, if possible (Valencia-Arias *et al.*, 2017).

Source: own elaboration based on Domingo-Coscolla *et al.* (2019), Leiva-Miranda *et al.* (2024), Mendoza-Llanos *et al.* (2020), Rivero (2020), Valencia-Arias *et al.* (2017) y Valle-Álvarez *et al.* (2023).

Previous research agrees on the following:

- Interest in knowing university teachers' and students' perceptions concerning their competencies.
- Acknowledgment of the importance of appropriate teaching strategies.
- Teachers value competencies more than university students.
- Identifying whether there are different perceptions over competencies according to gender.
- It is important to promote the professional development of the teaching staff and link the university with society.
- A need to develop more open and transversal research processes.

The central concepts of the research are presented in the following lines for a better understanding.

Key competencies for lifelong learning

As a reference for the present investigation, researchers used the eight key competencies for learning defined by the Council of the European Union (2018) as follows:

- **Reading and writing:** The ability to identify, understand, express, create, and interpret concepts, feelings, facts, and opinions orally and in writing, using visual, audio, and digital materials in different disciplines and contexts; this implies the ability to communicate and connect effectively with other people, appropriately and creatively (Council of the European Union, 2018).

- **Multilingual:** The ability to use different languages appropriately and effectively for communication (Council of the European Union, 2018).

- **Mathematics and science, technology, and engineering competence:** Mathematical competence is the ability to develop and apply mathematical reasoning and perspective to solve problems in everyday situations. On the other hand, science competence refers to the skill and willingness to explain the natural world through a body of knowledge and methodology, including observation and experimentation, and to ask questions and draw conclusions based on evidence (Council of the European Union, 2018).

- **Digital:** Involves the safe, critical, and responsible use of digital technologies for learning, working, and participating in society, as well as interacting with these (Council of the European Union, 2018).

- **Personal, social, and learning to learn:** It is the ability to reflect on oneself, manage time and information effectively, collaborate with others constructively, maintain resilience, and self-manage learning and career (Council of the European Union, 2018).

- **Citizenship:** It is the ability to act as responsible citizens and participate fully in social and civic life based on the understanding of social, economic, legal, and political concepts and structures, as well as sustainability and world events (Council of the European Union, 2018).

- **Entrepreneurial:** It is established through a creative attitude, critical thinking, and problem-solving, as well as the ability to work collaboratively to develop projects sustainably for the benefit of society (Council of the European Union, 2018).

- **Cultural awareness and expression:** This involves understanding and respecting how ideas and meaning are creatively expressed and communicated across cultures through different arts and other cultural manifestations (Council of the European Union, 2018).

Key competencies for lifelong learning are a current and, (more importantly) applicable concept to respond to what young people seek in higher education according to a report by the United Nations Educational Scientific and Cultural Organization (UNESCO, 2022): to improve their knowledge, quality of life and employment prospects, contribute to solving national/global problems, learn to be more creative/innovative and support their community.

Employability and labor market

The concept of employability has transformed over the years. The Royal Spanish Academy (RAE, n.d.) defines it as the "Set of skills and attitudes that allow a person to get and keep a job." According to Vargas et al. (2023), this term "refers to transferable skills and qualifications that strengthen people's ability to take advantage of education and training opportunities presented to them to find and keep a decent job."

However, it is necessary to point out that work activities can present imbalances at a global level. For example, a low level of employee competence is evident occasionally compared to what employer's demand. Similarly, there are gaps between university education and the requirements of the productive sector and its variable structure due to the intensive incorporation of technologies (Vargas *et al.*, 2023).

Del Águila et al. (2022) state that employers are looking for graduates with specific skills to be successful in the workplace, such as social or problem-solving skills and professional strengths. Likewise, as companies prepare for new times in which digitalization will be increasingly present in society, so human talent must be part of these adaptations (Ignat, 2017, cited in Del Águila *et al.*, 2022).

Labor market information from the Mexican Institute for Competitiveness (IMCO, 2023) and the National Administrative Department of Statistics (DANE, 2023) in Colombia allows for identifying an average monthly income of the labor force that increases with higher educational levels attained, following a similar trend for both countries; the highest income increase was between the technical career level and the undergraduate (bachelor's) level.

However, Manpower Group (2023a, 2023b, 2024a, 2024b) reports that employers in Colombia have 66% difficulty finding qualified talent, while in Mexico it is 68%. According to the same organization, the social skills that are most difficult to find are collaboration and teamwork, reasoning and problem-solving, and responsibility and reliability. In addition, in terms of professional skills, the scarcest are those in information technology (IT) and data analysis, sales and marketing, customer service, and operations and logistics.

Teaching perspective

Teachers act as learning facilitators and help build university students' competencies. Through their teaching methods, feedback, and assessment, they

can actively foster lifelong learning competencies such as literacy, conflict management, effective communication, and teamwork skills; this involves teaching academic content and providing opportunities for students to practice and apply these skills in real-world situations.

In this order of ideas, according to Durán (2016), teacher training requires the development and delimitation of specific competencies in the exercise of their functions, roles, and strategies. At the same time, it is essential to strengthen their creative and innovative capacity in light of new dynamics in knowledge management and the strategic planning of the educational system. In short, it is clear that in the knowledge society, a series of demands arise in training requiring internal observation of one's conscience to respond to changes; some of these requirements are the integration of objectives into the environment and the linking and articulation of problems.

How teachers interpret university students' skills significantly impacts how they teach and reinforce them. Thus, when educators recognize the importance of competencies for lifelong learning, they are more likely to design their courses and activities to promote the development of these skills. On the other hand, if teachers underestimate or overlook specific competencies, students may not receive the necessary attention in those areas. This position is consistent with that of Bolaño (2021), who states that it is indispensable to have teachers who can inspire, provide, and implement effective learning resources through learning objectives, considering the context and needs of their students and using meaningful technological tools.

Now, concerning these investigations, the present study is considered innovative insofar as it examines the eight lifelong learning competencies established by UNESCO (2020) and the European Community, which are contemplated in the development plans for 2030. In addition, this work took place in two Latin American countries with a transversal quantitative approach, which broadens the perspective. Also, and above all, it seeks to give a concrete and pertinent application to the data by offering it as input for the design of a support instrument for university teachers and students, as well as enabling better decision-making from administrative areas in the current volatile, uncertain, complex and ambiguous (VUCA) environment (Hillson, 2017).

The research then aims to answer the following questions:

- What are teachers' perceptions regarding lifelong learning skills development in university students?
- Are there significant gender differences in the perception of lifelong learning competencies?
- Are there significant differences among teachers' and students' perceptions of lifelong learning competencies?

The study hypothesizes that perceptions about lifelong learning competencies among university teachers and students and those between women and men will differ. In the case of teachers and students, differences are expected because of their in the teaching-learning process, given that their functions and experiences are different. Regarding gender, the difference is expected based on the results of previous research carried out on this subject with Colombian and Mexican students (Díaz *et al.*, 2023).

Answering these questions will allow us to design strategies that make the teaching-learning process more robust according to current needs, favoring its acceptance and usefulness. The analyses will also become input for developing and integrating a guide to strengthening competencies for lifelong learning of university students, which will be published in open access and implemented in higher education institutions.

In short, this research's objectives are to analyze perceptions of lifelong learning competencies of university students from the teaching perspective and contribute to the design of a guide to

strengthening lifelong learning competencies of university students.

METHODOLOGY

This research was of an analytical quantitative type, since variable comparison and their relationships were established for testing the proposed hypotheses. The design is non-experimental because variables were not manipulated, transversal because it sought to describe the variables at a given time, and descriptive because the variables are analyzed (Maldonado *et al.*, 2023).

The object of analysis was teachers' perceptions regarding university students' key lifelong learning competencies; the eight competencies for lifelong learning described by the Council of the European Union (2018) were established as dimensions to assess this: reading and writing; multilingual; mathematics, science, technology, and engineering; digital; personal, social and learning to learn; citizen; entrepreneurial; and cultural awareness and expression. The following indicators were considered: level of skill mastery, skill impact on employability, and skill deficiency, rated on a quantitative scale from 1 to 5.

Researchers considered Bisquerra and Pérez-Escoda (2015) advice to improve the instrument's sensitivity while defining the scale, giving preference to a numerical scale over a semantic one. Therefore, only minimum and maximum values in the questions were established at the extremes to favor the continuity of the scale in the response options.

The instrument was applied to university teachers in Colombia and Mexico to find whether the perception of mastery, impact on employability and need to strengthen key competencies differed by gender. In addition, teachers' perspectives were compared with those of university students, which were obtained from a previous investigation.

The instrument was a questionnaire consisting of five demographic questions on a nominal scale (institution, educational program, highest study level, gender, and age), three questions on an ordinal scale to identify the perception of mastery levels, impact on employability and need to strengthen the eight key competencies, and one question to request authorization for the use of the information.

Researchers established a scale of 1 to 5 in the ranking questions, with 1 being the value to indicate the least mastery, impact on employability, or deficiency, and 5 corresponding to the highest value in each of these. To promote the reliability of the assessments, the definition of the key competencies for lifelong learning declared by the Council of the European Union (2021) was included in the instrument.

The questionnaire was applied through a Google form and responses were analyzed with Excel and the jamovi software. The latter is an advanced spreadsheet for executing classic statistical tests in social sciences and allows obtaining complex statistical calculations. (Universitat Oberta de Catalunya, 2019).

Two important characteristics of the instrument are validity and reliability. A commonly cited indicator for reliability, which refers to the precision in measuring an attribute or characteristic, is Cronbach's alpha coefficient, which can be used in scale variables (Rodríguez and Reguant-Álvarez, 2020). An alternative estimator is McDonald's ω coefficient, which has a higher lower reliability limit because it considers factor loadings, which are the weighted sum of the standardized variables, making the calculations more stable and reflecting the true level of reliability, regardless of the number of items (Vizioli and Pagano, 2022). Thus, the criterion indicated by different authors (Rodríguez and Reguant-Álvarez, 2020; Ventura and Caycho, 2017) is that a value of Cronbach's alpha and McDonald's ω that ranges from 0.70 to 0.90 indicates good internal consistency for a unidimensional scale.

RESULTS

The questionnaire was administered to 101 teachers. 43.6% of the participants were between

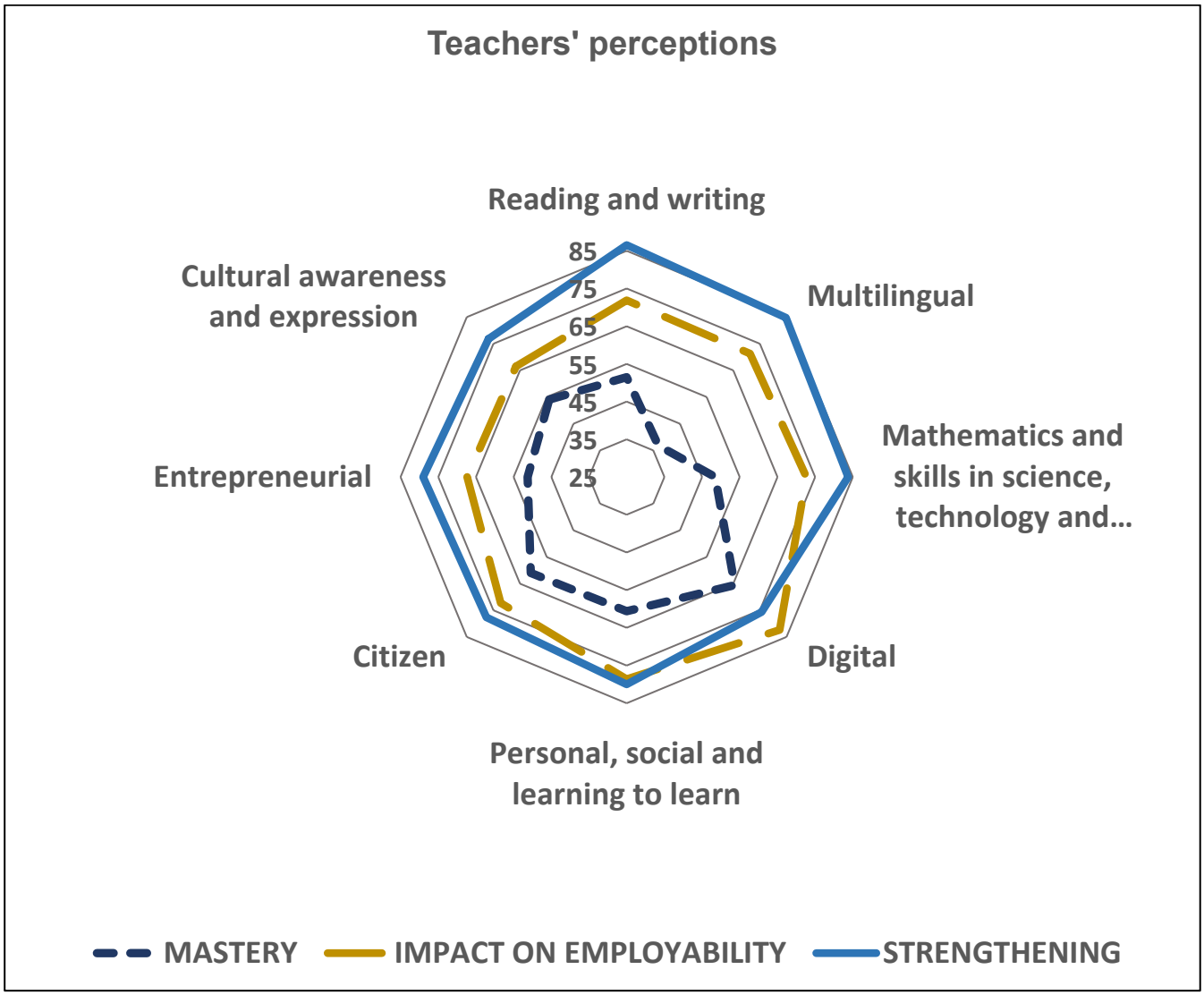
41 and 50 years old; 13.9% were doctors; 38.6% were teachers, and 12.9% were graduates. In addition, 58 of these respondents were women, and 43 were men. Table 2 shows the reliability data of the instrument obtained with jamovi (Navarro and Foxcroft, 2022; QuestionPro, n.d.; R Core Team, 2021; The jamovi Project, 2021). On the other hand, Figures 1, 2, and 3 reflect the results collected through the instrument.

Table 2. Sample scale reliability statistics.

	Cronbach's α	McDonald's ω
Sample	0,921	0,923
Skill mastery	0,912	0,913
Impact on employability	0,924	0,927
Deficient competencies	0,926	0,928

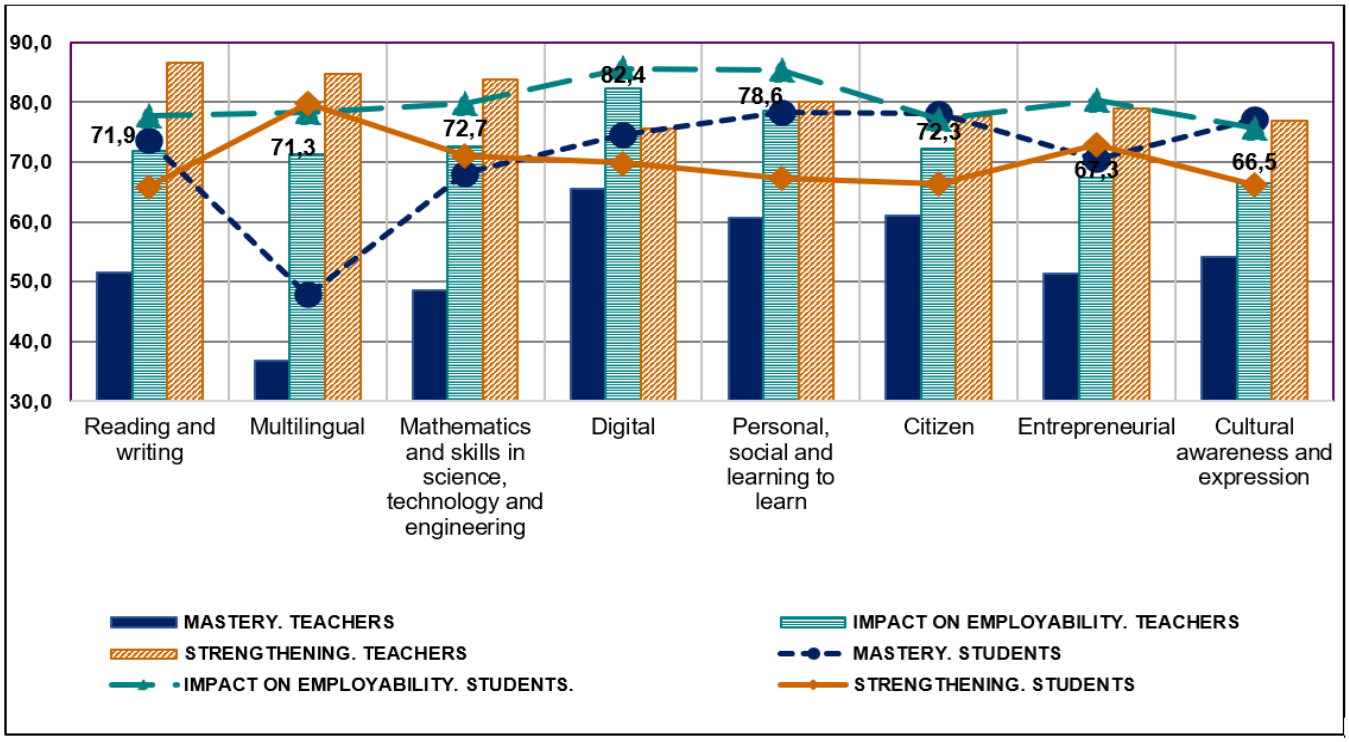
Source: own elaboration.

Figure 1. Teachers' perceptions results concerning university students' levels of competency.



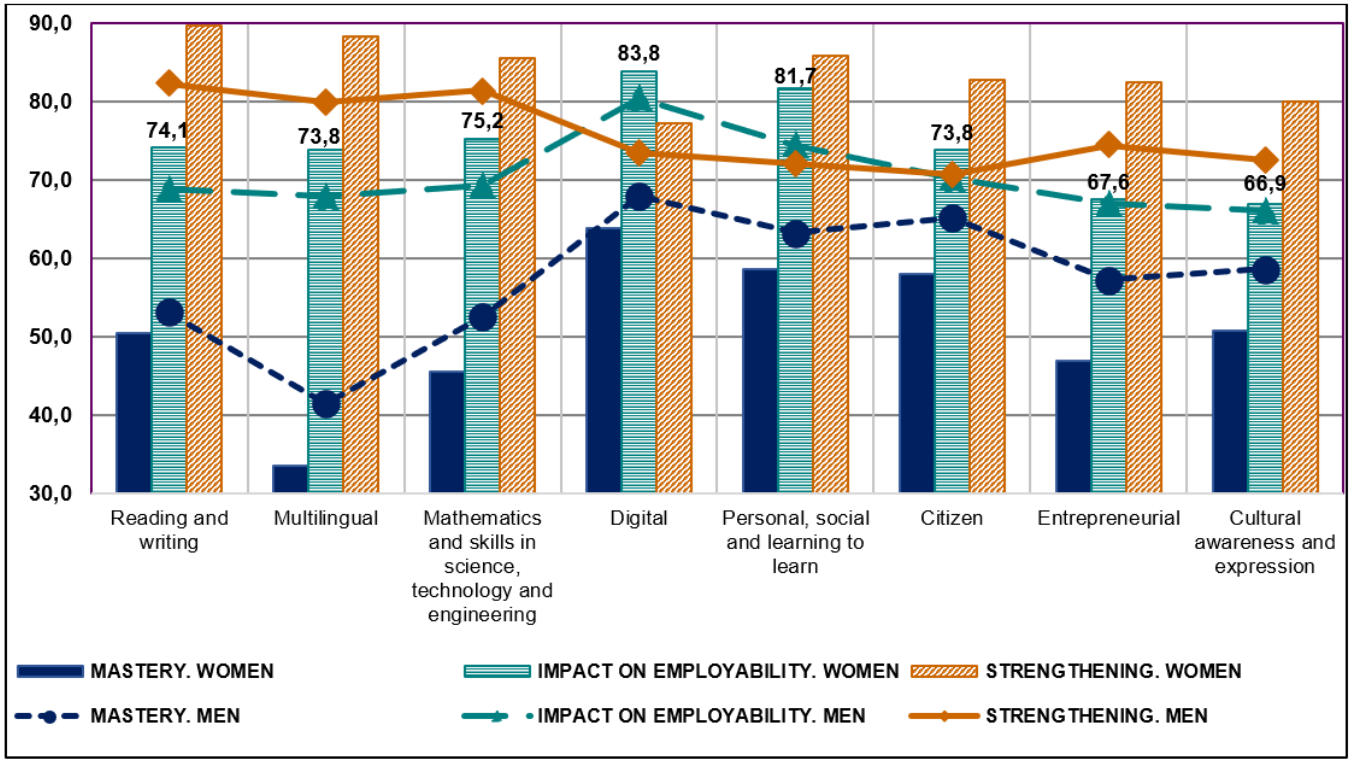
Source: own elaboration.

Figure 2. Comparison between student-teacher perceptions.



Source: own elaboration based on Díaz *et al.* (2023).

Figure 3. Comparison of teachers' perceptions from a gender perspective.



Source: own elaboration.

Table 3, summarizes the relevant lifelong learning competencies concerning employability, mastery, and the need for strengthening. Table 4, on the other hand, shows the difference in the perception of competencies between teachers and university students, in order from highest to lowest perceived importance.

Table 3. Perception of competencies concerning indicators.

	Competence with the highest impact on employability	**Competition for greater mastery**	**Most deficient competence**
University teachers	Digital	Digital	Reading and writing
University students	Digital	Personal, social, and learning to learn	Multilingual
Colombian teachers	Digital	Personal, social, and learning to learn	Multilingual
Mexican teachers	Digital	Digital	Reading and writing
Female students	Personal, social, and learning to learn	Citizen and cultural awareness and expression	Multilingual
Female teachers	Digital	Digital	Reading and writing
Male students	Digital	Personal, social, and learning to learn	Multilingual
Male teachers	Digital	Digital	Reading and writing

Source: own elaboration.

Table 4. Perceptions of university teachers' and students' competencies.

	Teachers	**University students**
Impact on employability	Digital Personal, social, and learning to learn **Mathematics, science, technology, and engineering** **Citizen** **Reading and writing** **Multilingual** **Entrepreneurial** Cultural awareness and expression	Digital Personal, social, and learning to learn Entrepreneurial Mathematics, science, technology, and engineering Multilingual Reading and writing Citizen Cultural awareness and expression
Domain	**Digital** Citizen **Personal, social, and learning to learn** **Cultural awareness and expression** Reading and writing Entrepreneurial Mathematics, science, technology, and engineering Multilingual	**Personal, social, and learning to learn** Citizen **Cultural awareness and expression** **Digital** Reading and writing Entrepreneurial Mathematics, science, technology, and engineering Multilingual
Need for strengthening	**Reading and writing** **Multilingual** Mathematics, science, technology, and engineering **Personal, social, and learning to learn** **Entrepreneurial** Citizen Cultural awareness and expression **Digital**	**Multilingual** **Entrepreneurial** Mathematics, science, technology, and engineering **Digital** **Personal, social, and learning to learn** Citizen Cultural awareness and expression **Reading and writing**

Source: own elaboration.

Finally, Table 5 shows the difference in competency perception by teachers according to their gender, in order from highest to lowest perceived importance.

Table 5. Perception of competencies according to gender.

	Females	**Males**
Impact on employability	Digital Personal, social, and learning to learn **Mathematics, science, technology, and engineering** **Reading and writing** **Multilingual** **Citizen** Entrepreneurial Cultural awareness and expression	Digital Personal, social, and learning to learn **Citizen** **Mathematics, science, technology, and engineering** **Reading and writing** **Multilingual** Entrepreneurial Cultural awareness and expression
Domain	Digital **Personal, social, and learning to learn** **Citizen** Cultural awareness and expression **Reading and writing** **Entrepreneurial** Mathematics, science, technology, and engineering Multilingual	Digital **Citizen** **Personal, social, and learning to learn** Cultural awareness and expression **Entrepreneurial** **Reading and writing** Mathematics, science, technology, and engineering Multilingual
Need for strengthening	Reading and writing **Multilingual** **Personal, social, and learning to learn** **Mathematics, science, technology, and engineering** **Citizen** **Entrepreneurial** **Cultural awareness and expression** **Digital**	Reading and writing **Mathematics, science, technology, and engineering** **Multilingual** **Entrepreneurial** **Digital** **Cultural awareness and expression** **Personal, social, and learning to learn** **Citizen**

Source: own elaboration.

DISCUSSION

This research's objective was met as it allowed analyzing teachers' perceptions of university students' competencies for lifelong learning. These findings are below.

The results of applying the instrument indicate that teachers perceive digital competence as the one with the greatest mastery and the highest impact on employability, while the competence lacking the most is reading and writing. Additionally, researchers observed that the highest scores came from the competence in need of strengthening indicator; the intermediate scores correspond to impact on employability, and the lowest is for the mastery indicator.

When differentiating Colombian and Mexican teachers' perceptions, researchers found these groups agree that digital is the competence with the highest impact on employability; however, Colombians regard personal, social, and learning to learn as the competence of greatest mastery, while Mexicans consider digital fits better into that category. Likewise, these teachers differ on the competency most lacking: for Colombians, it is multilingual; for Mexicans, reading and writing.

From a gender perspective, male and female teachers propose the same hierarchy: digital competence has the greatest mastery and highest impact on employability, while reading and writing is the most lacking. However, men perceive a greater mastery of competencies than women, and women, meanwhile, observe a greater deficiency and a higher impact on employability in competencies.

When comparing teachers' and students' perspectives, they agree that digital is the skill with the greatest impact on employability, which is consistent with the analysis by Manpower Group (2023a, 2023b) on talent shortages in Mexico and Colombia, where IT and data skills were among the top five most sought after by employers. This finding also follows the same line as the Economic Commission for Latin America and the Caribbean (ECLAC, 2020), which listed information and data management and technological and computational thinking among the ten key skills to develop.

Teachers and students also differ on the competence they master the most; teachers identify digital competence, while students highlight personal, social, and learning to learn. There is also a discrepancy around the most lacking competence: for teachers, it is reading and writing; for students, multilingualism.

CONCLUSIONS

This research confirmed the hypothesis that perceptions of lifelong learning competencies among university teachers and students differ; it also found that conceptions about lifelong learning vary in values among female and male teachers.

Teachers perceive digital competence as their top skill, unlike university students, who identify personal, social, and learning to learn at the top; however, previous research and accounts from educational institutions indicate low performance in this competence, so future work must delve deeper into the coincidence between university students' teachers' and employers' perceptions. Contrasting these assessments will allow proposing pertinent strengthening strategies that favor employability, considering generational differences and the conditions of the current environment, which will trigger constructive processes in lifelong learning.

Digital competence is the one that teachers and university students identify as having the highest impact on employability. This finding is consistent with the trends among students observed by Manpower Group (2022) regarding the importance of this skill in the workplace. Likewise, Garrido (2022) shows that employers hire people qualified in technologies that enable new strategic modalities of employability, such as home office, nearshoring, offshoring, e-learning, and using new digital platforms.

The above coincides with Guim and Marreno (2022), who indicate that competence using technologies is

related to insertion in the productive sector. Similarly, Shah et al. (2023) recognize that we live in the digital age, and the development of professional digital skills among university students is required so that they can obtain decent employment and enter the labor market.

From the teachers' perspective, the skills most lacking were reading and writing, and multilingualism. Meanwhile, university students identify multilingual and entrepreneurial as the weakest competencies. These considerations reinforce a statement by the British Council (2020) highlighting that multilingual people develop skills at the cognitive and personal levels while acquiring empathy and a global vision regarding problems and their solutions. In addition, it should be noted that we currently live in a globalized and digital era, where a message crosses borders, so leaders' voices can be heard by people of different cultures, ages, contexts, and languages, generating in young people the idea of being masters of their own time and the desire to start their own business.

On the other hand, since there are more coincidences in the competency hierarchy by gender, it is possible to consider that strengthening strategies can be similar for men and women. In this way, equitable behavior in their coexistence would be attainable and allow the opportunity to favor significant behavioral transformations at cultural, family, social, and work levels.

Although there are eight key competencies for lifelong learning, personal and social competence and learning to learn are essential to obtain the others; even Riquelme et al. (2022) indicate this skill is necessary for a person's integral development and to promote employability. In this sense, university students need a multidimensional perspective (physical, intellectual, emotional, cultural, social, economic, spiritual, and generational), and the exercise of interdisciplinarity will allow them to strengthen their character and self-esteem. This personal development has become something that runs parallel to academic and professional evolution, making people increasingly aware of working with dignity.

In any case, cognitive restructuring is required in university students to respond to the new labor demands, which seek a better balance between family, social, and work. However, it is also necessary for organizations to carry out tasks far beyond the contractual and design new ways of working with flexible schedules, where the mind works with pleasure, without pressure, preventing cognitive wear and tear and offering a more appropriate work environment, with spaces that encourage creativity and innovation. In stressed, tired, and unmotivated minds it will be very difficult to find answers that allow thinking about job well-being and generate the confidence of collaborators who perform with pleasure and dedication in an environment of trust and gratitude.

It is also important for teachers to understand that university students perceive themselves as part of a more globalized system, and to that extent, they identify the need to strengthen skills such as multilingualism and recognize digital skills as having a high impact on their employability. To emphasize the ability to learn and creativity in problem-solving are valued, rather than memorizing or mechanizing in this new environment.

Higher education institutions today have the challenge of training professionals capable of meeting the needs of the labor sector (Cifuentes, 2017). This research invites the academic community to reflect and question the function and operation of universities, considering university students; perceptions and the conditions of the environment in which technology becomes an essential player.

Furthermore, the key competencies strengthened in university students will be part of their lifelong learning and allow them to develop creative processes applicable in the workplace if meaningful experiences are provided, multiplying the benefits in the global environment. The population must adapt to demands immediately, which requires

important attention in educational processes and university education (Carrizosa, 2019).

In Mexico, in 2021, there were 40% more university students than in 2008 (IMCO, 2023), while in Colombia, in the same period, this number doubled (Subdirectorate of Sectoral Development Analysis and Monitoring Group of the Ministry of National Education, 2023). However, in both countries, the upward trend in this parameter was lost after the pandemic, which makes it imperative to strengthen key competencies that significantly improve the employability and quality of life of university students so that they recognize in their professional studies a tool to obtain a competitive advantage in the labor market.

The above is consistent with what Pérez (2021) indicated regarding the fact that jobs are becoming more competitive and involve greater challenges. Therefore, skills for lifelong learning are being more in demand by the labor sector, which recognizes their importance in productive relationships, the economy, and the success of an organization.

Being informed and prepared to acquire new technological advances in the workplace, and thus stimulating curiosity and the need to learn, are essential for digital competence to be obtained and applied in a VUCA work environment. Knowledge in this area includes using digital tools to develop reflective thinking, innovation, creativity, and the responsible and secure management of corporate and personal identity (Sánchez, 2018). In this way, it is recognized that it is essential to identify the need to acquire and improve the professional digital skills employers require from university students through new research.

The results of this research allow us to recognize the necessity of establishing a route or guide that strengthens the integral construction of lifelong learning in university teachers and students. For this reason, the need for the design and integration of a guide to improve university students' competencies for lifelong learning is validated and will be published in open access and implemented in higher education institutions.

DECLARACIÓN DE CONFLICTO DE INTERESES

The authors of this manuscript declare that during the execution of the work or the writing of the article, no personal interests or interests beyond our control have been involved, including misconduct and values other than those that are usually and ethically associated with research.

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AUTHORS' CONTRIBUTION

The authors contributed equally to the study design and conception, data acquisition, analysis and interpretation of data, writing of the manuscript, critical review, conclusions, and final approval of the document.

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