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# Editorial


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En un mundo en constante evolución, donde los avances tecnológicos y las nuevas formas de adquirir conocimiento se multiplican a gran velocidad, es imprescindible que los educadores estén preparados para enfrentar los desafíos del siglo XXI y brindar a nuestros estudiantes las herramientas necesarias para su éxito. En este contexto, el aprendizaje activo - un enfoque pedagógico centrado en el estudiante -, ha ganado cada vez más atención en los últimos años debido a su capacidad para promover la participación activa, el pensamiento crítico, la resolución de problemas y el desarrollo de habilidades prácticas en la nueva generación de estudiantes.

En el ámbito universitario, donde la formación docente es fundamental, la micro-implementación de estrategias de aprendizaje activo y la integración de temas de vanguardia en el currículo se han convertido en una oportunidad única para mejorar la calidad del proceso de aprendizaje-enseñanza y actualizar las prácticas docentes. De hecho, creemos que a medida que avanzamos hacia una sociedad del conocimiento cada vez más globalizada y diversa, es fundamental que el profesorado actual esté mejor equipado para satisfacer las necesidades de sus estudiantes y brindarles una educación de calidad, conforme a los nuevos requerimientos socioeducativos.

Con este telón de fondo, en esta edición hemos reunido una selección de artículos que reflejan, en mayor o menor medida, los cambios transformacionales en la educación superior de pleno siglo XXI. Por lo mismo, hemos incluido algunos artículos en inglés para así animar a nuestros pares a cruzar fronteras, de la mano de este idioma que sigue siendo el patrón lingüístico, por excelencia, del quehacer científico, a nivel global.

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En esta edición, cubrimos temas relacionados con metodologías activas, competencias genéricas, inteligencia artificial y sostenibilidad. Por tanto, esperamos proporcionar una visión integral y actualizada de la educación transformadora. También queremos alentar al profesorado universitario a explorar y adoptar enfoques de aprendizaje activo en sus aulas y a estar abiertos a la integración de temas transversales, tales como, competencias genéricas, inteligencia artificial y sostenibilidad, en sus disciplinas.

De este modo, confiamos en que los hallazgos y reflexiones presentados aquí serán de gran utilidad para mejorar la praxis docente, a través de la reflexión desde la acción, para así impulsar el cambio transformacional en la educación superior de pleno siglo XXI.

Agradecemos a nuestros colegas investigadores y expertos que han contribuido a esta edición de Revista Electrónica Transformar, así como a nuestro equipo editorial y pares revisores por su arduo trabajo y dedicación. Esperamos que disfruten la lectura de estos artículos y que les inspiren en su propia labor como docentes comprometidos con la educación transformadora.

Por último, queremos invitar a profesores, investigadores y profesionales, comprometidos con el cambio paradigmático, a participar activamente en los diversos congresos y proyectos internacionales organizados por la **Red Internacional de Investigadores en Educación - REDIIE** (https://rediie.cl/), con quienes formamos parte del Grupo Transformar (Chile).


**Fernando Vera, PhD**
Editor-in-Chief

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ORIGINAL ARTICLE

# Enhancing Student Engagement and Learning Outcomes through Faculty's Active Learning Practices

**FERNANDO VERA**[1]
https://orcid.org/0000-0002-4326-1660
[1]Universidad del País Vasco/Euskal Herriko Unibertsitatea, España

Correspondence mail: fernandovera@rediie.cl

## Abstract

The implementation of active learning practices in Higher Education Institutions (HEI)has become increasingly prevalent as educators strive to enhance student engagement and improve learning outcomes. engagement and improve learning outcomes. This article explores various active learning practices employed by faculty to enhance student engagement and improve learning outcomes. The data for the survey was collected through an online self-administered questionnaire by faculty members from an Argentinian state university (*n*=27). The main result of this article highlights the importance of creating interactive and student-centered learning environments through the implementation of various active learning strategies. In conclusion, the utilization of active learning practices by faculty members represents a powerful pedagogical approach that can transform higher education. By creating dynamic, interactive, and student-centered learning environments, faculty members can optimize student engagement and improve learning outcomes. Thus, it is imperative for HEIs to recognize the value of active learning and provide the necessary support for faculty members to embrace and implement these practices effectively.

**Keywords:** Active learning; Learning outcomes; Student engagement; Higher education.

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## Introduction

Traditional passive learning approaches, where students passively receive information through lectures, have limitations in promoting deep understanding, critical thinking, and problem-solving skills. Active learning, on the other hand, encourages students to become active participants in their own learning process. In recent years, the concept of active learning has expanded beyond traditional classroom settings. While face-to-face interactions remain crucial, the integration of technology has opened new possibilities for fostering student engagement and participation outside of the physical classroom environment (Vera *et al*., 2022).

With the advancements in educational technology, teachers now have access to a wide range of tools and platforms that can facilitate active learning beyond the confines of traditional classroom walls. Online discussion boards, collaborative document sharing, virtual simulations, and interactive multimedia resources are just a few examples of how technology can be leveraged to promote active learning.

By incorporating technology into their teaching practices, educators can create interactive and dynamic learning experiences that encourage students to actively participate in their own learning process. Whether through online forums where students can engage in meaningful discussions, virtual reality simulations that allow them to explore real-world scenarios, or multimedia presentations that cater to diverse learning styles, technology provides avenues for students to interact with course content in engaging and interactive ways

Faculty members, as facilitators of knowledge, have embraced various active learning strategies to foster student engagement, collaboration, and knowledge retention. Therefore, the role of a faculty in the class needs to be changed from providing knowledge to encouraging learners to involve in active tasks during the lesson time (McClean & Crowe, 2017; Siani, 2017). Furthermore, the new generations of students are much more multimodal and have their own ways of processing new learning. Precisely, active methodologies (interactive methods) respond to this new reality (Vera *et al.,* 2022).

*Defining active learning strategies*

Active learning methodology is an approach to learning and teachimg that emphasizes student engagement, participation, and active involvement in the learning process (Vera, 2023). It moves away from traditional passive instruction, where students are seen as passive recipients of knowledge, and instead promotes a student-centered approach where students take an active role in constructing their understanding of the subject matter. Active learning has been also understood as an approach to learning, therefore, focusing on a learning process instead of an instructional process (Hartikainen *et al.,* 2019). As a matter of fact, “Any methodological strategy that involves making autonomous and reflective decisions and solving problems could be considered an active methodology” (Vera, 2022, p. 51).

In active learning, students are encouraged to think critically, analyze information, and apply their knowledge in practical situations. Rather than solely relying on lectures and textbooks, active learning incorporates a variety of interactive activities and techniques to enhance learning outcomes. These may include group discussions, problem-solving exercises, case studies, simulations, role-playing, debates, and hands-on experiments.

The underlying principle of active learning is that students learn best when they are actively engaged in the learning process. By actively participating and interacting with the content and their peers, students are more likely to retain information, develop a deeper understanding of concepts, and acquire critical thinking and problem-solving skills. Active learning also promotes higher levels of student motivation, as it allows for personalization, relevance, and a sense of ownership over the learning experience. According to Vera & Tejada (2021):

> To invigorate higher education classrooms, faculty members should set aside their teacher-centered approach and allow their students to become more independent learners. In their classrooms, teachers and students together should create learning communities on shared goals, shared resources and shared patters and norms for participating as legitimate members of the communities. In their interactions with each other, both teachers and students assume identities and roles, which allows them to develop understandings of what constitutes not only the substance of what is to be learned, but also the very process of learning itself. (p. 62)

Furthermore, active learning methodologies are flexible and can be adapted to various disciplines and learning environments. They encourage students to explore and discover knowledge, rather than simply memorizing facts. Active learning also promotes collaboration and communication skills, as students are often required to work together in groups, exchange ideas, and articulate their thoughts.

Thus, implementing active learning methodologies may require a shift in the traditional role of the instructor (Arcos-Alonso, *et al.,* 2022; Vera, 2022). Instead of being the sole authority figure delivering information, the instructor becomes a facilitator, guiding and supporting students in their learning journey The instructor's role is to create a stimulating and inclusive learning environment, design meaningful learning activities, provide feedback, and encourage reflection.

Overall, active learning methodology fosters a student-centered approach that promotes deeper understanding, critical thinking, problem-solving skills, and engagement in the learning process. It aligns with the notion that students are active participants in their own education and prepares them for the complex challenges they may face in their academic and professional lives.

In this context, Constructivism and Social Learning Theory provide a robust theoretical foundation for understanding and implementing faculty's active learning practices (Kudryashova *et al*., 2016; Vera, 2016). These two theories complement each other and offer valuable insights into the cognitive and social processes involved in active learning, as explained below:

- **Constructivism:** This approach posits that learning is an active, constructive process where individuals actively build their understanding and knowledge through experiences and interactions with the environment. According to constructivist principles, faculty's active learning practices align with the idea that students are active participants in constructing their knowledge. By engaging students in hands-on activities, discussions, and problem-solving exercises, faculty facilitate the construction of meaning and the development of cognitive structures.

- **Social Learning Theory:** This theory emphasizes the importance of social interaction and observational learning in the learning process. According to this theory, individuals learn through observing and imitating others, and their learning is influenced by the social context in which they operate. In the context of active learning, faculty's practices such as collaborative learning and group work align with social learning principles by providing opportunities for students to interact, observe, and learn from one another. Peer-to-peer learning and collaboration foster the exchange of ideas, knowledge sharing, and the development of social and communication skills.

The application of Constructivist Learning Theory and Social Learning Theory on higher education focus on individual knowledge construction with social learning theory's emphasis on social interaction and observation. It acknowledges that active learning practices involve both individual cognitive processes and social dynamics. Students actively construct their understanding of concepts and ideas while also benefiting from collaborative learning experiences and the observation of their peers' perspectives and problem-solving strategies.

By grounding faculty's active learning practices within this theoretical framework, educators can gain a deeper understanding of the underlying cognitive and social processes at work. This understanding can inform instructional design, pedagogical strategies, and assessment approaches, leading to more effective implementation of active learning practices and improved student engagement and learning outcomes.

*Practical Strategies for Active Learning Implementation*

Active learning practices offer several advantages over traditional teaching methods. First and foremost, active learning enhances student engagement by involving them in hands-on activities, discussions, and group work. This engagement promotes deeper understanding, active participation, and increased motivation among students. Active learning also cultivates critical thinking skills, as students are encouraged to analyze, evaluate, and synthesize information rather than simply memorize facts. Furthermore, it fosters effective communication and teamwork, preparing students for real-world collaborative environments. The following are the most common active learning strategies used in higher education, including project-based learning:

- **Flipped Classroom:** In a flipped classroom model, faculty provide pre-recorded lectures or readings for students to review before class. Class time is then dedicated to interactive activities such as group discussions, problem-solving exercises, and application of concepts. This approach ensures that students come prepared and allows for more meaningful engagement during face-to-face sessions.

- **Collaborative Learning:** Faculty can organize group projects, case studies, or problem-solving activities that require students to work together in teams. This fosters peer-to-peer learning, encourages diverse perspectives, and promotes effective communication and teamwork skills.

- **Inquiry-Based Learning:** By posing open-ended questions and guiding students through the process of discovery, faculty can stimulate curiosity and critical thinking. This approach encourages students to explore, analyze, and draw conclusions independently, thus developing their problem-solving and research skills.

- **Use of Technology:** Leveraging digital tools and platforms, such as online discussion boards, virtual simulations, and interactive quizzes, can enhance active learning experiences. These technologies provide opportunities for students to actively engage with course content and collaborate with peers beyond the physical classroom.

- **Project-Based Learning (PBL):** This is a dynamic and immersive approach that actively engages students in authentic, real-world projects. In PBL, students work collaboratively to tackle complex problems or challenges that mirror those encountered in professional settings. By actively applying their knowledge and skills to address these real-world scenarios, students gain a deeper understanding of the subject matter and develop essential skills that go beyond mere memorization.

*Faculty Development for promoting active learning*

In today's rapidly changing world, education has become more crucial than ever in equipping students with the skills and knowledge they need to thrive. It is essential to recognize education as a complex ecosystem that encompasses a wide range of interconnected elements, with the learning process at its core. At the heart of this process are dedicated teachers, who possess specialized knowledge in various disciplines and serve as the driving force behind student learning and development (Ashwin, 2020).

Faculty development plays a pivotal role in ensuring that educators have the necessary tools and competencies to deliver effective instruction in the 21st century. To successfully implement active learning practices, it is imperative that faculty members engage in continuous professional development and receive ongoing support. Institutions can take proactive measures by organizing workshops, seminars, and mentoring programs aimed at equipping faculty with the pedagogical knowledge and skills required for active learning. These initiatives provide opportunities for educators to deepen their understanding of active learning methodologies, explore innovative teaching techniques, and share experiences and insights with their peers.

Therefore, collaboration among faculty members is a vital component of effective faculty development. By fostering a culture of collaboration, institutions encourage the sharing of best practices and the exchange of ideas among educators. Collaborative efforts enable faculty members to tap into a collective pool of expertise, allowing them to enhance their teaching methodologies and adapt to the diverse needs of students. The development of a supportive community of educators fosters an environment where innovative ideas can flourish and where continuous improvement is embraced.

Administrators also play a critical role in promoting faculty development and the successful implementation of active learning strategies. By providing necessary resources and incentives, administrators demonstrate their commitment to fostering a culture of active learning within the institution. This can include allocating funding for educational technology tools, creating dedicated spaces for collaboration and experimentation, and recognizing and rewarding faculty members for their efforts in adopting and refining active learning practices.

To successfully implement active learning practices, faculty members need continuous professional development and support. Institutions can facilitate this by organizing workshops, seminars, and mentoring programs to equip faculty with the necessary pedagogical knowledge and skills. Collaboration among faculty members is also essential, as it fosters the sharing of best practices and the development of a supportive community. Additionally, administrators should provide resources and incentives to encourage faculty members to experiment with active learning strategies and continually improve their teaching methodologies.

Investing in faculty development signifies an institution's dedication to delivering high-quality education that aligns with modern learning principles. Ongoing professional development empowers teachers to stay abreast of the latest educational research, instructional methods, and technological advancements. By continuously refining their teaching approaches and incorporating active learning methodologies, faculty members create dynamic and engaging learning environments that cater to the diverse needs and learning styles of students. The ultimate beneficiaries of this investment are the students themselves, who experience enhanced educational experiences, improved academic outcomes, and the development of crucial skills necessary for their future success.

## Method and materials

This is a quantitative-descriptive, cross-sectional study. In this regard, a descriptive design focuses more on the "What" of the research subject rather than the "Why" of the research subject. In other words, it describes the research topic without covering the "Why" it occurs (Vera, 2021). This approach has been chosen to facilitate access to the respondents through a Likert-based questionnaire, which was shared with faculty members participating in a specialization course on active learning at a state university in Argentina.

The participants' positive feedback regarding the questionnaire used in this study indicates that it was well-designed and user-friendly. This is a crucial aspect of research as it ensures that participants can easily comprehend and respond to the questionnaire, leading to accurate and reliable data collection.

The ease of reading the questionnaire implies that the language and formatting used were clear and accessible to the participants. As Hamed (2019), it is critical the questionnaires are easy to read and complete. This is important as it prevents any potential misunderstandings or misinterpretations of the questions, ensuring that participants can provide accurate and meaningful responses.

Moreover, the participants found the questionnaire easy to complete, suggesting that the structure and organization of the questionnaire were well-planned. The questions likely flowed logically, allowing participants to progress through the questionnaire smoothly without feeling overwhelmed or confused. This enhances the overall quality of the data collected and ensures that participants can provide thoughtful and comprehensive responses.

*Population and Sample*

The accessible population for this study consisted of faculty members who participated in a specialization course on active learning conducted by the author at the Faculty of Agricultural Sciences at a public university in Argentina (*n*=27). A response rate of 100% was obtained, with 4 males and 23 females (15% and 85%, respectively), with an average age of 42 years (SD=10.6).

## Results

Table 1 presents the results of a survey conducted to explore the perceptions of educators regarding the incorporation of active learning strategies in the classroom. The survey consisted of ten questions that aimed to assess various aspects of active learning and its impact on student engagement, problem-solving skills, critical thinking, and the development of generic competencies. The mean and standard deviation values provide insights into the participants' average ratings and the level of agreement or variability in their responses. This table serves as a valuable resource for understanding the educators' perspectives and can inform future discussions and decisions related to the implementation of active learning approaches in educational settings. The data presented in Table 1 were collected and analyzed by the researchers as part of their own study.

**Table 1:** *Survey results*

| Questions | N | Mean | SD |
|---|---|---|---|
| 1. Incorporating active learning in the classroom requires more rigorous planning on the part of the teachers. | 28 | 4.296 | 0.823 |
| 2. Active learning is an effective way to improve student engagement. | 28 | 4.741 | 0.526 |
| 3. Active learning can enhance students' ability to solve complex problems. | 28 | 4.815 | 0.396 |
| 4. Active learning can improve students' ability to apply what they have learned to real-life situations. | 28 | 4.778 | 0.424 |
| 5. Implementing active learning may require additional effort from teachers. | 28 | 4.296 | 0.953 |
| 6. Active learning can help students develop critical thinking skills. | 28 | 4.815 | 0.396 |
| 7. Active learning is an effective strategy for enhancing students' academic performance. | 28 | 4.407 | 0.694 |
| 8. Active learning requires authentic assessment of what has been learned, moving away from traditional tests. | 28 | 4.704 | 1.072 |
| 9. Active learning can be more challenging to implement than traditional learning. | 28 | 3.999 | 1.252 |
| 10. Active learning promotes the development of various generic competencies (communication, teamwork, etc.). | 28 | 4.704 | 0.465 |

*Source:* Own elaboration

According to the data above, it can be observed that participants generally agreed that active learning has positive effects on student engagement, problem-solving skills, real-life application, critical thinking, and the development of generic competencies. However, implementing active learning and authentic assessment were perceived as more challenging by the participants, as indicated by lower mean scores and higher standard deviations. These findings suggest the need for further exploration and support in implementing active learning strategies effectively in educational settings. Upon further analysis of the provided data, several patterns and insights can be observed:

- **Consistency of responses:** Across multiple indicators, the mean scores are consistently high, indicating that the participants generally agree on the positive effects of active learning. This suggests a consensus among the respondents regarding the benefits of active learning in various aspects of education.

- **Effectiveness of active learning:** Indicators such as improving student engagement, enhancing problem-solving abilities, and promoting critical thinking skills all received high mean scores (above 4.700). This indicates that the participants perceive active learning as an effective approach to achieving these educational goals.

- **Challenges in implementation:** The indicator regarding the challenges of implementing active learning received a relatively lower mean score (3.999) compared to the other indicators. Additionally, it has a higher standard deviation (1.252), suggesting a greater variability in participants' perceptions. This indicates that while active learning is viewed as effective, it may also present difficulties and barriers during implementation.

- **Rigorous planning and additional effort:** The indicators related to the planning required for active learning and the additional effort needed from teachers received mean scores around 4.300. These findings suggest that participants recognize the need for careful planning and increased effort on the part of teachers when incorporating active learning into their teaching practices.

- **Authentic assessment:** The indicator pertaining to authentic assessment in active learning received a mean score of 4.704, indicating that participants acknowledge the importance of moving away from traditional tests and adopting assessment methods that align with the principles of active learning. However, the high standard deviation (1.072) suggests some variability in participants' perceptions of this aspect.

- **Development of generic competencies:** The indicator related to the development of generic competencies, such as communication and teamwork, received a mean score of 4.704, reflecting participants' recognition of active learning's potential to foster these skills.

Furthermore, the analysis underscores the potential benefits of active learning in enhancing student engagement, critical thinking, problem-solving skills, and overall learning outcomes. The positive perceptions expressed by both educators and students highlight the value of active learning as an effective instructional approach.

However, the study also identifies several challenges that need to be addressed for successful implementation. These challenges include the need for adequate planning and preparation, ensuring sufficient teacher effort and commitment, and the development of appropriate assessment methods to evaluate student performance accurately. The findings emphasize the importance of providing ongoing support, professional development, and access to resources for educators to effectively incorporate active learning strategies into their teaching practices.

This study further suggests that institutional support and a collaborative culture are essential for the widespread adoption of active learning. Institutions should provide faculty members with the necessary infrastructure, technological tools, and pedagogical guidance to facilitate the implementation of active learning approaches. Additionally, the study highlights the importance of creating a supportive learning environment that encourages student participation, collaboration, and active engagement.

Overall, the analysis highlights the positive perceptions of active learning's effectiveness in various educational aspects. However, it also underscores the challenges associated with its implementation, emphasizing the need for careful planning, teacher effort, and the design of authentic assessment methods. The findings suggest the importance of providing support, training, and resources to educators to successfully integrate active learning into their classrooms and maximize its benefits for students' learning outcomes.

## Conclusion

Based on the analysis of the previous data, it can be concluded that active learning is generally perceived as an effective approach to improving student engagement, problem-solving abilities, critical thinking skills, and the development of generic competencies. The high mean scores across these indicators indicate a consensus among the participants regarding the positive effects of active learning in these areas.

However, it is important to note that implementing active learning can pose challenges. The indicator regarding the difficulties of implementation received a lower mean score and higher standard deviation, suggesting that participants recognized the complexities and potential barriers associated with adopting active learning strategies in the classroom.

The findings also highlight the need for rigorous planning, additional effort from teachers, and the use of authentic assessment methods aligned with active learning principles. These factors contribute to successful implementation and maximization of the benefits of active learning.

To facilitate the successful integration of active learning, educational institutions should consider providing support, resources, and training to educators. By addressing the challenges and providing the necessary support, educators can effectively implement active learning strategies, enhancing students' educational experiences and outcomes.

In conclusion, this group of faculty members views active learning positively for its effectiveness in enhancing various aspects of education. While challenges in implementation exist, recognizing and addressing these challenges can lead to successful implementation and the realization of the potential benefits of active learning in the classroom.

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ARTÍCULO ORIGINAL

# Sostenibilidad en Instituciones de Educación Superior chilenas

**DIEGO SILVA-JIMÉNEZ**[1]
https://orcid.org/0000-0003-2818-211X
1Universidad Central de Chile, Chile
**FERNANDO VERA**[2]
https://orcid.org/0000-0002-4326-1660
[2]Universidad del País Vasco/Euskal Herriko Unibertsitatea, España

Correo de correspondencia: diego.silva@ucentral.cl

## Resumen

La sostenibilidad en la Educación superior ha tomado un creciente énfasis, debido a la importancia de sus acciones hacia la sociedad. Sin embargo, se tiende a relevar el medio ambiental, cómo un único pilar, omitiéndose la sostenibilidad humana, social y económica. En este contexto, esta investigación busca describir la situación actual de la sostenibilidad en las Instituciones de Educación Superior (IES) chilenas. Desde un enfoque cuantitativo, se analizan las IES adscritas a la Red Campus Sustentable al 31 de julio de 2022 y con matrícula al 2022 (*n*= 32). Se encuentra que el tipo de sostenibilidad, con mayores acciones por institución, es la ambiental con un 18,8%, seguido de la sostenibilidad social con un 16,5% y la sostenibilidad económica 3,1%. En relación con la estructura organizativa, se encuentra que el concepto de sostenibilidad está más instalado que el de Responsabilidad Social Universitaria (RSU). Se concluye que este grupo de IES aborda la sostenibilidad, principalmente, desde la perspectiva medioambiental. Se recomienda avanzar hacia un enfoque más holístico de la sostenibilidad en la educación superior.

**Palabras clave:** Educación superior; Estructura organizativa; Medioambiente; Sostenibilidad.

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# Sustainability in Chilean Higher Education Institutions

**Abstract**

Sustainability in Higher Education has gained increasing emphasis due to the significance of its actions towards society. However, there is a tendency to prioritize environmental sustainability as a singular pillar, neglecting human, social, and economic sustainability. In this context, this research aims to describe the current situation of sustainability in Chilean Higher Education Institutions (HEIs). Using a quantitative approach, the study analyzes HEIs affiliated with the Sustainable Campus Network as of July 31, 2022, and with enrollment data for 2022 (*n*=32). The findings reveal that environmental sustainability is the most addressed type, with 18.8% of institutions taking significant actions, followed by social sustainability at 16.5% and economic sustainability at 3.1%. Regarding the organizational structure, sustainability is found to be more prevalent than the concept of University Social Responsibility (USR). It is concluded that this group of HEIs primarily addresses sustainability from an environmental perspective. Moving forward to a more holistic approach to sustainability in higher education is recommended.

**Keywords:** Higher Education; Organizational structure; Environment; Sustainability.

## Introducción

Dentro de los desafíos concretos para las universidades en Europa y el mundo, toma relevancia la contribución con relación a la sostenibilidad, en la misma línea se encuentra la formación de ciudadanos participativos y comprometidos con los diversos problemas sociales, la promoción de valores socialmente responsables al interior de la comunidad universitaria, aplicando criterios de responsabilidad social a su gestión interna, o insertando a la universidad en su entorno local inmediato (Gaete, 2011; 2016).

En la mayoría del mundo angloparlante se utiliza el término sostenibilidad y es usado ampliamente para indicar programas, iniciativas y acciones dirigidas a la preservación de un recurso en particular. Sin embargo, en realidad se refiere a cuatro áreas distintas, pero, vinculadas: sostenibilidad humana, sostenibilidad social, sostenibilidad económica y sostenibilidad ambiental, conocidas como los cuatro pilares de la sostenibilidad (RMIT University, 2017). Es por lo anteriormente expuesto que el objetivo de este estudio es describir la situación actual de la sostenibilidad en las Instituciones de Educación Superior (IES) chilenas.

Hoy en día, las organizaciones implementan cada vez más comportamientos responsables a medida que realizan actividades lucrativas. Distintos estudios han utilizado conceptos, tales como, ciudadanía corporativa, responsabilidad social empresarial, gestión de partes interesadas y ética empresarial. En este sentido en Chile, nace la Red de Campus Sustentable en el año 2009, cuya misión plantea: “Somos una Red de instituciones de educación superior y profesionales que trabajamos para desarrollar instancias de formación, colaboración y generación de instrumentos que promuevan culturas de sustentabilidad en la educación superior latinoamericana para construir una sociedad justa, diversa y regenerativa” (Red Campus Sustentable, 2019. p.15).

*Definiendo el concepto de sostenibilidad*

Sostenibilidad se define como la capacidad de satisfacer las necesidades presentes sin comprometer la capacidad de las futuras generaciones para satisfacer sus propias necesidades. Es un enfoque que busca equilibrar el desarrollo humano, económico, social y ambiental para garantizar la viabilidad a largo plazo de los sistemas y recursos naturales. Existen diferentes tipos de sostenibilidad, que se centran en aspectos específicos del desarrollo sostenible:

- **Sostenibilidad humana.** La sostenibilidad humana tiene como objetivo mantener y mejorar la calidad de vida de las personas (Ashby *et al*., 2012; Mutuku, 2018). De hecho, las inversiones en educación, salud, acceso a los servicios y desarrollo de competencias son todos programas bajo el paraguas de la sostenibilidad humana (UNESCO, 2014). Los recursos naturales y los espacios disponibles son limitados y existe la necesidad de equilibrar el crecimiento continuo con mejoras en la calidad de vida y el logro del bienestar económico para todos. En el contexto de los negocios, la sostenibilidad humana abarca el desarrollo de competencias para apoyar las funciones y la sostenibilidad de la organización y promover el bienestar de las comunidades y la sociedad. Así, una organización se verá a sí misma como un miembro de la sociedad y promoverá valores comerciales que respeten los derechos humanos. La sostenibilidad humana se centra en la importancia de cualquier persona directa o indirectamente involucrada en la fabricación de productos o la prestación de servicios (Benn *et al*., 2007).

- **Sostenibilidad económica:** La sostenibilidad económica tiene como objetivo mantener intacto el capital. Si la sostenibilidad social se centra en mejorar la igualdad social, la sostenibilidad económica apunta a mejorar el nivel de vida. En el contexto de los negocios, se refiere al uso eficiente de los activos para mantener la rentabilidad de la empresa en el tiempo. En concreto, este tipo de sostenibilidad se refiere a las prácticas que apoyan el crecimiento económico a largo plazo, sin impactar negativamente los aspectos sociales, ambientales y culturales de la comunidad (Ghaffar y El Aziz, 2021). Un enfoque más reciente de la economía reconoce la incorporación limitada de los componentes ecológicos y sociales en este modelo. La nueva economía incluye el capital natural (sistemas ecológicos) y el capital social (relaciones entre las personas).

- **Sostenibilidad social:** La sostenibilidad social tiene como objetivo preservar el capital social mediante la inversión y la creación de servicios que constituyen el marco de nuestra sociedad. El concepto se adapta a una visión más amplia del mundo en relación con las comunidades, las culturas y la globalización (Woodcraft, 2014). En otras palabras, significa preservar a las generaciones futuras y reconocer que lo que hacemos puede tener un impacto en los demás y en el mundo. Específicamente, la sostenibilidad social se centra en mantener y mejorar la calidad social con conceptos como la cohesión, la inclusión, la reciprocidad y la honestidad y la importancia de las relaciones entre las personas. Puede ser fomentada y apoyada por leyes, información e ideas compartidas de igualdad y derechos. La sostenibilidad social incorpora la idea

de desarrollo sostenible, tal como se define en los 17 Objetivos de Desarrollo Sostenible (ODS) de las Naciones Unidas.

- **Sostenibilidad ambiental:** La sostenibilidad ambiental tiene como objetivo mejorar el bienestar humano a través de la protección del capital natural (por ejemplo, tierra, aire, agua, minerales, etc.). Las iniciativas y programas se definen ambientalmente sostenibles cuando aseguran que las necesidades de la población sean satisfechas, sin riesgo de comprometer las necesidades de las generaciones futuras. La sostenibilidad ambiental hace hincapié en cómo las empresas pueden lograr resultados económicos positivos, sin dañar el medio ambiente, a corto o largo plazo (Reddy y Thomson, 2015). Según Dunphy *et al.* (2007), una empresa ambientalmente sostenible busca integrar los cuatro pilares de la sostenibilidad (sostenibilidad humana, sostenibilidad social, sostenibilidad económica y sostenibilidad ambiental).

Estos cuatro tipos de sostenibilidad están interconectados y se complementan entre sí. Por tanto, para lograr un desarrollo sostenible integral u holístico, es necesario abordar estos aspectos de manera equilibrada, considerando tanto el impacto ambiental como el humano, económico y social de nuestras acciones.

*Sostenibilidad en la Educación Superior*

De acuerdo con Vera (2023), la sostenibilidad en la educación superior se ha convertido en una prioridad fundamental para las instituciones académicas en todo el mundo. Por tanto, La universidad se presenta como un entorno privilegiado para la creación de propuestas pedagógicas que permitan la implementación de la Educación para el Desarrollo Sostenible (Alcalá del Olmo-Fernández *et at*., 2021). Por tanto, reconociendo su papel como formadores de futuros líderes y profesionales, las universidades están asumiendo la responsabilidad de integrar los principios de sostenibilidad en sus programas académicos, investigación, gestión de campus y colaboración con la comunidad. En efecto, las universidades, como instituciones que mantienen, preservan, trasmiten y crean conocimiento, son las llamadas a liderar los procesos de enseñanza sobre el desarrollo sostenible a través del ejemplo, siendo estas, las que deben generar cambios en sus acciones, competencias y currículo, para que puedan generar un impacto positivo y cambios en la sociedad a través de sus estudiantes y profesionales además de sus acciones con el medio y la comunidad (Silva *et al*., 2022).

Con la infusión de sostenibilidad en la educación superior sostenible se busca inculcar en el estudiantado una comprensión profunda de los desafíos ambientales, sociales y económicos a los que se enfrenta nuestro planeta, y equiparlos con las habilidades y conocimientos necesarios para abordar estos desafíos de manera innovadora y responsable (Vera, 2022; Vera, 2023). Al adoptar un enfoque holístico hacia la sostenibilidad, las instituciones de educación superior están contribuyendo activamente a la formación de ciudadanos comprometidos y conscientes que impulsarán un cambio positivo en la sociedad y promoverán un futuro sostenible para las generaciones venideras (Vera, 2023).

. En esta misma línea, el conocimiento que se construya en las Universidades es indispensable para generar propuestas concretas de cambio hacia la sostenibilidad y construcción de visiones alternativas de futuro (Nieto y Medellín, 2007), a través de sus procesos internos, académicos y de vinculación con el medio, además de su oferta programática, tanto en el

pregrado como en el post grado y educación continua, posicionando el tema en la agenda investigativa y social. Además, siguiendo a Vera (2023), como centros de conocimiento, innovación e influencia, las universidades tienen la responsabilidad de educar e inspirar a las futuras generaciones para que adopten prácticas sostenibles

Es más, no todas las universidades tienen una única política de sostenibilidad. Esta dependerá del posicionamiento de cada universidad, su historia, su situación de adscripción (pública o privada) y sus proyecciones a futuro, esto marca sus acciones por la sostenibilidad que responder a distintos esquemas organizativos y estrategias de acción, dando cuenta que no se encuentra alojado en una sola área de gestión o dependientes siempre de la misma jefatura (Alba, 2017). En este contexto, actualmente, las y los jóvenes universitarios, no reconocen la multidimensionalidad del desarrollo sostenible y lo asocian más a los temas ambientales, reduciéndolo a solo una de sus dimensiones, no logrando comprender la diversidad de conceptos sobre sostenibilidad que existen (Milanés *et al*., 2017). En esta misma línea, Vera (2022) es mucho más crítico al sostener que:

> Desde el micro-diseño curricular, los entornos de aprendizaje orientados a implementar la sostenibilidad deben ser interactivos y centrados en la persona que aprende, con actividades que inspiren a actuar. De este modo, se deja atrás el enfoque transmisivo de los cursos específicos en sostenibilidad que abordan temas, tales como, el agua, la energía y el calentamiento global, entre otros (silo funcional). p.20

Por otra parte, existe una creciente percepción de las problemáticas ambientales de estudiantes universitarios, y está influenciada por la información difundida en medios de comunicación de fácil y rápido acceso, como internet (Ramírez, 2015) desde ahí las plataformas sociales pueden difundir información alarmista, tomándose la agenda y llegando a este grupo más susceptible, como Facebook, Twitter o blogs que cualquier persona puede crear y administrar. Desde este punto de vista la crisis ambiental, se toma la agenda por sobre los otros pilares de la sostenibilidad, demandando a las universidades cumplan su misión de formar egresados con las competencias necesarias para la atención del medio ambiente, como una vía para llegar al desarrollo sostenible, sin dejar de lado los otros tres pilares de esta. (Piza-Flores *et al*., 2018)

Conforme a lo anterior, entre los principios de la sostenibilidad, más allá del área medio ambiental, que aparece con un fuerte posicionamiento, se encuentra fortalecer los valores colectivos y solidarios, que darán mayor sentido de armonía y empoderamiento hacia un futuro en comunidad, sin embargo, para ello se precisa del esfuerzo individual y colectivo de la sociedad (Milanés *et al.,* 2020) que trabaje, desde lo local, hacia lo nacional y mundial, ya que desde los territorios es que deben ocurrir los cambios.

*Red Campus Sustentable*

La Red Campus Sustentanble, con base en Chile, es una asociación de Instituciones de Educación Superior (IES) y profesionales que tienen como foco la promoción y sustentabilidad de las distintas organizaciones de educación terciaria con el claro objetivo de generar transformaciones que la sociedad requiere para ser sustentable. Entienden la sustentabilidad como una construcción colectiva mediante la cual la humanidad aspira a la posibilidad que el ser

humano y otras formas de vida prosperen en el planeta para siempre en este contexto presentan cinco categorías que responden a los grandes lineamientos que define la sustentabilidad en la educación superior (Red Campus Sustentable, 2022), tal como se puede apreciar en la Tabla 1.

**Tabla 1:** *Líneas de trabajo Red Campus Sustentable*

| Líneas de trabajo red campus sustentable | Definición/abordaje |
|---|---|
| Gobernanza y Seguimiento | Los compromisos de las instituciones de educación superior y su gobernanza deben estar centrada en aspectos fundamentales que logren facilitar la planificación participación coordinación y evaluación también incorporando y dando el seguimiento y sistematización para evaluar sus logros |
| Gestión de Campus | Los impactos en esta línea de acción están directamente relacionados con el funcionamiento diario de la organización y con el medio ambiente es muy importante que la comunidad educativa pueda ver las buenas prácticas diarias de las instalaciones |
| Vinculación con el Medio y Responsabilidad Social | contempla acciones de vinculación con el medio contribuyendo a una sociedad más más justa diversa y equitativa con acciones internas y externas con la comunidad local |
| Académica | es necesaria la incorporación de la sustentabilidad en los programas de formación como también en temáticas de investigación la formación de profesionales y la investigación son la principal actividad de las instituciones de educación superior siendo a través de estas donde ejercerán su influencia |
| Cultura Sustentable | todos los miembros que componen la comunidad educativa son parte del compromiso hacia la sustentabilidad apuntando a estilos de vida sustentables devuelta escribiendo la memoria cuánto |

Fuente: elaboración propia en base a Red Campus Sustentable (2022).

## Método

Para el cumplimiento del objetivo de esta investigación se utilizó una metodología cuantitativa, de diseño no experimental, transversal y con alcance descriptivo, sobre la sostenibilidad de las Instituciones de Educación Superior chilenas que son parte de la Red Camus Sustentable.

La población estuvo conformada por las 132 IES chilenas que presentaron matricula durante marzo del año 2022, a saber, fueron; 50 Centros de Formación Técnica, 34 Institutos Profesionales y 58 Universidades. (Servicio de Información de Educación Superior, 2022). Finalmente, la muestra quedo constituida por las 32 IES chilenas que están adscritas a la Red Campus Sustentable al 31 de julio de 2022, según información obtenida de página web oficial.

El análisis de la información se realizó ordenando la información en una tabla de a través de las siguientes variables, nombre de la Institución de Educación Superior, Nivel de la Institución Superior (Centros de Formación Técnica, Institutos Profesionales o Universidades.), la estructura organizacional de donde proviene el enlace con la Red Campus Sustentable, que se clasificaron en seis áreas (área de Administración, área de Sustentabilidad, Dirección de Carrera afín, Formación e Investigación, Responsabilidad Social Universitaria y Vinculación con el Medio), para finalmente clasificar a la IES en alguno de los cuatro pilares de la sostenibilidad, según el enfoque predominante reportado en las memorias 2018-2019 de la Red Campus Sustentable (2019)

## Resultados

De las 32 IES, tres corresponden a Centros de Formación Técnica, de los cuales dos pertenecen a grupos económicos de Universidades, seis corresponden a Institutos Profesionales y 23 son Universidades, tal como se aprecia en la Tabla 2.

**Tabla 2:** *Instituciones miembros de la Red Campus Sustentable al 31 de Julio de 2022*

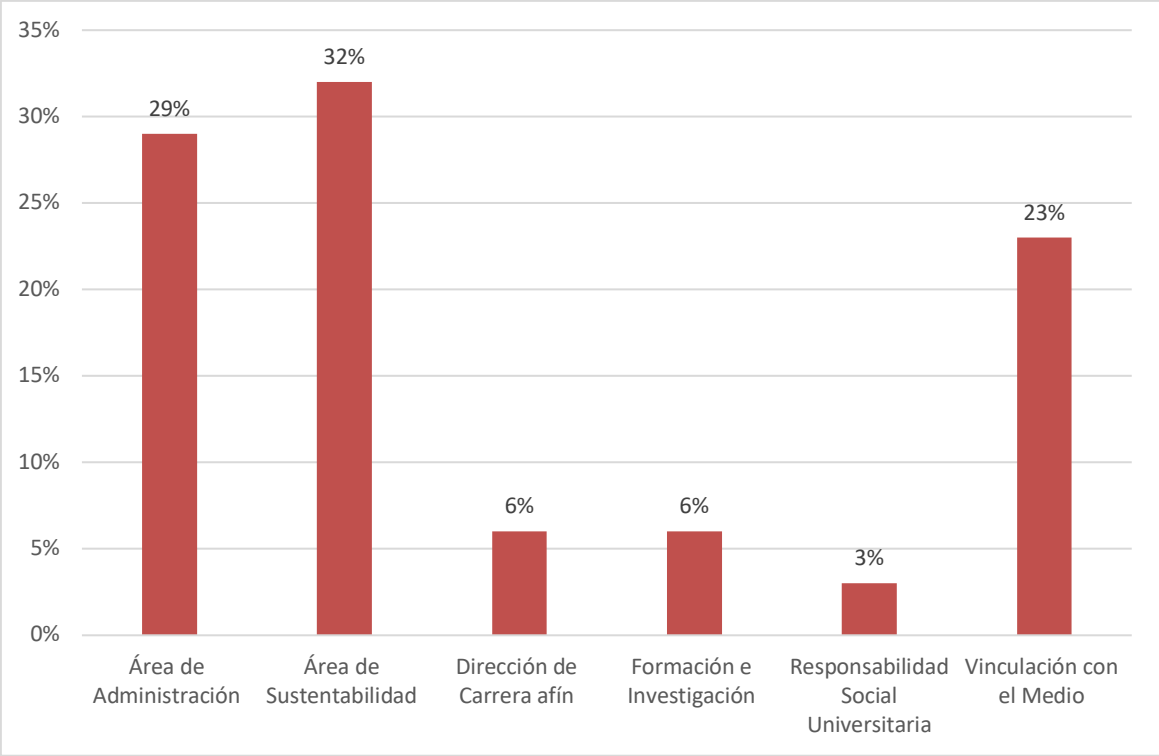
| | | | |
|---|---|---|---|
| Pontificia Universidad Católica de Valparaíso | Universidad Católica de la Santísima Concepción | Universidad de Chile | Universidad Andrés Bello |
| Universidad Católica del Norte | Pontificia Universidad Católica de Chile | Universidad de Magallanes | Universidad Metropolitana de Ciencias de la Educación |
| CFT Pontificia Universidad Católica de Valparaíso | Universidad tecnológica Metropolitana | IP Virginio Gómez Universidad de Concepción | Universidad de Talca |
| Universidad de Concepción | Duoc UC | Universidad Mayor | Culinary |
| Universidad Católica de Temuco | Universidad Austral de Chile | Instituto Profesional Arcos | AIEP de la Universidad Andrés Bello |
| Universidad Bernardo O´Higgins | Universidad Católica del Maule | Universidad Academia de Humanismo Cristiano | IACC |
| Instituto del Medio Ambiente | Universidad de los Lagos | ENAC | Universidad Católica Silva Henríquez´+{ |
| Universidad de Aysén | Universidad de Santiago de Chile | Universidad Autónoma de Chile | Universidad de la Frontera |

Fuente: elaboración propia con base en Red Campus Sustentable/socios

A continuación, se presentan las áreas dentro de la estructura organizacional de las instituciones afiliadas a la Red Campus Sustentable. Para realizar esta clasificación, se recopilaron y agruparon las diversas referencias proporcionadas, y se identificaron 6 estructuras organizacionales diferentes, como se detalla a continuación. Estas áreas en la estructura organizacional reflejan el compromiso de las instituciones de educación superior afiliadas a la Red Campus Sustentable con la sostenibilidad, abarcando diferentes aspectos que van desde la

gestión interna hasta la proyección hacia la comunidad y la formación de profesionales conscientes y comprometidos con un futuro sostenible (Figura 1).

**Figura 1:** *Porcentaje de clasificación de estructura organizacional según enlace con la Red Campus Sustentable*

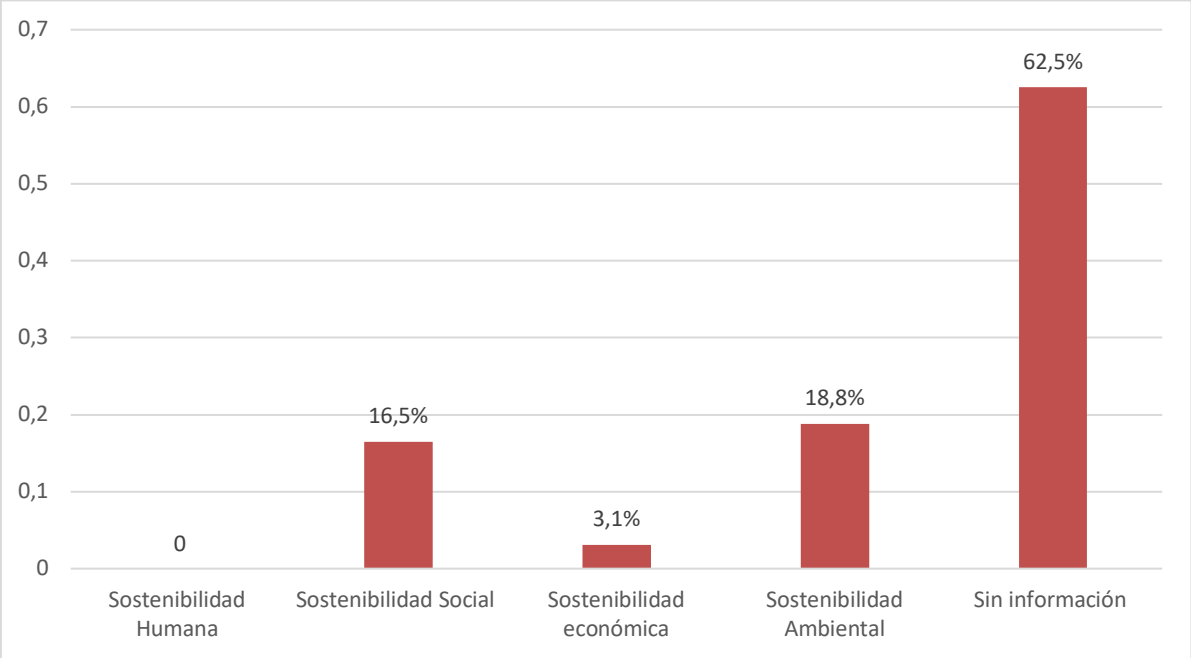



Fuente: elaboración propia con base en Red Campus Sustentable/socios

Se observa que el Área de Sustentabilidad es la mayor, con diez IES. Luego, sigue el Área de Administración, con ocho IES en dicha clasificación. Después viene Vinculación con el Medio, con siete IES, seguidos de Dirección de Carrera afín y Formación e Investigación, ambas con dos IES cada una. Finalmente, sigue Responsabilidad Social Universitaria, con solo una IES en su representación.

Del mismo modo, en la Figura 2 se puede observar que, al clasificar las IES, según alguno de los cuatro pilares de la sostenibilidad, en relación con las acciones realizadas y reportadas en la memoria 2018-2019 de la Red Campus Sustentable, se evidencia con que sólo 12 IES presentan actividades relacionadas con la sostenibilidad. Por ello, fueron clasificadas de la siguiente manera: seis plantean acciones del pilar ambiental, cinco de ellas lo hacen en el social, una en el económico, ninguna en el humano y 21 IES no presentan actividades para ser clasificadas.

**Figura 2:** *Clasificación de Instituciones de la Educación Superior según pilares de la sostenibilidad*




## Discusión

Los datos obtenidos en este estudio muestran con claridad que desde las Universidades chilenas hay un mayor énfasis hacia el área medioambiental, que podría entenderse, como enfoque de silo funcional (Vera, 2022), omitiéndose así algunas áreas. Esto ocurre debido a un mal entendimiento del concepto de sostenibilidad y su infusión en las universidades nacionales (Vera, 2022; Vera, 2023). Vale decir, se aborda el concepto de sostenibilidad sólo desde la perspectiva medioambiental, restringiéndolo a temas, tales como, gestión de residuos, mal uso de la electricidad, impresión excesiva de documentos, basura electrónica y malgasto de agua (Universidad de la Frontera, 2019), dejando de lado las áreas curriculares, proyectos de vinculación con el medio y la sostenibilidad de una manera más holística.

En el mismo sentido, Vera (2022a) plantea con claridad la necesidad de transversalizar efectivamente la sostenibilidad en el currículo, para avanzar hacia una Educación para el Desarrollo Sostenible, abordando y comprendiendo de manera holística las distintas situaciones problemáticas y catastróficas que ocurren hoy en la sociedad para abordarlas de manera multidisciplinar y no solo desde el ámbito medioambiental.

Por otra parte, y en contraste a lo encontrado en esta investigación, las palabras clave más usadas en las publicaciones de clúster en el campo de la educación para el desarrollo sostenible en educación superior, realizado a través de un análisis bibliométrico, aparecen, conceptos, tales como, educación, salud y educación superior (Alcalá del Olmo-Fernández *et al.*, 2021).

Sin embargo, el factor más estudiado en la educación superior y que releva mayor importancia en este ámbito, sigue siendo la perspectiva medioambiental de la sostenibilidad. De hecho, los estudios sobre sostenibilidad en la educación superior relevan distintos puntos de vistas, desde la lógica de los campus verdes y la percepción sobre problemas medioambientales por sobre temas de mayor alcance e impacto, tales como los ODS, que cubren ciudades, trabajo decente, género y educación de calidad, entre otros y no sólo desde el enfoque primario de la Cumbre de Rio del 92 (Silva *et al*., 2022; Berríos & González, 2020; Milanés *et al*., 2017; Ramírez, 2015).

## Conclusiones

Las IES chilenas desarrollan, actividades de sostenibilidad, principalmente, desde un enfoque medioambiental, dejando como una silla coja el desarrollo sostenible amónico. En la misma lógica, las estructuras organizacionales universitarias, donde se enmarcan las áreas de sostenibilidad, están marcadas por la administración y la vinculación con el medio, dejando muy lejos esta sostenibilidad armónica que se busca. Es en este sentido, se recomienda a las IES chilenas abordar la sostenibilidad, desde una perspectiva más holística y sistémica, dejando atrás el enfoque fragmentario de la realidad desde la perspectiva únicamente medioambiental.

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ARTÍCULO ORIGINAL

# Desarrollo de Competencias Genéricas en la Formación de Agronomía en la Universidad Nacional de Córdoba

**SANDRA LORENA RODRÍGUEZ-REARTES**[1]
https://orcid.org/0009-0006-2929-088
**ROSARIO BROUARD-URIBURU**[2]
https://orcid.org/0000-0001-9563-0547;
**MELINA SCANDALIARIS**[3]
https://orcid.org/0000-0002-7815-6975

[1,2,3] Facultad de Ciencias Agropecuarias, Universidad Nacional de Córdoba, Argentina

Correo de correspondencia: sarodriguez@agro.unc.edu.ar

**Resumen**

En un contexto de grandes cambios estructurales -a nivel social, tecnológico y económico - y de gran competitividad laboral, las Instituciones de Educación Superior debieran re-pensar tanto los recorridos de formación profesional como la declaración del perfil y capacidades del profesional para responder a las demandas de un mercado laboral exigente. En tal sentido, la Facultad de Ciencias Agropecuarias (FCA) de la Universidad Nacional de Córdoba (UNC) en Argentina ha realizado múltiples esfuerzos para responder a los nuevos paradigmas educativos. Los objetivos de este trabajo fueron, por un lado, identificar, ampliar y precisar las competencias genéricas (instrumentales, interpersonales y sistémicas) asociadas al perfil y capacidades del futuro profesional; y por otro, diseñar un modelo de prácticas optativas orientada al desarrollo transversal de competencias genéricas en el estudiantado. Se espera que, con la institucionalización, tanto del nuevo perfil y capacidades del profesional como de las prácticas optativas propuestas, se pueda promover el desarrollo de competencias genéricas, las cuales son trascendentales para la inserción laboral del/la Ingeniero/a Agrónomo/a. Este trabajo, representa un paso anticipatorio y preparatorio ante el inminente cambio de acreditación de las carreras de ingeniería por competencias.

**Palabras clave:** Aprendizaje activo; Habilidades blandas; habilidades para la empleabilidad; Competencias profesionales; Cambio curricular; Perfil profesional.

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# Development of Generic Competencies in Agronomy Education at the National University of Córdoba

**Abstract**

In a context of huge social, technological and economic changes and great labor competitivity, Higher Education Institutes must re-think curricular proposals and professional profile and capacities, in order to respond to exigent working market demands. In that sense, Faculty of Agricultural Sciences of National University of Córdoba in Argentina, has been making several efforts in order to respond to novel educational paradigms. The aims of this work were, on one hand, to identify, amplify and precisely generic competencies - instrumental, interpersonal and systemic- associated to future professional profile and capacities; and, on the other hand, to design a model of optative practices oriented to transversal generic competencies development in students. It es expected that institutionalization of both, novel professional profile and capacities, and the model of optative practices, generic competencies development can be promoted, which is transcendental to work insertion of Agronomic Engineers in labor market. This work represents an anticipatory and preparatory step in view of future changes in accreditation system in engineering careers.

**Keywords:** Active learning; Soft skills; Employability skills; Professional competencies; Curricular change; Professional profile.

## Introducción

Los tiempos post globalización se caracterizan por cambios acelerados, abundancia de información, rápida caducidad del conocimiento, múltiples interconexiones e internacionalización de las relaciones (Martínez Clares y Echeverría Samanes, 2009; Martínez Clares y Gonzales Morga, 2019). Dichas características se acentuaron de manera vertiginosa con la pandemia ocasionada por el COVID-19. En adición, los desarrollos en Inteligencia Artificial y robótica han permitido igualar o incluso superar las habilidades humanas tanto físicas como cognitivas (Corvalán, 2019).

En tal sentido, es frecuente que la oferta de puestos de trabajo se encuentre saturada por un gran volumen de profesionales formados en un área de conocimiento específica o que el perfil profesional no satisfaga las demandas de un mercado laboral cada vez más exigente (Paredes y Ortiz, 2020).

La proactividad, eficiencia, creatividad, adaptabilidad, movilidad, aprendizaje permanente y flexibilidad, son solo algunas de las demandas de los puestos de trabajo actuales (Martinotti, 2022; Vera, 2022). En este marco, los egresados debieran presentar habilidades y capacidades que les permita ser competitivos y generar un valor agregado, además de un sólido conocimiento profesional (Formichella y London, 2005).

En este contexto, de grandes cambios estructurales -a nivel social, tecnológico y económico- y de gran competitividad laboral, es necesario reflexionar sobre la concordancia entre las demandas profesionales y el perfil de los/las egresado/as. En tal sentido, las Instituciones de Educación Superior debieran re-pensar los recorridos de formación profesional y transformar los clásicos modelos conductistas en propuestas curriculares enfocadas a estrategias de aprendizaje activo que fomenten el desarrollo de habilidades para la empleabilidad (Martinotti *et al*., 2022).

En forma adicional, y en línea con la directriz marcada por los Objetivos de Desarrollo Sostenible 2030, las propuestas curriculares deberían readecuarse para garantizar la educación inclusiva, equitativa de calidad y promover oportunidades de aprendizaje permanente (OCDE, 2019).

*Las competencias genéricas*

Se entiende por competencias genéricas al conjunto de conocimientos, habilidades y destrezas que pueden aprenderse; permiten a los individuos realizar una actividad o tarea de manera adecuada y sistemática, y que pueden adquirirse y ampliarse a través del aprendizaje (OCDE, 2012). Dichas competencias son transversales a cualquier especialidad o disciplina (Pugh y Lozano Rodríguez, 2019, Beneitone *et al.*, 2007).

Existen varios términos para mencionar a las competencias genéricas. El mercado laboral ha denominado a las mismas como habilidades para la empleabilidad, habilidades socioemocionales o competencias blandas (*soft skills*) (Vera, 2022).

Para responder a las nuevas demandas del mercado laboral, el foco en muchas Universidades del mundo se encuentra en promover el desarrollo de habilidades y capacidades que permitan al futuro profesional integrar conocimientos, destrezas, valores y actitudes para desempeñar las tareas que le son requeridas.

Esta tendencia pedagógica, es conocida como “enfoque basado en competencias”. Dentro de este encuadre, las Universidades europeas han participado del “Proyecto *Tuning*”[1] con la finalidad de contribuir al proceso de Bolonia[2], en relación con la formación y desarrollo de competencias genéricas del estudiantado (González y Waagenaar, 2003; Vera, 2022). Siguiendo esta directriz, en el año 2004 en América Latina, ciento noventa instituciones de Educación Superior -pertenecientes a diecinueve países-, participaron del “Proyecto *Tuning* América Latina”[3]. Similar a lo ocurrido en Europa, la finalidad de este proyecto fue encontrar puntos de compatibilidad, comparabilidad y competitividad en la educación (Beneitone *et al*., 2007). La Universidad Nacional de La Plata participó del proyecto, como institución de educación superior representante de Argentina (González *et al*., 2004).

[1] Proyecto que busca puntos de referencia, convergencia y entendimiento entre las Universidades europeas; respetando la independencia académica de cada institución y celebrando la diversidad. *Tuning*, viene de tune, es decir, sincronizar.

[2] Este proceso, también denominado Plan Bolonia, propone crear un sistema de grados académicos fácilmente reconocibles y comparables, fomentar la movilidad de los estudiantes, docentes e investigadores, garantizar una enseñanza de gran calidad y adoptar una dimensión europea en la enseñanza superior.

[3] El “Proyecto *Tuning* América Latina”, tiene cuatro grandes líneas de trabajo: a- competencias (genéricas y específicas de las áreas temáticas), b- enfoques de enseñanza, aprendizaje y evaluación de estas competencias, c- créditos académicos y d- calidad de los programas.

Como resultado del "Proyecto *Tuning* América Latina", se conformó un listado de veintisiete competencias genéricas (Beneitone *et al*, 2007).

Las mismas se clasifican en tres grupos (Tabla 1): a- Instrumentales (In): capacidades cognitivas, metodológicas, tecnológicas y lingüísticas; b- Interpersonales (Ip): capacidades que permiten la interacción social y c- Sistémicas (Sis): integradoras que ayudan a entender las situaciones como sistemas complejos (Fortea Bagán, 2019).

**Tabla 1**: *Taxonomía de las competencias genéricas (Vera, 2022)*

| | |
|---|---|
| In | 1.Capacidad de abstracción, análisis y síntesis |
| | 2.Capacidad para organizar y planificar el tiempo |
| | 3.Conocimientos sobre el área de estudio y la profesión |
| | 4.Capacidad de comunicación oral y escrita |
| | 5.Capacidad de comunicación en un segundo idioma |
| | 6.Habilidades en el uso de TIC |
| | 7.Capacidad de aprender y actualizarse permanentemente |
| | 8.Habilidades para buscar, procesar y analizar información |
| | 9. Capacidad para resolver problemas |
| | 10.Capacidad para tomar decisiones |
| Ip | 11.Compromiso social y ciudadano |
| | 12.Capacidad crítica y autocrítica |
| | 13.Capacidad de trabajo en un equipo multidisciplinar |
| | 14.Habilidades interpersonales |
| | 15.Capacidad de motivar y conducir hacia metas comunes |
| | 16.Apreciación por la diversidad y multiculturalidad |
| | 17.Compromiso ético |

| | |
|---|---|
| Sis | 18.Capacidad de aplicar los conocimientos en la práctica |
| | 19.Capacidad de investigación |
| | 20.Capacidad para actuar en nuevas situaciones |
| | 21.Capacidad creativa |
| | 22.Compromiso con la preservación del medioambiente |
| | 23.Compromiso con su medio sociocultural |
| | 24.Habilidad para trabajar en contextos internacionales |
| | 25.Habilidad para aprender en forma autónoma |
| | 26.Capacidad para formular y gestionar proyectos |
| | 27.Compromiso con la calidad |

A partir de esta clasificación taxonómica se puede inferir que, de la totalidad de competencias genéricas, un 46% corresponde a las de tipo instrumental, un 22% a las interpersonales y un 32% a las sistémicas (Vera, 2022).

*Delimitación y justificación del objeto problema*

La reflexión del perfil del futuro profesional de una carrera permite orientar la selección de conocimientos y habilidades que son necesarios para objetivos profesionales específicos y la inserción en el mercado laboral (Beneitone *et al*., 2007). En tal sentido, las necesidades del contexto traccionan cambios a nivel curricular.

La información recolectada en la Planificación Estratégica Institucional 2030[4] (PEI) llevada a cabo por la Facultad de Ciencias Agropecuarias (FCA) de la Universidad Nacional de Córdoba (UNC) en el año 2022, aportó información institucional muy valiosa en relación con diversos ejes temáticos.

Con respecto a los/las egresados/as de la FCA UNC, se evidenció el desconocimiento de un diagnóstico que responda a las necesidades de los/las egresados/as en el medio productivo y la falta de competencias relacionadas al manejo de la información digital y actualización tecnológica.

[4] La Planificación Estratégica Institucional tuvo lugar en el año 2022, con el objetivo de realizar un diagnóstico participativo que involucre la opinión de toda la comunidad de la FCA. La información se recolectó a través de cuestionarios anónimos estructurados en ejes temáticos. Además, se llevaron a cabo talleres docentes por ejes temáticos, de los cuales se extrajeron conclusiones parciales. Toda la información recolectada se plasmó en una matriz FODA. Actualmente existe una comisión denominada COPEP, que se encuentra trabajando en la generación de Plan 2030.

También, la PEI proporcionó información en relación con la formación académica y perfil profesional. En relación con este eje, se evidenció como debilidad la escasa integración de los conocimientos adquiridos en la carrera, la rigidez de las propuestas formativas, la escasa formación en la elaboración de informes, la falta de socialización y difusión tanto de las prácticas optativas[5] como de sus resultados, y la necesidad de generar una mirada holística, integral y sistémica. Con respecto a las habilidades blandas por parte del estudiantado, en la PEI se manifestó que el mismo presenta escaso desarrollo de inteligencia emocional, resolución de conflictos y liderazgo.

Por otra parte, al realizar una revisión sobre el perfil y capacidades de los/las egresados/as de la carrera de Ingeniería Agronómica de la FCA UNC, se pudo detectar que no se encuentran declaradas en forma explícita las competencias genéricas. En forma adicional, en los objetivos de las prácticas profesionales optativas tampoco se encuentran expresamente enunciadas.

En relación con lo expuesto anteriormente, se identificaron las siguientes preguntas problema:

- ¿Cuáles son las competencias genéricas que deberían ser declaradas en forma precisa y explícita, o ampliadas en el perfil profesional y capacidades del Ingeniero Agrónomo?
- ¿Cómo se podría favorecer el desarrollo transversal de competencias genéricas en el estudiantado de la carrera de Ingeniería Agronómica de la FCA UNC, a través de estrategias de aprendizaje activo?
- ¿Cómo se podría implementar estas estrategias a nivel institucional?

Con este telón de fondo, se plantean los siguientes objetivos para este trabajo.

- Identificar, ampliar y precisar las competencias genéricas (instrumentales, interpersonales y sistémicas) asociadas al perfil y capacidades del futuro profesional.
- Diseñar un modelo de prácticas optativas orientado al desarrollo transversal de competencias genéricas en el estudiantado.

En cuenta a la meta, se espera que tanto la ampliación de las competencias genéricas asociadas al perfil y capacidades del futuro profesional y el diseño del modelo de prácticas optativas, puedan ser institucionalizados en el plazo de dos años.
Para ello, se espera que esta propuesta pueda ser discutida, mejorada y aprobada por el Honorable Consejo Directivo (HDC)[6]. Además, se espera que la implementación de este modelo de prácticas optativas sea llevada a cabo en al menos un veinte por ciento del total de las prácticas de iniciación profesional.

[5] Las Prácticas profesionales optativas del Ciclo de Consolidación Profesional se acreditan a través de actividades como el Practicanato Agronómico Optativo, Iniciación a la Práctica Profesional, Programa de Prácticas a Campo, Pasantías, Trabajos escritos sobre investigación-extensión, entre otros. El estudiante seleccionará de entre los programas que se desarrollan y cumplirá con la realización obligatoria en la carrera Ingeniería Agronómica, que otorgará 66 créditos.
[6] El Honorable Consejo Directivo es el órgano de gobierno de la Facultad. Cumple la función de dictar disposiciones de carácter general en materia didáctica, disciplinaria y administrativa.

*Perfil y capacidades del futuro profesional de la carrera de Ingeniería Agronómica de la FCA UNC*

*a) Identificación de las competencias en el perfil y capacidades del futuro profesional*

Según el Plan de Estudios 2004, el perfil profesional de la carrera de Ingeniería Agronómica de la FCA UNC, declara que:

> El Ingeniero Agrónomo es un profesional con capacidad de comprender y dirigir el diseño, mejoramiento, innovación y la operación de los sistemas de producción agropecuarios y forestal estructurados en el agroecosistema, tal que contribuya al mejoramiento de la producción, al bienestar de los productores con equidad social, al abastecimiento regional y nacional de los alimentos y a la obtención de productos para la industria y el comercio, todo ello conservando el medio ambiente. La ingeniería agronómica ha identificado al agroecosistema como su objeto de estudio, definido como una unidad ambiental y social compleja, que constituye un modelo específico de intervención del uso humano en la naturaleza, con fines de producción de alimentos y materias primas. La Facultad de Ciencias Agropecuarias forma profesionales con fundamentos científicos y tecnológicos, a través del conocimiento de núcleos temáticos básicos en ciencias formales, fácticas y socioeconómicas, y del desarrollo de destrezas, habilidades y actitudes que les permitan comprender la estructura y el funcionamiento de los sistemas agropecuarios.

Así mismo, las capacidades declaradas para el Ingeniero Agrónomo son:

- ***Evaluar, planificar y administrar*** *los sistemas agropecuarios con criterios de sustentabilidad y competitividad.*
- *Planificar la* ***generación, desarrollo, aplicación y enseñanza de conocimientos*** *científicos y tecnológicos.*
- *Contribuir en la* ***elaboración e implementación de políticas****, que promuevan el* ***desarrollo agropecuario equitativo.***
- *Participar en la* ***elaboración e implementación de programas de comunicación, extensión rural, transferencia de tecnología y desarrollo.***
- ***Dar respuesta*** *a las demandas del medio.*

Si bien no se declaran de forma explícita, se puede inferir que, tanto en el perfil como en las capacidades del egresado, se espera que un Ingeniero Agrónomo desarrolle las siguientes competencias genéricas (Tabla 2):

**Tabla 2:** *Competencias genéricas identificadas en el perfil y capacidades del egresado de la carrera de Ingeniería Agronómica de la FCA, UNC (Plan de Estudios, 2004)*

| Perfil y capacidades del egresado | Competencia genérica | Tipo de competencia |
|---|---|---|
| "capacidad de comprender y dirigir" | 10.Capacidad para tomar decisiones | In |
| | 12.Capacidad crítica y autocrítica | Ip |
| "innovación" | 21.Capacidad creativa | Sis |
| "con equidad" | 11.Compromiso social y ciudadano | Ip |
| | 17.Compromiso ético | Ip |
| "conservando el medio ambiente" | 22.Compromiso con la preservación del medioambiente | Sis |
| "conocimiento de núcleos temáticos básicos" | 3. Conocimientos sobre el área de estudio y la profesión. | In |
| "desarrollo de destrezas, habilidades y actitudes que les permitan comprender la estructura y el funcionamiento de los sistemas agropecuarios" | 1. Capacidad de abstracción, análisis y síntesis. | In |
| "Evaluar, planificar y administrar" | 2. Capacidad de organizar y planificar el tiempo. | In |
| "generación, desarrollo, aplicación y enseñanza de conocimientos" | 8. Habilidades para buscar, procesar y analizar información. | In |
| | 18. Capacidad de aplicar los conocimientos en la práctica. | Sis |
| | 19. Capacidad de investigación. | Sis |
| "elaboración e implementación de políticas, que promuevan el desarrollo agropecuario equitativo" | 26. Capacidad para formular y gestionar proyectos. | Sis |
| "elaboración e implementación de programas de comunicación, extensión rural, transferencia de tecnología y desarrollo." | 4. Capacidad de comunicación oral y escrita. | In |
| "Dar respuesta" | 9. Capacidad para resolver problemas. | In |

Con base en lo anteriormente expuesto, es posible observar que se encuentran contempladas, tanto en el perfil profesional como en las capacidades del Ingeniero Agrónomo, quince competencias genéricas, de las cuales un 47% son de tipo Instrumentales, un 20% son Interpersonales y un 33% son Sistémicas. Esta relación porcentual presenta concordancia con las competencias declaradas en el Proyecto *Tuning* América Latina, mencionadas anteriormente.

*a) Ampliación de las competencias del perfil y capacidades del egresado*

Las demandas actuales del mercado laboral exigen un desarrollo profesional integral, por lo tanto, sería adecuado ampliar y declarar otras habilidades para tener claridad institucional a la hora de readecuar las propuestas curriculares. Si bien se promueve el desarrollo de la mayoría de las competencias genéricas en forma implícita, es necesario ampliar la declaración del perfil y capacidades del futuro profesional para tener un norte institucional claro.

En tal sentido, en un contexto laboral globalizado e internacionalizado sería conveniente incorporar competencias instrumentales tales como la capacidad de comunicación en un segundo idioma y habilidades en el uso de las TIC.

En relación con las competencias interpersonales, sería muy oportuno declarar la capacidad de trabajo en un equipo multidisciplinar, las habilidades interpersonales, la capacidad de motivar y conducir hacia metas comunes y la apreciación por la diversidad y multiculturalidad.

Por último, en un mundo cambiante, intercultural e internacional, es necesario declarar competencias sistémicas tales como la capacidad para actuar en nuevas situaciones, el compromiso con el medio sociocultural, la habilidad para trabajar en contextos internacionales, la habilidad para aprender en forma autónoma y el compromiso con la calidad.

Por todo lo expuesto anteriormente, se propone la siguiente declaración del perfil y capacidades del futuro profesional de modo de incluir las competencias no explicitadas actualmente. Las ampliaciones sugeridas se encuentran destacadas en negrita:

> El Ingeniero Agrónomo es un profesional con capacidad de comprender y dirigir el diseño, mejoramiento, innovación y la operación de los sistemas de producción agropecuarios y forestal estructurados en el agroecosistema, tal que contribuya al mejoramiento de la producción, al bienestar de los productores con equidad social, al abastecimiento regional, nacional **e internacional** de los alimentos y a la obtención de productos para la industria y el comercio, todo ello conservando el medio ambiente, **respetando el medio sociocultural y manteniendo altos estándares de calidad.** La ingeniería agronómica ha identificado al agroecosistema como su objeto de estudio, definido como una unidad ambiental y social compleja, que constituye un modelo específico de intervención del uso humano en la naturaleza, con fines de producción de alimentos y materias primas. La Facultad de Ciencias Agropecuarias forma profesionales con fundamentos científicos y tecnológicos, a través del conocimiento de núcleos temáticos básicos en ciencias formales, fácticas y socioeconómicas, y del desarrollo de destrezas, habilidades y actitudes que les permitan comprender la estructura y el funcionamiento de los sistemas agropecuarios. **Además, promueve el desarrollo tanto de habilidades interpersonales como del aprendizaje autónomo**

Así mismo, las capacidades declaradas para el Ingeniero Agrónomo son:

- *Evaluar, planificar y administrar los sistemas agropecuarios con criterios de sustentabilidad, competitividad,* ***apreciación por la diversidad y multiculturalidad.***
- ***Participar en equipos de trabajo multidisciplinarios, con capacidad de liderar motivando y conduciendo hacia metas comunes.***
- *Planificar la generación, desarrollo, aplicación y enseñanza de conocimientos científicos y tecnológicos* ***acorde a las demandas socio-productivas.***
- *Contribuir en la elaboración e implementación de políticas, que promuevan el desarrollo agropecuario equitativo.*
- *Participar en la elaboración e implementación de programas de comunicación, extensión rural, transferencia de tecnología y desarrollo.*
- *Dar respuesta a las demandas del medio a* ***nivel nacional e internacional.***
- ***Comunicar en dos o más idiomas.***

Con esta propuesta, se identifican, amplían y precisan las veintisiete competencias genéricas establecidas por el Proyecto *Tuning* América Latina. De tal modo, la ponderación relativa entre las competencias instrumentales, interpersonales y sistémicas es de 46%, 22% y 32%, respectivamente.

*Diseño de un modelo de prácticas optativas*

*a) Fundamentación pedagógico-didáctica*

Esta propuesta se enmarca dentro de las estrategias de aprendizaje activo. La participación activa del estudiantado en su proceso de aprendizaje permite involucrarlo, no solo a nivel mental, sino también físico y emocional. Además, este aprendizaje es de tipo experiencial, en el cual la construcción del conocimiento se encuentra cimentada en la acción y la posterior reflexión (Gleason Rodríguez y Rubio, 2020). Adicionalmente, el proceso de aprendizaje se plantea en un contexto significativo, con la finalidad de establecer relaciones entre los contenidos y el mundo. Las ventajas de este tipo de aprendizaje se ven reflejadas en una mayor motivación que tracciona el aprendizaje (Escribano y Del Valle, 2010), en un proceso de aprendizaje autorregulado (Cosi Cruz *et al.*, 2023), una comprensión más profunda y una asimilación de contenidos duradera y a largo plazo, producto del desarrollo de procesos cognitivos complejos tales como la integración de saberes, el pensamiento crítico y la capacidad creativa (Krathwohl, 2002; Luy Montejo, 2019).

El aprendizaje basado en retos o desafíos (ABR) es una metodología innovadora que consiste en una experiencia vivencial para el estudiantado ya que plantea una problemática de la vida real para que aplique los conocimientos académicos y proponga alternativas de soluciones creativas, innovadoras y sostenibles en el tiempo. Esto promueve el desarrollo de competencias blandas.

Gibert Delgado y colaboradores (2018) refieren que el ABR es un recurso didáctico para el diseño de experiencias y actividades que agreguen valor a las clases, que conecten el estudiantado con lo que está sucediendo en el mundo y que contribuyan en la mejora de la comunidad. El ABR tiene como objetivo establecer una interacción entre el estudio académico y la transferencia a la práctica, de tal manera que uno estimule al otro. Además, el ABR fomenta el compromiso de superación, proporciona habilidades y destrezas aplicables a todas las áreas de la vida e introduce al estudiantado al trabajo interdisciplinario y de equipo. También esta

estrategia de aprendizaje activo permite consensuar acciones concretas para propuestas de retos con el sector productivo en general, así como realizar programas de vinculación y desarrollo tecnológico.

Mariño y Alderete (2022) sostienen que el ABR permite la resolución de una problemática en el mundo real. Así, estudiantes próximos a culminar sus estudios superiores plantearon una idea de su interés o problemática a resolver y la desarrollaron con el acompañamiento y guía del profesorado. Aplicando la técnica ABR se logró un aprendizaje significativo ya que el estudiantado trabajó con el profesorado y personal experto de la comunidad, y además abordaron problemáticas reales para desarrollar un conocimiento profundo de la temática planteada. En tal sentido, es el propio reto lo que motiva la obtención de nuevos conocimientos y los recursos o herramientas necesarios para dar solución a la problemática identificada. Durante el proceso el estudiantado analiza, diseña, desarrolla y ejecuta la mejor solución para abordar el reto de una manera visible y cuantificable en un producto tecnológico concreto.

Bou Ysás, *et al*. (2022) indican que para el desarrollo del ABR el estudiantado necesita de la guía del profesorado para la selección de una idea general; el planteamiento de una serie de preguntas concretas y posterior elección de una idea esencial. A partir de esta última, surge un reto que involucra al estudiantado en la búsqueda de una solución concreta, convirtiéndose en un producto desarrollado por este último. El producto tecnológico se propone, se evalúa y publican sus resultados.

Esta metodología de enseñanza y aprendizaje permite el desarrollo de habilidades tales como el pensamiento crítico, análisis, creatividad, aprendizaje colaborativo y comunicación interpersonal. Además, facilita la articulación vertical y horizontal de los espacios curriculares de la carrera a través de la solución de problemas reales de la sociedad.

*b) Diseño de la propuesta didáctica*

Las prácticas profesionales optativas se enmarcan en el Ciclo de Consolidación Profesional de la carrera de Ingeniería Agronómica. Éstas tienen como meta la síntesis de los sistemas agropecuarios. Las mismas pueden acreditarse a través de distintos programas tales como Practicanatos Agronómicos Optativos, Prácticas de Iniciación Profesional, Prácticas a campo o Trabajos de Investigación, Extensión o Desarrollo tecnológico.

Esta propuesta se focaliza en las Prácticas de Iniciación Profesional, generando un modelo alternativo tendiente al desarrollo de competencias en relación con el perfil y capacidades del futuro profesional propuesto anteriormente. Según lo declarado por la Ordenanza HCD N° 2/22 los objetivos de este formato de prácticas optativas son:

1. Estimular la participación de los estudiantes en los procesos de investigación, experimentación adaptativa, extensión, docencia y producción en las Ciencias Agropecuarias.
2. Profundizar las relaciones entre estudiantes y docentes.
3. Comprender los procedimientos que se llevan a cabo en la investigación, experimentación, extensión, docencia y producción en las Ciencias Agropecuarias.
4. Cooperar con los equipos de investigación, experimentación, extensión, docencia y producción en la búsqueda de nuevos conocimientos en las Ciencias Agropecuarias.
5. Valorar el esfuerzo y la creatividad en la resolución de nuevas situaciones problemáticas en las Ciencias Agropecuarias.

La acreditación se otorga con la certificación del/ de la tutor/a mediante un informe escrito de las actividades realizadas. Dicho informe, muchas veces no es socializado a nivel institucional, por lo que los avances en áreas específicas quedan en el conocimiento del estudiantado y su tutor/a.

Se puede inferir, que entre los objetivos de las iniciaciones profesionales se encuentran de manera implícita, competencias genéricas de tipo instrumentales (objetivos 3 y 4), interpersonales (objetivos 1, 2 y 4) y sistémicas (objetivos 3 y 5). Por tal motivo, se proponen los siguientes objetivos para ampliar el desarrollo de las competencias en el estudiantado, en concordancia con las declaradas en el nuevo perfil (Tabla 3):

**Tabla 3:** *Objetivos propuestos para la práctica de iniciación profesional.*

| **Objetivo de la práctica** | **Competencia a desarrollar** | **Tipo de competencia** |
|---|---|---|
| 1. Promover un rol activo del estudiantado en el proceso de aprendizaje. | 25. Habilidad para aprender en forma autónoma | Sis |
| 2. Estimular la participación de los estudiantes en los procesos de investigación, experimentación adaptativa, extensión, docencia y producción en las Ciencias Agropecuarias, en relación a inquietudes o problemáticas de la práctica profesional. | 19. Capacidad de investigación | Sis |
| | 18. Capacidad de aplicar los conocimientos en la práctica | Sis |
| | 3. Conocimiento sobre el área de estudio y la profesión. | In |
| 3. Desarrollar un proceso de aprendizaje autónomo, autorregulado y basado en la experiencia vivencial. | 25. Habilidad de aprender de forma autónoma. | Sis |
| 4. Delimitar una problemática concreta de estudio con impacto en el medio, de acuerdo a las inquietudes propias del estudiantado. | 1. Capacidad de abstracción, análisis y síntesis. | In |
| | 8. Habilidades para buscar, procesar y analizar información | In |
| | 26. Capacidad para formular y gestionar proyectos | Sis |

| | | |
|---|---|---|
| 5. Desarrollar y planificar la metodología de trabajo para la resolución del problema planteado. | 2. Capacidad para organizar y planificar el tiempo | In |
| | 26. Capacidad para formular y gestionar proyectos | Sis |
| 6. Cooperar con los equipos de investigación, experimentación, extensión, docencia y producción en la búsqueda de nuevos conocimientos en las Ciencias Agropecuarias, en un marco de respeto por la multiculturalidad, la diversidad y las metas comunes. | 14. Habilidades interpersonales | Ip |
| | 16. Apreciación por la diversidad y multiculturalidad | Ip |
| | 13. Capacidad de trabajo en un equipo multidisciplinar | Ip |
| | 15. Capacidad de motivar y conducir hacia metas comunes | Ip |
| 7. Valorar el esfuerzo y la creatividad en la resolución de nuevas situaciones problemáticas en las Ciencias Agropecuarias. | 21. Capacidad creativa | Sis |
| | 9. Capacidad para resolver problemas | Sis |
| | 20. Capacidad de actuar en nuevas situaciones | Sis |
| 8. Valorar las problemáticas, soluciones planteadas y la toma de decisiones desde lo social, ético, ambiental, comunitario e internacional, cuidando la calidad del producto final. | 10. Capacidad para tomar decisiones | In |
| | 11. Compromiso social y ciudadano | Ip |
| | 22. Compromiso con la preservación del medioambiente | Sis |
| | 23. Compromiso con su medio sociocultural | Sis |
| | 24. Habilidad para trabajar en contextos internacionales | Sis |
| | 17. Compromiso ético | Ip |
| | 27. Compromiso con la calidad | Sis |
| 9. Desarrollar habilidades en el uso de tecnologías de la información y la comunicación | 6. Habilidades en el uso de TIC | In |

| | | |
|---|---|---|
| 10. Comunicar y socializar los resultados obtenidos a nivel institucional e interinstitucional, en uno o más idiomas | 4. Capacidad de comunicación oral y escrita | In |
| | 5. Capacidad de comunicación en un segundo idioma. | In |
| 11. Reflexionar de forma crítica sobre la práctica desarrollada. | 12. Capacidad crítica y autocrítica | In |
| 12. Vivenciar este proceso como un medio para la actualización profesional en forma permanente. | 7. Capacidad de aprender y actualizarse permanentemente | In |

La ponderación relativa entre las competencias instrumentales, interpersonales y sistémicas es de 46%, 22% y 32%, respectivamente.

## Método

Se trata de un proyecto de mejoramiento curricular desde el ABR (Bou Ysás, *et al*., 2022). Se busca intervenir sobre el estudiantado que lleva a cabo las prácticas de iniciación profesional, en promedio cada año 321 estudiantes se inscriben para las mismas. Para ello, se realizará un diagnóstico inicial (pre-test) y, posteriormente, una evaluación final (post-test) para verificar cambios actitudinales o capacidades desarrolladas luego de la intervención. El instrumento aplicado será una rúbrica autoevaluativa, basada en las 27 competencias del Proyecto *Tuning* Latinoamérica (González, *et al*., 2004). Adicionalmente, se realizará una heteroevaluación: a través de presentaciones a jornadas, informes, etc.).

A continuación, se proponen una serie de recomendaciones para el desarrollo de la iniciación profesional, según la estrategia de aprendizaje activo de ABR.

I. *Fechas de convocatorias para trabajos:* Se habilitarán dos fechas para las inscripciones de los/las interesados/as en realizar este tipo de prácticas, una al inicio de cada cuatrimestre.

II. *Conformación del equipo de trabajo:* Los grupos de la práctica profesional se conformarán con los interesados que se hayan inscripto en las fechas de la convocatoria. Se recomienda que los grupos sean de número reducido, para poder desarrollar una dinámica de pequeños grupos.

III. *Definición del problema o reto:* El objeto de estudio para la realización de la práctica debe ser una inquietud que surja del estudiantado. Para ello, se recomienda que el/la tutor/a realice uno o dos encuentros donde pueda dialogar con los/las interesados/as a fin de exponer lo que se realiza en su área, y de allí el estudiantado vaya delimitando el tema objeto de estudio. Durante los encuentros, el equipo seleccionará una idea general, planteará de una serie de preguntas concretas y, posteriormente, seleccionará una idea esencial o reto.

IV. *Rol de tutor/a:* El/la tutor/a debe pertenecer al cuerpo docente de FCA UNC. Se sugiere que presente formación previa en estrategias de aprendizaje activo, ya que deberá explicar la metodología de ABR. En tal sentido, el/la tutor/a adoptará un rol facilitador y guía en todo el proceso como agente motivador, promoviendo el pensamiento independiente y monitoreando la gradualidad en la adquisición de conocimientos y habilidades para la resolución del reto. Por último, acompañará en la etapa final de la práctica, que implica la socialización de los resultados.

V. *Rol del estudiantado:* Los interesados en realizar la práctica deberán:
- Comprender la mecánica del ABR previamente presentada por el/la tutor/a.
- Delimitar el objeto problema (desarrollado en párrafos anteriores).
- Planificación de los pasos a seguir en la búsqueda de la solución o resolución del reto.
- Investigar sobre la temática.
- Comprometerse con el proceso y con el equipo de trabajo.
- Interaccionar con su equipo de trabajo de manera armoniosa y respetuosa.
- Realizar la presentación, implementación, evaluación y comunicación de las soluciones, resultados o aportes en relación con el reto elegido.

VI. *Instrumento de evaluación:* Para evaluar las competencias desarrolladas durante de la práctica, se propone una rúbrica. Se espera que la misma sea utilizada como instrumento de autoevaluación para promover la reflexión y evaluación del aprendizaje del/la estudiante, identificando fortalezas, debilidades y áreas de mejora. Por otra parte, sirve como instancia de co-evaluación entre los integrantes del grupo de trabajo, proporcionando una retroalimentación constructiva entre ellos. Por último, sirve como elemento de metaevaluación al permitir una instancia de reflexión sobre el proceso realizado.

En la rúbrica propuesta (Tabla 4) se evalúa el desarrollo de las competencias genéricas mencionadas en los objetivos para la práctica profesional propuesta mediante la siguiente escala: Muy logrado (ML): la competencia se adquirió en forma plena; Logrado (L): el desarrollo de la competencia fue parcial; No logrado (NL): el desarrollo de la competencia fue insuficiente.

**Tabla 4:** *Rúbrica para evaluar el desarrollo de competencias genéricas en el estudiantado durante la práctica profesional.*

| | Competencias | ML | L | NL |
|---|---|---|---|---|
| In | 1. Capacidad de abstracción, análisis y síntesis. | | | |
| | 2. Capacidad para organizar y planificar el tiempo. | | | |
| | 3. Conocimientos sobre el área de estudio y la profesión. | | | |
| | 4. Capacidad de comunicación oral y escrita. | | | |
| | 5. Capacidad de comunicación en un segundo idioma. | | | |
| | 6. Habilidades en el uso de TIC. | | | |
| | 7. Capacidad de aprender y actualizarse permanentemente. | | | |
| | 8. Habilidades para buscar, procesar y analizar información. | | | |
| | 9. Capacidad para resolver problemas. | | | |
| | 10. Capacidad para tomar decisiones | | | |
| Ip | 11. Compromiso social y ciudadano | | | |
| | 12. Capacidad crítica y autocrítica | | | |
| | 13. Capacidad de trabajo en un equipo multidisciplinar | | | |
| | 14. Habilidades interpersonales | | | |
| | 15. Capacidad de motivar y conducir hacia metas comunes | | | |
| | 16. Apreciación por la diversidad y multiculturalidad | | | |
| | 17. Compromiso ético | | | |
| Sis | 18. Capacidad de aplicar los conocimientos en la práctica | | | |
| | 19. Capacidad de investigación | | | |

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|---|---|---|---|---|
| | 20. Capacidad para actuar en nuevas situaciones | | | |
| | 21. Capacidad creativa | | | |
| | 22. Compromiso con la preservación del medioambiente | | | |
| | 23. Compromiso con su medio sociocultural | | | |
| | 24. Habilidad para trabajar en contextos internacionales | | | |
| | 25. Habilidad para aprender en forma autónoma | | | |
| | 26. Capacidad para formular y gestionar proyectos | | | |
| | 27. Compromiso con la calidad | | | |

*VII. Producto final de la iniciación profesional:* Se propone que, al finalizar la práctica, el grupo de trabajo cumplimente con los siguientes requisitos:

- Informe que incluya un relato de la experiencia vivida para reflexionar sobre su proceso vivencial.
- Resumen para presentar en las Jornadas de Investigación, extensión y enseñanza [7]de la FCA UNC, para socializar los resultados.

*Talleres de socialización*

Para la difusión de esta propuesta en la comunidad educativa, se plantea la realización de un taller basado en los siguientes ejes:

- Descripción de las competencias genéricas en relación con el perfil y capacidades del profesional de la carrera de Ingeniería Agronómica de la FCA UNC.
- Contextualización de la práctica de iniciación profesional.
- Importancia del ABR como estrategia de aprendizaje activo para fomentar el desarrollo de competencias genéricas en el estudiantado.

*Factibilidad*

En relación con el cambio de paradigma en la educación superior, y en camino a que el Ministerio de Educación de la Nación apruebe la acreditación de las carreras de Ingeniería por competencias, se espera que la propuesta contribuya a la reflexión, intercambio y compromiso institucional. Se estima que este proceso lleve aproximadamente un año.

Para la institucionalización de esta propuesta es necesario, a nivel administrativo, la aprobación

[7] El objetivo de las Jornadas es comunicar las actividades que se realizan en las Áreas de Investigación, Extensión y Enseñanza de la Facultad de Ciencias Agropecuarias de la UNC, fortalecer los vínculos existentes entre Docencia, Investigación y Extensión a los fines de integrar y articular grupos interdisciplinarios, consolidar las relaciones existentes entre la Facultad y el medio, generar un espacio participativo de intercambio y articulación entre los diferentes actores, posicionar a la Facultad como órgano de referencia en las Áreas de Investigación, Extensión y Educación, y evaluar la evolución de la investigación, extensión y educación en la FCA.

del nuevo tipo de práctica de Iniciación Profesional por el HCD. Se estima que este proceso podría llevarse a cabo en un periodo de 2 meses.
En relación factibilidad técnica, se planea desarrollar periódicamente en lapso de un año el taller mencionado para capacitar al cuerpo docente en relación con el enfoque por competencias y el aprendizaje activo.

## Resultados esperados

En relación con los resultados de aprendizaje, se espera que el estudiantado desarrolle las competencias antes mencionadas, donde el nivel de logro dependerá del punto inicial de cada estudiante, determinado en el pre-test.

Se aguarda que, con la institucionalización tanto del nuevo perfil y capacidades del profesional, como de las prácticas optativas propuestas, se pueda promover el desarrollo de competencias genéricas, las cuales son trascendentales para la inserción laboral del/la Ingeniero/a Agrónomo/a.

Por otra parte, y en vistas de generar un cambio curricular, se aspira a que el cuerpo docente comprenda la importancia de enfocar las propuestas de enseñanza desde el desarrollo de competencias.

Asimismo, se espera que año a año crezca el número de inscriptos en esta propuesta de prácticas para vivenciar una aproximación al ejercicio profesional, mediante el aprendizaje activo. Las competencias que se espera fomentar en el estudiantado son las declaradas en el perfil y capacidades del profesional, las cuales son el reflejo de las declaradas por el Proyecto *Tuning* América Latina.

La propuesta presenta un valor agregado ya que aporta un mérito institucional al explicitar y ampliar las competencias genéricas en relación con el perfil y capacidades del profesional, como directriz del diseño curricular. Así mismo, contribuye al desarrollo integral profesional, brindando mayores posibilidades de inserción en el mercado laboral de los futuros egresados/as.

El modelo de prácticas optativas presentado servirá para el desarrollo de competencias genéricas en relación con las necesidades laborales y puede ser aplicado a numerosos espacios curriculares. Además, los productos finales de la práctica profesional se socializarán en las jornadas de la FCA UNC, generando un impacto en la comunidad.

El cambio transformacional se verá reflejado en la comprensión por parte del estudiantado del conocimiento científico como una construcción permanente y la metaevaluación como una práctica cotidiana, reflexiva y que lo lleve a la mejora de sus habilidades y competencias. Este cambio apunta a desarrollar capacidades para el constante aprender a aprender y dar sentido a sus vidas.

## Conclusiones

Tradicionalmente, la formación superior en el área de las ciencias agropecuarias ha hecho hincapié en una formación por contenidos en las áreas disciplinares específicas. Actualmente el fluctuante mercado laboral requiere profesionales con habilidades blandas es por ello que distintas instituciones de educación universitaria han comenzado a re-pensar las prácticas educativas y nuevas ofertas formativas.

Proyectar una educación universitaria enfocada en el desarrollo de habilidades blandas como una forma de diseñar dispositivos y estrategias, permite anticiparse al cambio paradigmático de la acreditación de las carreras por competencias.

Una propuesta, que promueve el desarrollo de competencias genéricas en el estudiantado, fomenta el desarrollo de habilidades y capacidades que permiten resolver situaciones a nivel personal, académico y profesional. El enfoque por competencias en la educación superior promueve en los/las egresados/as un aprendizaje continuo a lo largo de la vida, flexibilidad y resiliencia ante nuevas situaciones. Dichas capacidades permiten adaptarse a entornos personales, educativos y laborales cambiantes.

Las competencias blandas mejoran la empleabilidad de los/las profesionales ya que permiten un mejor desempeño en equipos multidisciplinarios de trabajo, una fluida comunicación, desarrollo del pensamiento crítico, facilidad para la resolución de problemas reales y capacidad de liderazgo. Además, estas habilidades para la empleabilidad posibilitan el desarrollo de ciudadanos/as responsables y comprometidos con el medio ambiente, la diversidad, y el entorno sociocultural. Así mismo, promover habilidades como la ética, la comprensión multicultural, participación comunitaria facilita la construcción de sociedades más justas, equitativas, sustentables e igualitarias, en concordancia con la agenda marcada por los 17 Objetivos de Desarrollo Sostenible (ODS) 2030.

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ORIGINAL ARTICLE

# Infusing Soft Skills in Higher Education: Key to the Development of Advanced Human Capital

**FERNANDO VERA**[1]

https://orcid.org/0000-0002-4326-1660

[1]Universidad del País Vasco/Euskal Herriko Unibertsitatea, España

Correspondence mail: fernandovera@rediie.cl

## Abstract

The field of higher education is under unprecedented pressure as it needs to prepare students for active participation in the workforce. Today, employers seek professionals who demonstrate soft skills - personal qualities that make them more adaptable, proactive, resilient and responsible collaborators. The aim of this article is to open the debate regarding the infusion of soft skills the curriculum of Higher Education Institutions (HEIs) and its impact on the future employability of graduates. This relates to the demands of the job market and the current emphasis placed on the development of socio-emotional skills. The methodology used consisted of documentary analysis, confronted with the author's viewpoints. The contribution relates to the need to infuse soft skills into the curriculum and implement methodological and evaluative strategies that enhance educational proposals. The article concludes with a synthesis, attempting to explain the relationships between key concepts and their implications for higher education.

**Keywords:** Active learning; Learning outcomes; Student engagement; Higher education.

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## Introduction

The knowledge economy thrives on the participation of individuals equipped with a diverse range of qualifications and socio-emotional skills, enabling them to adapt to the ever-evolving demands of the labor market. It is widely acknowledged that soft skills play a crucial role in facilitating effective adaptation and behavior (Cinque, 2016). Considering the new global order, numerous challenges come to the forefront, including market volatility, heightened uncertainty, intense competition, knowledge obsolescence, demographic and social changes, shifting economic power dynamics, sustainability concerns, resource scarcity, and rapid technological advancements, among others. According to the Organization for Economic Cooperation and Development (OECD, 2011), this evolving landscape necessitates professionals who can embrace change, generate creative solutions, and readily embrace new challenges.

Consequently, the development of soft skills becomes of paramount interest for higher education curricula. Locally and globally, there is an urgent need to cultivate high-quality human capital capable of adapting to an increasingly demanding and dynamic labor market. Higher education institutions (HEIs) must therefore devise strategies to enhance the socio-emotional skills of their graduates, enabling them to navigate the fluctuations of the job market with ease. Incorporating cross-cutting skills not only enhances employability but also fosters a global perspective on employment. Ultimately, an education system that places emphasis on job skill development is crucial for the personal and national growth of individuals.

This necessitates the establishment of a high-quality higher education system that is thoughtfully designed and meticulously planned, with the goal of nurturing in students not only traditional hard skills (technical or disciplinary knowledge) but also, complementary, a robust set of soft skills (employability tools) that prepare them for successful performance in the workforce.

In today's industry, there is an increasing demand for highly effective professionals who can seamlessly integrate their technical knowledge with their socio-emotional skills to solve complex problems. Unfortunately, some university classrooms still employ teaching practices that primarily focus on the transmission of conceptual content (knowing), neglecting to cultivate students' inquiry skills (learning to know), transferable skills (learning to do), collaborative abilities (learning to live together and work with others), and metacognitive capacities (learning to be) as essential strategies for continuous improvement.

Seen from another perspective, the above represents an important opportunity in terms of social impact and inclusivity, which has prompted many universities and professional institutes to create spaces in their curricula to include preparation for the world of work. Moreover, at the international level, significant initiatives can be observed in curriculum proposals, although the time dedicated to the development of soft variables seems to not fully meet the demands of the labor market (CRS, 2022; Vera, 2023b). On the other hand, at the local level, the Chilean National Accreditation Commission (CNA-Chile) emphasizes the need for study plans to include the development of cross-cutting or generic competencies, such as oral and written communication, critical thinking, problem-solving, interpersonal relationships, self-learning and personal initiative, teamwork, and the use of information technologies (CNA-Chile, 2015).

Considering the evidence, soft skills are increasingly seen as necessary in technical and professional education, as they add value and a competitive advantage to those entering the workforce. Furthermore, it is said that the transmission of knowledge per se is no longer as important as it once was because amid the knowledge society, knowledge can be acquired at any time, and since it is ubiquitous, it is universally available and accessible to all. Therefore, everything indicates that socio-emotional skills constitute the differential mark that the world of work currently seeks as advanced human capital.

Data shows that the labor market has evolved towards an interpersonal dynamic that simply cannot be ignored. Undoubtedly, the industry seeks effective, proactive, and resilient professionals who can strategically complement their technical knowledge with their socio-emotional skills. There is also a clear need to recruit a more emotionally intelligent workforce that knows how to build and maintain healthy and positive work relationships, as this is the key to building successful inter, multi, and transdisciplinary teams. Among these perspectives, soft skills are currently highly valued by employers, as it is recognized that they are directly linked to high performance and, therefore, are essential for achieving the desired outcomes of a company.

In this context, one of the strategic actions recommended to HEIs is to redesign their educational models according to the needs of the labor market. However, significant weaknesses are still detected in academic proposals. In fact, many programs still emphasize traditional technical skills, neglecting the development of non-cognitive or complementary skills. This article aims to identify the soft skills required for the world of work and how they are addressed in the curriculum. Additionally, a set of best practices for the infusion and development of these abilities in tertiary education is presented.

*Defining soft skills*

Soft skills, also known as transferable skills or non-cognitive skills, encompass a range of specific abilities that have a significant impact on job performance, career advancement, and overall success. These skills are often referred to by various names, such as 21st-century skills, employability skills, or socio-emotional skills, highlighting their relevance in today's professional landscape. Regardless of their terminology, soft skills primarily involve social and interpersonal competencies that enable individuals to thrive in diverse environments and transfer their learning across different fields.

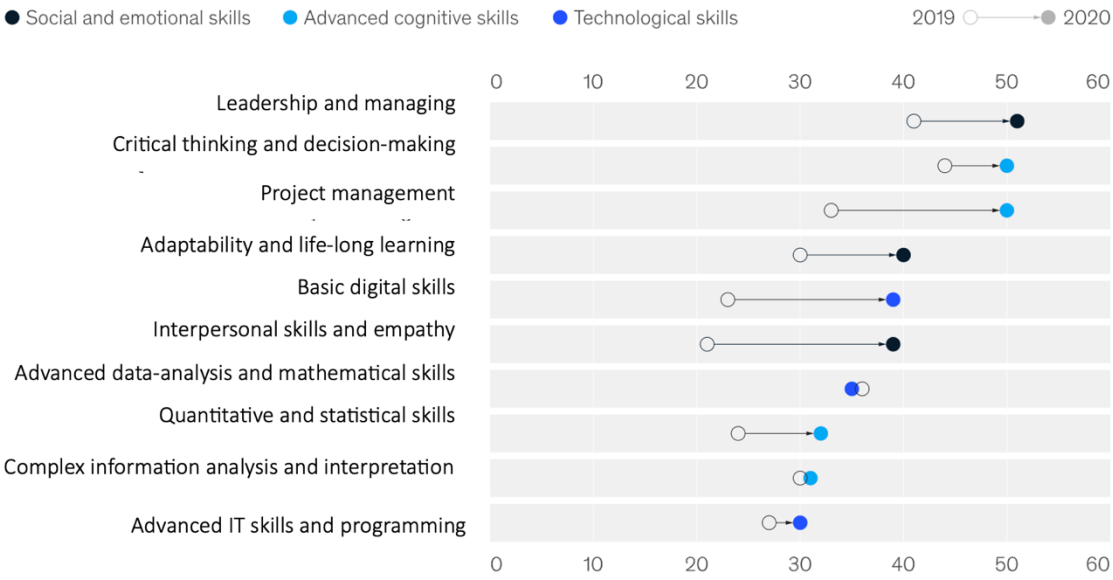
Moreover, soft skills extend beyond the realm of professional achievement and have a profound impact on personal happiness and fulfillment. Research by Cinque (2015) suggests that cultivating soft skills is closely linked to developing habits that enhance both work effectiveness and personal well-being. As a result, organizations recognize the value of these skills not only during the recruitment process but also throughout an employee's entire career trajectory.

The varied interpretations and conceptualizations of soft skills in the literature reflect their multidimensional nature, encompassing attitudinal, behavioral, and cognitive components. In addition to their core qualities, soft skills give rise to other interpersonal characteristics such as self-regulation, metacognition, self-efficacy, social etiquette, emotional intelligence, adaptability, systemic thinking, assertive communication, problem-solving, creativity, and similar traits. These diverse attributes collectively contribute to an individual's overall effectiveness in navigating professional and personal challenges.

As a matter of fact, the meaning of soft skills cannot be overstated, as they serve as essential building blocks for success in the modern workplace and beyond. By recognizing and nurturing these competencies, individuals can enhance their performance, career prospects, and overall satisfaction in life. Thus, the multiplicity of meanings and the ways in which these skills are conceptualized in the literature reflect the fact that they encompass attitudinal, behavioral, and cognitive components. Given their generative nature, the truth is that these differential abilities entail other interpersonal characteristics such as self-regulation, metacognition, self-efficacy, social customs, emotional intelligence, adaptability, systemic thinking, assertive communication skills, problem-solving abilities, creativity, and similar traits.

Figure 1 presents the assessment that the industry assigns to non-cognitive skills, highlighting the skills that are highly valued and given priority. Among these skills, 'Leadership and managing others' are highly valued and prioritized. Other skills that deserve attention from the educational sector are 'Adaptability and continuous learning´, as well as 'Interpersonal skills and empathy'. Overall, it can be observed that non-cognitive skills, considered critical success factors, are rated more highly by employers than technical or cognitive skills, as it occurs in Higher education. This underscores the importance of developing leadership qualities and the ability to guide and inspire others in the educational context.

**Figure 1:** *Skills mostly valued in the industrial sector*




Source: Own adaptation based on McKinsey Global Survey on reskilling (2021).
Note: Out of 25 skills that were offered as answer choices (*n*= 700).

Based on the analyzed literature, it can be concluded that in Western countries, there are multiple attempts to develop definitions of soft skills. However, three common characteristics are observed in all of them: (i) increasing productivity and competitiveness among markets; (ii) developing an adaptive and skilled workforce, and (iii) creating an environment conducive to innovation in a world dominated by globalization.

In fact, various studies indicate that non-cognitive skills have predictive power for job success, while cognitive skills are predictors of academic performance (Chinotti, 2015; de Boer & Van Rijnsoever. 2022). It is precisely this conceptual duality that distinguishes the logic between soft skills and technical or hard skills. In this same line, it specifically refers to the abilities, capacities, and traits that belong to our personality, attitude, and behavior rather than our technical knowledge (Vera, 2021; Vera *et al*., 2022) or those individual abilities or skills that are necessary for achieving success in life in various socio-cultural contexts (Vera & Tejada,2020).

Additionally, it could be stated that socio-emotional skills are the intra- and interpersonal or socio-emotional abilities that are essential for personal development, socialization, and career success (Kechagias, 2011). It is also important to emphasize that effective performance or competent action involves mobilizing knowledge, cognitive skills, and practices, as well as attitudes, emotions, values, and motivations (OECD, 2001). In this regard, it is estimated that a person's success rate at work depends on their Emotional Quotient (EQ) and Intelligence Quotient (IQ) at an 80:20 ratio. This is explained by the fact that EQ helps individuals build and maintain relationships with peers and superiors, increase productivity, and communicate effectively.

As Goleman (2011) points out, "at best, IQ contributes about 20% to the factors that determine success in life, leaving the rest to other forces" (p. 54). This perspective reinforces the idea that non-cognitive skills pave the way in a complex world and are essential for effective performance in social and work-related functions. In this regard, the author's perspective is that soft skills can be seen as a non-cognitive component of cognitive achievement and as part of metacognitive thinking. For instance, students who come to class without having reviewed the content beforehand, who do not question their levels of achievement, or who simply show no interest in learning may exhibit low levels of metacognition, which, in turn, would likely hinder their cognitive achievements (e.g., academic performance, task completion, timely graduation, degree attainment).

Based on all the above, it can be emphasized that non-cognitive skills contribute to the development of high-quality human capital and, by their nature, serve as a platform for not only academic but also professional success. For this reason and understanding that these capabilities are essential for employability and therefore need to be developed, their training is entrusted, for obvious reasons, to higher education institutions (HEIs). After all, it is undeniable that these institutions play a crucial role in the process of transforming individuals.

Moreover, the well-being of a country and its growth prospects are largely measured in terms of human talent. In fact, there is already talk of the 'human era,' where talent and distinctive traits are the drivers of business success. Despite this, evidence seems to indicate that graduates may not be meeting the demand for competencies and attitudes observed in the world of work (Juen, Pang & Vitale, 2010; Maxwell, 2007). At the local level, university professors still complain that their undergraduate students demonstrate low socio-emotional skills. Considering this situation, it is not surprising that HEIs are currently facing the challenge of shifting from teaching to learning and integrating both cognitive and non-cognitive skill development into their curricula.

Now, the importance of shifting the focus from teaching to learning is crucial to adequately prepare students for the world of work. Indeed, it is expected that students acquire both technical skills and soft skills simultaneously. These soft skills would enable them to continue learning throughout their lives (long-life learning). Therefore, these capabilities should not only be learned in academic contexts but also outside of them, in personal and social life. In this regard, the Bologna process has emphasized the importance of paying greater attention to learning processes and the development of what are also called "lifelong skills".

Similarly, to bridge the gap between academia and the productive sector, teachers are urged to ensure that, beyond technical knowledge, they make the necessary efforts to integrate cross-cutting skills into the curriculum as part of undergraduate training strategies (Gerwertz, 2007; Olsen, 2007; Nagle, 2010). This places these skills on the list of priorities that should be considered in any curriculum design or adjustment aimed at preparing students for the world of work. Furthermore, it is believed that this strategic decision would allow for the fulfillment of three common objectives: (i) preparing students for successful performance in the labor market, (ii) producing highly skilled professionals, and (iii) competing in a global economy. To meet these objectives, firstly, it is necessary to integrate these differential capacities into the curricula, either as independent formative actions or as transversal elements in the study programs. Secondly, it is necessary to infuse these capacities through highly practical activities that emulate work situations or contexts.

Considering this complex panorama, one of the main dilemmas that curriculum designers face is precisely determining which soft skills to include in academic programs. Thus, regardless of institutional decisions, the literature reviewed so far has identified that many curriculum proposals share the following seven soft skills or socio-emotional skills: effective communication, critical thinking, problem-solving, teamwork, lifelong learning, entrepreneurship, and leadership. At the same time, to facilitate the infusion processes, it is suggested to break down each of these skills into a set of sub-skills or categories of micro-implementation, where the first category corresponds to the soft skills that are considered "necessary" to possess, and the second category to those that are deemed "desirable" to demonstrate, as shown in Table 1.

**Table 1:** *Necessary and desirable soft skills*

| Soft skills | Necessary soft skills | Desirable soft skills |
|---|---|---|
| Effective communication | • Ability to express ideas clearly and effectively, both orally and in writing. | • Ability to discuss and reach consensus.<br>• Ability to communicate with people from diverse cultures. |
| Critical thinking and problem-solving. | • Ability to identify and analyze problems in challenging situations. | • Ability to think beyond the solution.<br>• Ability to compare problematic situations. |
| Teamwork | • Ability to interact and work effectively with others. | • Ability to contribute ideas and inputs to the team.<br>• Ability to coordinate collaborative work. |
| Life-long learning | • Learning to self-educate autonomously and throughout life. | • Ability to seek new knowledge.<br>• Ability to relate experiences to new learning. |
| Entrepreneurship | • Ability to identify work/business opportunities. | • Ability to propose new businesses.<br>• Ability to self-employ. |
| Leadership | • Ability to influence others. | • Ability to lead and be led.<br>• Ability to supervise team members. |
| Systems thinking | • Ability to see the big picture and take the broader context into account. | • Ability to comprehend the relationships, patterns and dynamics within a system, considering both its components and their interactions.<br>• Ability to identify feedback loops, understanding the consequences of actions, and finding leverage points for intervention. |

Source: Own elaboration.

*Soft skills gap*

According to the literature reviewed, companies are more concerned than ever about the perceived gap between technical knowledge and the socio-emotional skills of young people entering the workforce. This is justified by the fact that these skills are considered crucial for professional success and business competitiveness. Moreover, there is overwhelming consensus among employers that the new workforce lacks skills in effective communication, creative problem-solving, collaborative work, and adapting to changing market conditions (Gerwertz, 2007; Olsen, 2007; Nagle, 2010; Chan, Goh & Prest, 2015). Apart from the mentioned "relational skills," employers also find that recent graduates lack certain hard skills associated with specific tasks (Chan *et al.,* 2015).

One possible reason deals with changes in the industry, which are much faster than those occurring in educational systems, and the need to train professionals with higher qualifications. More precisely, the literature reports that one in five workers in OECD member countries is overqualified for the positions they hold, while a similar proportion is underqualified. The prevalence of this mismatch or educational mismatch not only poses a problem for educators but also imposes a significant burden on companies that need to recruit a workforce equipped with the skills that society requires today and likely in the future (Chan *et al*., 2015).

In the organizational sphere, when teams show a significant gap in their soft skills, it is highly likely that very negative consequences will occur in companies: there are coordination issues, misunderstandings arise, procrastination increases, the work environment suffers, functional silos emerge, productivity decreases, more mistakes are made, communication fails, people get stressed, service quality deteriorates, conflicts arise, employee turnover increases, and, to make matters worse, there is a significant leakage of talented individuals. Therefore, a common characteristic in the educational shortcomings of graduates is the great need for training in employability skills. This "competency gap" is currently a topic of great interest, both in the industrial and educational sectors. For example, in Latin America, it is estimated that while unemployment remains high, many positions remain vacant because professionals with the necessary socio-cognitive skills are not available to fill them (Bassi, Busso, Urzúa & Vargas, 2012). Similarly, at a global level, the same need is evident, with employers concerned about the lack of competent workforce (ManpowerGroup, 2013).

In practice, all the above translates into employers likely preferring professionals with higher socio-emotional development, even for jobs that do not require high specialization (McGuiness, 2006). This indicates a significant mismatch or disconnect between the demands of the labor market and academic proposals (Bassi *et al.,* 2012). Therefore, the issue of the competency gap has two dimensions: the demand for a qualified workforce and the academic offering of training in socio-emotional skills. The author of this article commonly refers to this phenomenon as a "selective sieve," as it functions as a true filter to accept or reject candidates for a particular job (Who has a competitive advantage?). Ultimately, it would be a symptom of vertical mismatch between levels of professional qualifications (development of non-cognitive skills).

Furthermore, consolidated data (Table 3) from a study conducted by the U.S. Chamber of Commerce Foundation in 2015 in 10 counties in the southwest region of Pennsylvania indicate that 77% of recent graduates and 80% of employers find soft skills mastery important for job success. All of this suggests that the integration of non-cognitive tools in the curriculum is a formative necessity within the current economic and educational system.

Coincidentally, it is estimated that soft skills are associated with higher employability and a lower likelihood of academic repetition (Heckman, 2012; Salvatierra, 2015). In fact, measuring non-cognitive skills has predictive validity for good job performance and helps teachers better understand and value the relevance of developing these abilities in students, not only to enhance their professional development but also to significantly reduce social inequality and contribute to a noticeable decrease in the unemployment rate.

Considering this scenario and to facilitate decision-making regarding the development of advanced human capital, the following set of guiding questions is proposed for horizontal and vertical organizations to consider, as shown in Table 2.

**Table 2:** *Guiding questions for horizontal and vertical organizations*

| Horizontal organizations | Vertical organizations |
|---|---|
| • What are the qualifications that your company values most in the recruitment process for key personnel?<br>• How would you characterize the availability of these qualifications among job candidates?<br>• To what extent does your company take responsibility for ensuring that its employees demonstrate these operational capabilities?<br>• Does your company's recruitment program cater to the development of emotional skills? | • What difficulties does your organization face in integrating the development of socio-emotional skills?<br>• Is your personnel directly linked to the needs of the business sector?<br>• Which productive sectors are likely to require highly trained professionals in socio-emotional skills?<br>• What is the role of educational service providers in the development of highly skilled professionals? |

Source: Own elaboration

*Infusing soft skills into the curriculum*

Infusion of soft skills refers to the development of these abilities through modeling (where the teacher describes the skill, breaks it down, and models it) and active learning (where students actively engage in acquiring knowledge and skills). The idea behind this concept is to create a learning environment that ensures not only academic education but also the integrity of the student. In this regard, it is believed that traditional lectures and assessment methods hinder effective learning and limit the development of non-cognitive skills. Ultimately, through infusion processes, students are encouraged to exert effort and self-correct to succeed.

In this scenario, the review of the literature identifies two schools of thought regarding the infusion of non-cognitive skills: generalists and specialists. For "generalists," these skills can be learned separately from disciplinary content, while for "specialists," they can only be taught as part of the disciplinary subjects, as knowledge is fundamentally situated (Kechagias, 2011). Therefore, it could be inferred that socio-emotional skills could be infused into the university curriculum in three ways: (i) direct approach, (ii) metacurricular approach, and (iii) mixed approach, as explained briefly below:

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**(i) Direct approach** - direct infusion of skills through a set of cross-cutting courses. Generally, these courses are part of the requirements in academic programs and are presented as a formative hallmark, but they must be completed like courses in other disciplines. From the teacher's perspective, this approach requires intensive preparation, adherence to a specific methodology, and compliance with a certain professional profile and personal attributes. As for the students, they need to actively engage in their learning.

**(ii) Metacurricular approach** - infusion of skills through the methodological and evaluative strategies of all subjects comprising a curriculum. This approach involves integrating skills across different areas of knowledge or curriculum cores, as well as in various study materials. It also requires ongoing teacher professional development. It is a comprehensive approach that addresses academic content from a curricular three-dimensionality (conceptual, procedural, and attitudinal content).

**(iii) Mixed approach** - a combination of both approaches. This approach is more complex and costly to implement, as it requires continuous training for teachers, both in the cross-cutting area and other disciplinary areas, to achieve the desired academic convergence.

In line with the above, and to question reality, teachers are invited to engage in reflective and metacognitive exercises, attempting to answer the following preliminary questions:

- Why acquire soft skills?
- Am I prepared to develop differential capabilities in students?
- How do I assess my own development of socio-emotional skills?
- What cognitive load does the development of soft skills require?
- What are the sub-skills to be developed, according to the needs of the student?
- What should the student know and understand to achieve the performance described in each of the performance criteria of the respective skill?
- What teacher and student factors facilitate or hinder the development of soft skills?
- What transformative changes need to be made to enhance individual differential traits?

As seen in the literature analyzed, systematic questioning is the basis for the continuous improvement of the teaching practice. From this viewpoint, for teachers to acquire knowledge, they need genuine, extensive, and consistent experiences that directly relate to their daily responsibilities (Manfra, 2019). More specifically, questioning the reality is an integral component of metacognition, considered key in the development of non-cognitive skills. In fact, this characteristic of some teachers is the most important personal variable in the development of soft skills (Patrut & Patrut, 2015). Tasks such as planning and thinking aloud, asking challenging questions, self-evaluating learning, planning for learning, seeking additional information, drawing on past experiences, etc., are essential parts of metacognition.

In other words, metacognitive teachers inevitably transfer this distinctive trait to their students, enabling them, in turn, to recognize what they know, discover what they don't know, and propose respective remedial actions (Cao & Nietfeld, 2007). Through metacognition, students can effectively control their learning, think critically and reflectively, act autonomously, solve problems, make decisions, and determine the strategies they need to successfully achieve their learning objectives. It should be noted that all these aspects are crucial when transferred to the world of work.

In perspective, highly metacognitive young people are aware of the demands of the job market and recognize that it is becoming increasingly competitive. Therefore, they prepare themselves, observe their environment, look for patterns of behavior, self-correct, and study the evolution of employment. On the other hand, students with lower levels of metacognition often learn new concepts by memorizing them in an isolated and superficial way, without being able to transfer them to practical or real-life situations. Hence, it tends to be asserted that the directive or frontal classroom approach only produces content accumulators, rather than individuals with differential personal traits capable of applying, deepening, sharing, and managing what they have learned.

Furthermore, evidence indicates that metacognition is not an automatic process, since it can be transferred as part of a broader concept referred to as self-regulated learning (Zimmerman, 2002). This means that if teachers are self-regulated, they will also shape self-regulated individuals. It is often said that self-regulation is essential in the development of socio-emotional skills and is the hallmark of highly effective individuals, understood as those who can modify, monitor, and organize information to apply it in other contexts and situations. Now, there also seems to be a direct relationship between soft skills and metacognition, as both contribute to quality learning, academic success, and outstanding job performance (Laskey & Hetzel, 2010).

*Model for implementation of soft skills in higher education*

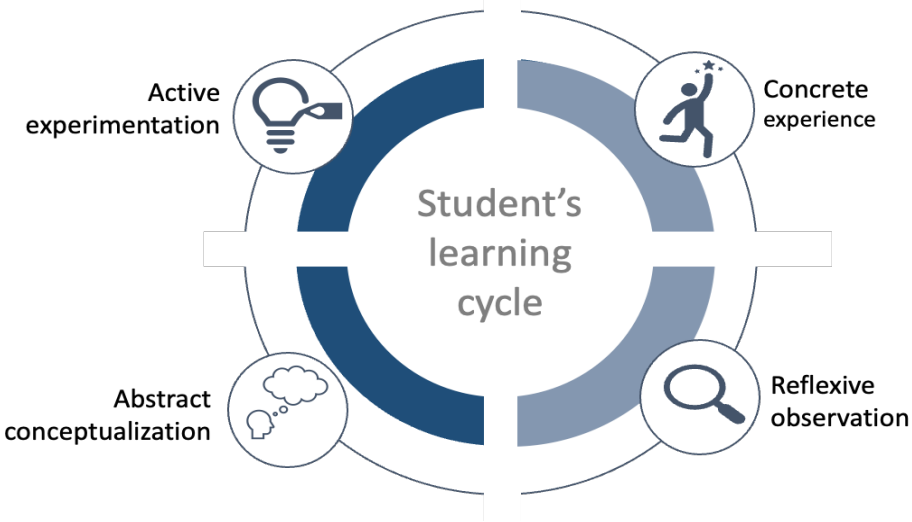
Given the current educational scenario and considering the contextual reality, the author proposes a holistic approach to address the infusion of non-cognitive skills in post-secondary students. This involves integrating them at the micro-implementation level, both in direct and metacurricular manner. From this perspective, students could acquire these skills explicitly (formal curriculum) and implicitly (hidden curriculum), with an emphasis on active learning through simulated (in-class activities) or real-life situations (out-of-class activities). Together, this approach would enable students to structure their career goals better and more systematically and actively engage in planning their own learning. However, one might ask, "Are teachers prepared to integrate non-cognitive skills into their disciplinary curriculum proposals?" Despite significant efforts being observed, it seems that there is still a long way to go in terms of paradigmatic change.

Conceptually, the holistic approach entails: (i) focusing education on the needs of students; (ii) defining a set of macro soft skills that respond to the demands of the job market; (iii) developing the required instructional resources for direct teaching; and (iv) defining the methodological and evaluative strategies to be applied in developing these skills, both from a direct and metacurricular perspective. The idea behind this approach is to create learning environments that ensure the comprehensive education of students (acquiring both hard and soft skills simultaneously). To achieve this, the implementation of experiential learning (Kolb, 1984) is proposed in all study programs, as it is recognized that this method effectively addresses

the criterion of integrating curricular content (conceptual, procedural, and attitudinal learning) at various levels of acquisition (cognitive, functional, social, etc.).

Theoretically, experiential learning promotes the concept of learning through experience, which requires direct involvement in the topics being studied. Furthermore, it is believed that practical experience in the classroom provides students with real opportunities to better prepare for the challenges of the work environment. In this way, knowledge results from understanding and transforming experience (Kolb, 1984). In other words, experiential learning refers to the process of creating knowledge through the transformation of experience. As shown in Figure 2, this learning model presents a cycle of four phases: concrete experience, reflective observation, abstract conceptualization, and active experimentation.

**Figure 2:** *Student's learning cycle*




Source: Own adaptation based on Kolb (1984).

The cycle begins with an experience that the student has had, followed by an instance to reflect on that experience. Then, the student could conceptualize and draw conclusions about what they have experienced and observed, and finally apply what they have learned in other situations and contexts. Although this learning model is presented as a cycle, the phases can occur in any order. This is because the cycle involves both concrete components (Phases 1 and 4) and conceptual components (Phases 2 and 3), which certainly require a variety of cognitive and non-cognitive aspects.

Additionally, it is proposed that the curriculum weight of academic content in the direct approach be distributed as 30% for the theoretical part (conceptual content) and 70% for the practical part (procedural content). Regarding the metacurricular approach, it is suggested that teachers transition from traditional expository teaching or teacher-centered approach to a more dialogical and interactive student-centered, approach, while also highlighting the practical aspects of disciplinary content.

Methodologically, since soft skills essentially refer to abilities and Key Performance Indicators (KPIs), the following is proposed: (i) determining the skills to be infused, considering market needs (employer consultations) and institutional implications (alignment with the respective educational model); (ii) defining a set of indicators and descriptors for each skill to be infused (skills map or matrix); and (iii) developing classroom activities that actively engage students in their learning (active learning tool kit).

In terms of group dynamics, there is a proposal to particularly emphasize group work, which promotes peer communication, collaboration, personal initiative, interaction, self-efficacy, and group decision-making. Role-playing, case studies, simulations, Problem-Based Learning (PBL), and various playful and practical activities could be included. To enrich the proposal, community projects (service-learning) could be implemented to bring students closer to real-world problems. The reviewed literature indicates that these strategies are key to the development of socio-emotional skills in practice, as they promote discussion among students without the interference of the teacher, whose role now becomes that of a facilitator, mentor, negotiator, coach, and evaluator.

To allow students to apply the conceptual content related to soft skills and their various dimensions, the following strategies are suggested for teachers to implement or develop in their classes:

- Prepare checklists to monitor their own progress. This strategy increases responsibility for well-done work.
- Provide opportunities to collaborate in inter-, multi-, and transdisciplinary teams. This strategy promotes camaraderie, effective communication, decision-making, and problem-solving.
- Promote Socratic questioning. This strategy develops complex thinking in students, inspiring them to explore big ideas and elicit multiple perspectives.
- Foster oral communication. This strategy allows students to improve their communication competence and enhance other sub-skills, such as active listening, argumentation, paraphrasing, etc.
- Encourage active listening among students and ensure that everyone exchanges viewpoints in group activities.
- Provide opportunities for writing in multiple formats, such as emails, reports, executive summaries, etc. This strategy allows students to develop their writing competence since they will always encounter the challenge of producing various written outputs in the workplace.
- Make use of the diverse functions of language. This strategy helps develop assertiveness in students, which is crucial in demanding work environments. For example, after a conversation, encourage students to use phrases like "It was nice talking to you" or after a project, "It was pleasant and enriching to work with you," etc.
- Infuse critical thinking. The teacher could start with a challenging question as a way to stimulate discussion. This strategy involves organizing, categorizing, predicting, interpreting, analyzing, evaluating, summarizing, and making decisions, all of which are actions linked to the academic and professional domains.

- Stimulate deep learning. This strategy promotes inquiry, deepening of what has been learned, and knowledge management.
- Foster the pre-reading method. This strategy allows for classes with a more dialogical approach.
- Promote experiential learning. With this strategy, students actively engage with the topic under study.

- Integrate storytelling. This strategy fosters creativity and improves communicative competence.
- Prepare a set of problems related to everyday and work situations. The idea of this strategy is to stimulate creativity and critical thinking.

Regardless of the disciplinary area, it is believed that the above strategies promote the development of various socio-emotional skills, such as effective communication, teamwork, creativity, critical thinking, and problem-solving. These simple strategies would allow students to gradually consolidate their self-management skills and better prepare themselves to face the challenges of the job market.

As for the evaluative perspective, it is proposed to emphasize authentic assessment, which refers to criteria, as it significantly narrows the gap between classroom activities and work activities. Moreover, it seems that preparing young people for the long career of continuous learning or lifelong learning is not possible with traditional tests of optimal performance. It is necessary to rethink the way students' performance is assessed in line with the needs of the 21st-century job market. Precisely, methods of authentic assessment offer new ways to connect students to the world of work, as they facilitate interaction in the classroom while at the same time fostering the development of higher-order thinking skills (Vera, 2020). This objective could not be achieved through traditional test assessments, which also do not seem to reflect the work reality that future professionals will face.

It is important to emphasize that authentic assessment simulates conditions or situations in real life. Therefore, it requires students to generate effective responses for which they need to mobilize both technical knowledge and socio-emotional skills in unpredictable real-world contexts. The main objective is to obtain valid and accurate information about what students know and can do in real contexts, under simulated conditions (in-class activities) or real conditions (out-of-class activities). Hence, this assessment approach is also called performance assessment, as evaluative criteria primarily focus on the observation of complex behaviors rather than fragmented technical knowledge.

Additionally, it is worth noting that in the world of work, it is common to include soft skills in recruitment and personnel selection processes, and their evaluation and measurement are an important part of the human resources consulting industry. Overall, it is observed that interviews continue to be the preferred technique as they allow for the collection and measurement of personality traits, situational performances, motivation, decision-making, autonomy, self-efficacy, and other important dimensions of non-cognitive skills that would otherwise be challenging to evaluate. Therefore, it is recommended to implement what could be called "competency-based interviews," where the evaluator asks questions to elicit examples of leadership, teamwork, and problem-solving.

In the business field, although this technique is decisive in hiring new personnel, induction processes are also implemented, where a peer is assigned to accompany and evaluate the newly incorporated individual. This is usually done using rubrics, checklists, observation guidelines, or anecdotal records. Replicating this good practice and aiming to promote self-regulated learning in students, it is proposed to include self-assessment strategies (students assess themselves) and co-evaluation (students assess each other). Evidence indicates that co-evaluation of non-cognitive skills is more accurate, less biased, and more predictive of future performance (Connelly & Ones, 2010; Vera, 2023a; Vera, 2023).

Therefore, if it is necessary to implement psychometric or optimal performance tests, referring to the norm, it is proposed to include items that cover higher-order thinking levels (application, analysis, synthesis, and evaluation). These assessment tools could be used either from a summative perspective (with grading) or a formative perspective (without grading). Whichever evaluative option is chosen, it is always advisable to ensure measures of validity (instruments measure what they are intended to measure) and reliability (instruments produce consistent results over time, regardless of who administers or grades them).

As part of the discussion, it is worth asking: Are teachers assessing socio-emotional skills in line with their methodological approaches? Are these soft skills being adequately evaluated? What type of assessment is being conducted? Is self-assessment and co-evaluation encouraged? What levels of thinking are being covered in the assessments? From a temporal perspective, how is the evaluation conducted? In the local context, it is estimated that teachers tend to evaluate in a more episodic manner, for example, at the end of a learning unit, without taking advantage of reusing the same instruments with the same groups of students or different groups of students for comparative purposes.

Furthermore, a review of various evaluative instruments, such as tests, shows that they primarily assess lower-order thinking levels (knowledge and comprehension). Therefore, it seems that non-cognitive skills might be evaluated in the same way, which would not be in line with the criterion of validity. In the context of non-cognitive skills, validity translates into essentially evaluating performances and higher-order thinking levels that enhance students' problem-solving and decision-making abilities.

Based on the data analyzed so far, it can be inferred that the starting point for evaluating soft skills requires an appropriate conceptual and operational definition. Regarding validity, this means evaluating what should be evaluated, namely, performance evidence indicating the presence or absence of the assessed non-cognitive skill. Similarly, the reliability of the evaluation means obtaining consistent results regardless of the teacher. In fact, an important consideration is the need for soft skills to be evaluated by various teachers. Moreover, as a measure of reliability, the same assessment could be repeated at two different times to correlate the scores from the first moment with the second moment or create two versions of the same assessment with slight variations in the items, among other reliability measures. Therefore, in terms of evaluating and measuring soft skills, efforts should aim to achieve high levels of validity and reliability in the assessment instruments.

Certainly, some forms of standardized evaluation can be highly reliable for assessing cognitive skills, but depending on their construction, they may not be suitable for gathering evidence of the development of non-cognitive skills. In other words, if these instruments focus on lower-order thinking levels, they would not be suitable for evaluating performances from a validity perspective. However, if they assess higher-order thinking levels, they would obviously

be more suitable for evaluating the student's ability to solve problems with greater precision. Nevertheless, in no case would such an evaluation allow for an appreciation of the student's ability to transfer their knowledge to new contexts or situations, as such performance can only be observed and measured through indicators related to practical situations.

## Method

By employing a combination of a comprehensive literature review and a reflective analysis, this study provides an in-depth examination of the state-of-the-art of soft skills development, offering valuable insights and perspectives for researchers, educators, and practitioners in this field.

Additionally, the methodological approach of combining a comprehensive literature review and a reflective analysis enhances the rigor and credibility of this study. The comprehensive literature review allows for a systematic examination of existing research, theories and best practices related to soft skills development. It provides a solid foundation of knowledge and serves as a basis for understanding the current state-of-the-art in this field.

Furthermore, the reflective analysis adds a personal and subjective dimension to the study. By reflecting on their own experiences and perspectives, the author brings a unique viewpoint that complements the existing literature. This introspective process allows for a deeper exploration of the practical aspects of soft skills development, highlighting real-world challenges, successes, and lessons learned.

It is important to emphasize that this study represents an enhanced and expanded English version of the author's highly cited article titled "*Infusión de habilidades blandas en el currículo de la educación superior: Clave para el desarrollo de capital humano avanzado*", originally published in 2017. Building upon the foundational work presented in the previous article, this current study delves deeper into the topic of soft skills development, incorporating new insights, additional research findings, and a broader perspective.

While the original article provided a valuable contribution to the literature in the context of Spanish-speaking readers, this updated version aims to reach a wider audience by presenting the content in English. By doing so, the author seeks to increase the accessibility and visibility of the research, facilitating knowledge exchange and collaboration with international researchers, educators, and practitioners in the field of soft skills development.

Furthermore, this improved English version incorporates the latest advancements and developments in the field since the publication of the original article. It integrates new empirical evidence, recent theoretical frameworks, and emerging trends, enriching the discussion and providing a more comprehensive understanding of the topic. The expanded scope and refined analysis of this study contribute to a more nuanced and up-to-date exploration of soft skills infusion in the higher education curriculum.

Overall, this study serves as an important update and expansion of the author's previous work, ensuring that the research findings and insights reach a broader audience and remain relevant in the ever-evolving landscape of soft skills development in higher education. Thus, the insights and perspectives offered in this study are particularly valuable for researchers, educators, and practitioners in the field of soft skills development.

In essence, researchers can benefit from the synthesized knowledge and identification of key themes and trends, which can guide future research directions and contribute to the advancement of the field. Educators can gain valuable insights into effective strategies and approaches for fostering soft skills in educational settings, ultimately enhancing the learning experiences and outcomes of their students. Practitioners, such as HR professionals and organizational leaders, can gain practical insights and recommendations for designing and implementing soft skills development programs that align with their specific contexts and goals.

Overall, this study's methodological approach and its in-depth examination of soft skills development provide a valuable resource for advancing knowledge, informing practice, and fostering the growth and development of individuals and organizations in various professional domains.

## Discussion and conclusions

In response to the growing demand for a competent workforce, higher education institutions (HEIs) are facing the challenge of equipping students with the necessary knowledge, socio-emotional skills, and attitudes that align with the evolving needs of the industry. As industries undergo rapid transformations, the skills required for successful job performance are also evolving. HEIs play a crucial role in bridging the gap between the demand for highly skilled technicians and professionals and the supply of qualified individuals.

Traditionally, the focus in education has been primarily on technical knowledge and hard skills. However, employers are increasingly recognizing the significance of soft or non-cognitive skills in the workplace. These skills, such as communication, teamwork, problem-solving, adaptability, and emotional intelligence, are considered essential for effective job performance and overall success in today's dynamic work environments.

Furthermore, employers are placing greater emphasis on these non-cognitive skills because they contribute to a range of outcomes, including improved teamwork, enhanced customer satisfaction, increased innovation, and higher employee engagement. Moreover, these skills are transferable across different job roles and industries, making individuals more adaptable and versatile in their careers.

Research supports the notion that employers value soft skills more than technical knowledge or hard skills when assessing potential candidates. Studies conducted by Vera (2022) and Lamri & Lubart (2023) have highlighted the growing recognition of the importance of non-cognitive skills in the hiring process. Employers understand that while technical knowledge can be taught and acquired, soft skills are often more difficult to develop and are indicative of an individual's ability to effectively navigate various work situations and collaborate with others.

Therefore, HEIs must adapt their curricula and teaching methodologies to integrate the development of soft skills alongside the acquisition of technical knowledge. This can be achieved through project-based learning, internships, experiential learning opportunities, and the incorporation of socio-emotional skill development into the academic programs. By prioritizing the development of these skills, HEIs can better prepare students to meet the demands of the job market, enhance their employability, and contribute to their long-term career success.

In this context, globalization, and the market economy, in all areas, require technicians and professionals of this century to operate in different contexts and with people from various disciplines and socio-cultural backgrounds. Therefore, it is no longer sufficient to do a good job; it is necessary to act proactively and synergistically to contribute to the overall performance of teams and organizations. Thus, working on our own soft skills is worth doing, not only to meet the demands of the job market but also for our own personal progress in life.

According to the literature on soft skills, these skills can be effectively taught through a range of methodological strategies. Role-playing, simulation exercises, self-discovery activities, questioning techniques, interviews, projects, problem-based learning, cooperative learning, and reflective instances are among the diverse approaches that can be employed. These strategies aim to create authentic and immersive learning experiences that closely resemble real-world work environments.

To integrate the development of soft skills into the curriculum, different approaches can be adopted. The direct approach involves dedicated courses or modules specifically focused on the acquisition of socio-emotional competencies. The metacurricular approach involves infusing soft skills development throughout various disciplinary courses, integrating them into the overall learning process. Lastly, the mixed approach combines both dedicated courses and integration within disciplinary courses to ensure comprehensive skill development.

It is undeniable that complementing disciplinary training with the acquisition of socio-emotional skills is crucial in the Western world. The demand for well-rounded professionals who possess not only technical expertise, but also strong interpersonal and problem-solving abilities is growing rapidly. Therefore, it becomes imperative for educators to align the learning process with the specific needs of the industry, emphasizing the development of socio-emotional skills in new technicians and professionals.

To achieve this, a shift away from traditional frontal teaching methods and traditional assessments is necessary. The traditional approach may not effectively replicate the complexities of the work environment or adequately prepare students for the demands they will face in their careers. Instead, innovative teaching methods that foster active learning, critical thinking, collaboration, and self-reflection should be employed. Assessments should also be designed to evaluate the application of soft skills in authentic scenarios, allowing students to showcase their abilities in real-world contexts.

Teachers play a crucial role in bridging the gap between academic learning and industry needs. They must act as facilitators, creating engaging learning environments that encourage students to actively participate and apply their socio-emotional skills. Collaboration with industry professionals, internships, and experiential learning opportunities can further enhance the integration of soft skills development into the curriculum.

As it can be seen, the importance of socio-emotional skills in the development of new technicians and professionals cannot be overstated. Educators must adopt innovative teaching methods and assessments that replicate real-world work environments to effectively nurture these skills. By bridging the gap between academic learning and industry needs (Vera, 2023b), teachers can better equip students with the necessary competencies to succeed in their careers and contribute meaningfully to the workforce. This suggests that soft skills can be taught using various methodological strategies, such as role-playing, simulation, self-discovery, questioning, interviews, projects, problem-based learning, cooperative learning, and reflective instances. Furthermore, the development of these skills could be integrated into the curriculum in various

ways: direct approach, metacurricular approach, and mixed approach (combining both). Regardless, the need to complement disciplinary training with the learning of socio-emotional skills is evident in the Western world.

That leads us to believe that the conceptual and operational definition of non-cognitive skills needs to somehow replicate the work environment. Consequently, the common approach of frontal teaching and its counterpart, traditional assessment, does not seem to be the best strategic decision. Considering this situation, teachers are currently faced with the challenge of bridging the gap between the academic learning process and the specific needs of the industry in terms of the development of socio-emotional skills in new technicians and professionals. This challenge is evident not only at the national or regional level but also globally.

Finally, it is evident that technical skills alone do not seem to be sufficient to thrive properly and successfully in the world of work. On the contrary, to achieve the necessary level of quality in the new workforce, it is necessary to include a set of soft skills in the curricula. This set of skills should not only aim to transform students into better individuals but also adequately prepare them to face the challenges of an increasingly complex and changing world. In this sense, this article has been written with the purpose of generating debate and reflection on the infusion and development of the skills needed for the 21st century and with the intention of producing a transformative change in teaching practices that contributes more effectively to the continuous improvement of educational quality, from the concrete reality of the classroom.

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ORIGINAL ARTICLE

# Integrating Artificial Intelligence (AI) in the EFL Classroom: Benefits and Challenges

**FERNANDO VERA**[1]

https://orcid.org/0000-0002-4326-1660

[1]Universidad del País Vasco/Euskal Herriko Unibertsitatea, España

Correspondence mail: fernandovera@rediie.cl

## Abstract

The integration of Artificial Intelligence (AI) in education, including English in the Foreign Language (EFL) classrooms, has been a topic of interest and debate. In fact, AI has the potential to transform language learning and teaching. By leveraging the power of AI, educators can provide personalized feedback, adaptive learning experiences, authentic resources, and collaborative opportunities for students. this investigation seeks to explore the perceptions of English as a Foreign Language (EFL) teachers, regarding the incorporation of Artificial Intelligence (AI) technologies in their classrooms. As. The research focuses specifically on a group of EFL teachers from a private university in Chile who have demonstrated experience in integrating AI in their teaching practices. The sample size for this study consists of 12 EFL teachers who were purposefully selected based on their expertise and familiarity with AI technologies. By exploring the perspectives of these teachers, this research seeks to gain insights into the effectiveness, challenges, and potential benefits of AI integration in EFL education at the university level. The findings indicate that these teachers have positive perceptions towards the use of AI, recognizing its potential to enhance learning and teaching. The results also highlight the importance of considering students' motivation levels and teachers' technological and pedagogical competence when integrating AI into the EFL classroom. This research provides insights into the teachers' perceptions and sheds light on the considerations needed for effective implementation of AI technologies in EFL education.

**Keywords:** EFL teaching; AI technologies; Classroom integration; Student engagement.

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## Introduction

Artificial Intelligence (AI) and its automation capabilities have the potential to revolutionize education. As technology continues to advance, it brings forth new challenges and demands for both educators and learners. While we are still grappling with the impact of Internet and Communication Technology (ICT) in our classrooms, we must now prepare ourselves for the transformative power of AI. In addressing the disruptive effects of AI in higher education, it is critical to emphasize the importance of teachers acquiring specific skills to navigate this changing landscape (Sumakul, 2019; Vera 2023a; Vera, 2023b). AI offers educators novel tools and resources that have the potential to reshape traditional classroom practices. This holds true across various subject areas, including English as a Foreign Language (EFL).

Artificial intelligence (AI) technology has permeated various aspects of education, offering innovative solutions to enhance the learning experience. The realm of education has witnessed significant advancements with the integration of artificial intelligence (AI) technology. Through extensive literature studies, it has become evident that AI has found applications in a multitude of key areas within education. According to Zhao & Nazir (2022), the role of Artificial Intelligence (AI) has significantly strengthened the development of innovative teaching and knowledge-sharing methods. AI has revolutionized the educational landscape by offering powerful tools and technologies that enhance teaching and learning experiences.

As a matter of fact, a large and growing body of literature has consistently highlighted the potential benefits of integrating Artificial Intelligence (AI) in language teaching and learning contexts. Numerous studies, including those by Gao (2021), Pikhart (2021), and Klimova *et al.* (2022), have provided compelling evidence supporting the positive impact of AI on language education. These studies have shed light on the various ways in which AI can enhance language learning experiences. AI-powered tools and applications have been shown to facilitate personalized learning, adaptive instruction, and intelligent feedback, catering to the individual needs and learning styles of students. By leveraging AI technologies, language instructors can offer tailored and targeted support, promoting more efficient and effective language acquisition.

In this context, this investigation seeks to explore the perceptions of English as a Foreign Language (EFL) teachers, regarding the incorporation of Artificial Intelligence (AI) technologies in their classrooms. As AI continues to advance and shape various sectors, including education, it is essential to understand how EFL teachers perceive and navigate the integration of AI tools and applications in their instructional practices.

*Applications of IA Technologies in Education*

Applications of AI technologies in education have rapidly expanded in recent years, offering innovative solutions to enhance teaching and learning experiences. The potential of AI in education is vast, encompassing various domains and benefiting both educators and learners. Here, we explore some key applications of AI technologies in the field of education.

- One significant application of AI technology is the automatic grading system, which streamlines the assessment process by leveraging machine learning algorithms to evaluate student assignments and provide timely feedback. This not only saves teachers valuable time but also ensures consistent and objective grading.

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- Another aspect is the interval reminder, where AI-powered systems help students stay organized and manage their time effectively by sending reminders for deadlines, study sessions, or upcoming assessments. These reminders contribute to better time management skills and help students stay on track with their learning goals.

- AI technology also supports teachers in providing feedback to students. With the assistance of AI, teachers can access data-driven insights and analytics, enabling them to offer personalized feedback tailored to each student's needs. This targeted feedback fosters student growth and allows for more individualized instruction.

- Virtual teachers, another aspect of AI in education, offer an interactive and immersive learning experience. These virtual teachers utilize AI algorithms to engage with students, deliver lessons, and provide support, creating a dynamic and engaging learning environment.

- Personalized learning is another crucial application of AI in education. AI algorithms analyze student data, including learning preferences, strengths, and weaknesses, to develop customized learning paths. This approach ensures that students receive content and exercises tailored to their individual needs, optimizing their learning outcomes.

- Adaptive learning goes hand in hand with personalized learning, where AI systems continuously adapt the learning experience based on student progress and performance. Through real-time assessments and data analysis, adaptive learning platforms adjust the difficulty level, pacing, and content delivery to match each student's proficiency and learning pace.

- AI's integration with augmented reality/virtual reality (AR/VR) opens up new possibilities for immersive and experiential learning. AR/VR technologies allow students to explore virtual environments, conduct virtual experiments, and interact with simulated scenarios, fostering deeper understanding and engagement.
- Accurate reading is another area where AI technology has made significant strides. AI-powered tools employ natural language processing and machine learning techniques to analyze and comprehend text, enabling students to access accurate and detailed information from various sources.

- The intelligent campus is an emerging application of AI, utilizing smart technologies to enhance campus operations and services. AI-powered systems can optimize resource allocation, improve campus security, and streamline administrative processes, creating a more efficient and connected learning environment.

Lastly, AI has played a pivotal role in facilitating distance learning, particularly in the wake of the COVID-19 pandemic. AI-powered platforms enable remote teaching and learning by providing virtual classrooms, video conferencing capabilities, and interactive learning materials, ensuring continuity in education regardless of physical barriers.

However, despite the promise of personalized learning, researchers and teachers in the field of language education exhibit a certain level of ambivalence towards the use of AI technologies in the language classroom (Sumakul *et al.,* 2022). While many studies emphasize the potential benefits of incorporating AI in language learning, there are also concerns and reservations that need to be addressed.

On one hand, proponents of AI technologies argue that they can provide individualized learning experiences tailored to students' specific needs and preferences. AI-powered language learning platforms and applications can adapt to learners' proficiency levels, track their progress, and provide personalized feedback, ultimately enhancing their language acquisition journey. Additionally, AI-based virtual language tutors and chatbots can offer interactive and engaging conversations, allowing learners to practice their language skills in a supportive and non-judgmental environment.

*AI tools used in EFL classrooms*

AI offers innovative opportunities to enhance language learning experiences and provide personalized support for EFL students. AI tools are designed to assist teachers and learners in various aspects of language acquisition, including grammar, vocabulary, pronunciation, and speaking skills. These tools utilize machine learning algorithms, natural language processing, and other AI techniques to provide interactive and adaptive learning experiences.

Specifically, AI offers educators a wide range of novel tools and resources that hold the potential to reshape and enhance traditional practices in English as a Foreign Language (EFL) classrooms (Vera, 2023). With AI, teachers can leverage intelligent tutoring systems, automated language assessment tools, and virtual language assistants to create more personalized and interactive learning experiences for their students.

In addition to traditional grammar-focused apps, there are several other AI technologies that have revolutionized the way English is learned as a foreign language. These technologies offer a range of interactive and personalized learning experiences, enhancing various language skills. Here are some examples:

- **Language Tutoring Systems:** AI-powered tutoring systems provide learners with interactive lessons and practice exercises. These systems use natural language processing (NLP) algorithms to analyze learners' responses, offer feedback, and provide personalized recommendations for improvement. They can simulate conversations, provide pronunciation guidance, and offer real-time feedback on speaking skills.

- **Virtual Language Assistants:** Virtual language assistants, such as chatbots, provide learners with opportunities for language practice and conversation. These AI-driven assistants can engage in dialogues, answer questions, and offer suggestions for vocabulary and sentence structures. Learners can practice their speaking and writing skills through interactive conversations with these virtual assistants.

- **Speech Recognition Technology:** AI-powered speech recognition technology allows learners to practice their pronunciation and speaking skills. Learners can speak into a microphone, and the technology analyzes their speech, providing feedback on accuracy, fluency, and intonation. This helps learners identify areas for improvement and work towards more accurate pronunciation.

- **Language Learning Apps:** There are numerous AI-powered language learning apps available that offer comprehensive language courses. These apps use AI algorithms to adapt the learning content based on learners' performance and progress. They provide a variety of exercises, quizzes, and games to enhance vocabulary, grammar, listening, and reading skills. Some apps also incorporate augmented reality (AR) or virtual reality (VR) elements for an immersive language learning experience.

- **Intelligent Writing Tools:** AI technologies have also been applied to assist learners in improving their writing skills. Intelligent writing tools can analyze learners' written work, offering suggestions for grammar, vocabulary, and sentence structure. These tools can identify common errors, provide alternative word choices, and offer writing style recommendations, helping learners develop their writing proficiency.

- **Language Learning Platforms:** AI-powered language learning platforms offer comprehensive language courses that cover all language skills. These platforms use adaptive learning algorithms to customize the learning experience for each learner, providing targeted exercises, content, and assessments based on individual needs and progress. They may also incorporate gamification elements to enhance learner engagement and motivation.

Overall, these AI technologies provide learners with accessible, interactive, and personalized language learning experiences (Vera, 2023c). They offer immediate feedback, adaptability, and authentic practice opportunities, allowing learners to progress at their own pace and focus on areas that require improvement. By incorporating AI technologies into EFL learning, learners can benefit from enhanced language acquisition and a more engaging learning process.

Apart from the above-mentioned AI tools that can be used in the EFL classroom, Vera (2023), has identified the following AI technologies:

- **Duolingo:** Duolingo is a popular AI-powered language learning platform that offers interactive lessons and exercises for learning English as a foreign language. It utilizes AI algorithms to adapt to learners' proficiency levels, track their progress, and provide personalized feedback. The platform includes various language skills such as reading, writing, listening, and speaking, and incorporates gamification elements to make the learning process engaging and enjoyable.

- **Grammarly:** Grammarly is an AI-based writing assistant that helps learners improve their English writing skills. It analyzes written content and provides real-time feedback on grammar, spelling, punctuation, style, and clarity. The tool uses advanced AI algorithms to identify errors and suggest corrections, helping learners enhance their writing proficiency and accuracy.

- **Lingvist:** Lingvist is an AI-powered language learning platform that offers personalized language courses, including English as a foreign language. It uses AI algorithms to adapt the course content based on learners' language proficiency and learning patterns. Lingvist focuses on vocabulary acquisition and employs spaced repetition techniques to optimize learning efficiency. The platform also provides instant feedback and performance analytics to track learners' progress.

- **Rosetta Stone:** Rosetta Stone is a well-known AI-powered language learning software that offers comprehensive language courses, including English as a foreign language. It utilizes AI technology to provide interactive lessons, speech recognition, and pronunciation feedback. The software emphasizes immersive language learning through visuals, audio, and contextual exercises, allowing learners to develop their English language skills in a natural and engaging way.

- **ELSA Speak:** ELSA Speak is an AI-powered English pronunciation app designed to help learners improve their spoken English. The app uses AI algorithms to analyze learners' pronunciation and provide personalized feedback. It offers various practice exercises and provides real-time guidance to help learners develop accurate pronunciation and intonation.

These AI tools leverage advanced technologies to enhance the learning experience for English language learners. By incorporating AI algorithms and adaptive learning techniques, they provide personalized feedback, track progress, and create engaging and interactive language learning environment. Moreover, AI tools have the potential to assist teachers in extending their support to individual students, especially when faced with time constraints ((U.S. Department of Education, Office of Educational Technology, 2023). As educators, it is not uncommon to encounter situations where limited class time prevents teachers from providing personalized attention to each student. However, AI tools can help bridge this gap by offering additional support and resources tailored to the specific needs of students.

It is important to note that while AI tools can be valuable aids for teachers, they should not replace the role of educators. The human touch and expertise of teachers in understanding students' unique needs, emotions, and learning styles cannot be replicated by AI. AI tools should be seen as complementary resources that enhance teachers' instructional practices and enable them to better cater to the individual needs of their students.

## Method

In this study, we employed qualitative research methods to gain a deeper understanding of the phenomenon under investigation. Qualitative research is characterized by its naturalistic approach, focusing on interpretation and meaning-making (Aspers & Corte, 2019; Vera, 2022). To gather and analyze data, we included interviews and literature review.

The literature review component of this study involved an extensive exploration of existing research and scholarly works related to the topic. This process allowed to synthesize and extract key insights from previous studies, which served as a foundation for this research. Literature reviews are valuable in providing an understanding of the evolution of knowledge, identifying sources of inspiration for policy-making, stimulating the generation of new ideas, and guiding research in specific fields.

Additionally, the study incorporated interviews as a means of collecting primary data. The researchers conducted these interviews using an online platform, specifically a Zoom meeting. This online format enabled remote communication and facilitated the participation of individuals from different locations. The interviews provided valuable qualitative data, allowing the researchers to gather in-depth insights, perspectives, and experiences related to the research topic.

By employing qualitative research methods such as literature review and interviews, the study aims to uncover rich and nuanced information, delve into the complexities of the subject matter, and gain a comprehensive understanding of the research topic. This approach offers valuable insights into the phenomenon under investigation and contributes to the body of knowledge in the field.

Interview questions:

- How have you incorporated AI technologies in your EFL classroom?
- How do you address ethical considerations related to AI technologies in your EFL classes?
- What advice or recommendations would you give to other EFL teachers who are considering incorporating AI in their classrooms?

*Participants*

Given the novelty of AI technology and the limited familiarity of EFL teachers with its applications, this study adopted a purposeful sampling approach (Thomas, 2022). Purposeful sampling involves deliberately selecting participants who can provide relevant insights and align with the objectives of the study. By employing purposeful sampling, the researchers ensured that the participants' experiences and perspectives on integrating AI in EFL classrooms would contribute valuable and meaningful data to the research.

The sample consisted of 12 faculty members from a private university, including 9 women and 3 men, with an average age of 46 years (SD= 9). Among the participants, 4 held a PhD degree, accounting for approximately 33% of the sample. Additionally, 11 faculty members possessed a master's degree, signifying their strong educational background and knowledge in their respective fields.

It is worth noting that some of the faculty members in the sample had obtained certifications in AI tools. These certifications indicate their dedication to staying abreast of advancements in technology and their commitment to incorporating AI technologies effectively in their teaching practices.

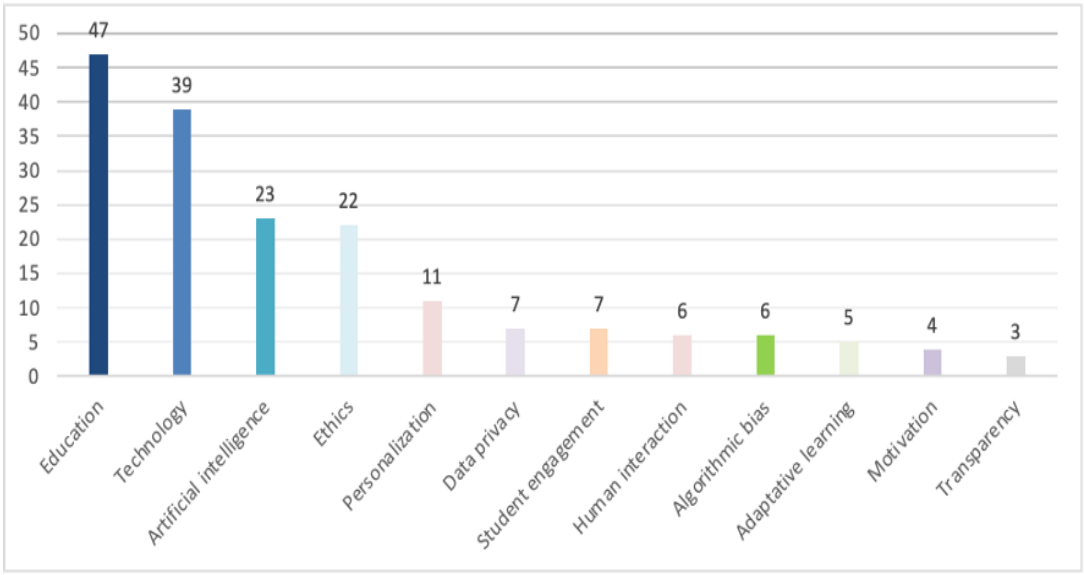
## Results

In this section, we present the insightful findings obtained through the analysis of interview data utilizing coding techniques facilitated by the ATLAS.ti software (2022). Our primary objective was to explore the role of Artificial Intelligence (AI) in English language learning, specifically within the context of faculty members' experiences with AI. By conducting these interviews, our aim was to gain a deeper understanding of the impact of AI on various aspects of language acquisition, student engagement, and overall learning outcomes.

By employing the powerful features of ATLAS.ti, we were able to systematically analyze the interview data and extract meaningful insights. The software facilitated efficient organization and categorization of the data, enabling us to identify recurring themes and patterns within the responses provided by the faculty members. This rigorous coding process allowed us to draw robust conclusions and provide valuable insights into the effectiveness and potential of AI in English language learning within higher education settings.

Figure 1 visually represents the relationships and connections uncovered through our analysis, illustrating the complex interplay between AI, language learning, and various outcomes. The comprehensive examination of the data shed light on the diverse ways in which AI impacts teachers' utilization of AI tools, ethical considerations, and provided us with valuable recommendations for future implementation.

**Figure 1:** *Identified codes on teachers' use of AI*




Source: Own elaboration

Based on the results of the interview analysis of informants, we obtained four relevant subjects in this study. The four points of discussion are spelled out as follows:

- **Education:** Education is as a transformative journey that equips students with the necessary knowledge, skills, and values to succeed in a globalized world.
- **Technology:** Technology is viewed as a powerful tool that enhances teaching and learning experiences
- **Artificial intelligence:** Artificial Intelligence (AI) is as a cutting-edge technology that enables machines to learn, reason, and perform tasks traditionally requiring human intelligence.
- **Ethics:** Ethics is considered as a moral framework that shapes individuals' behavior and decision-making in educational contexts.

Through the interviews, we gained valuable insights into how AI technologies are integrated into English language learning, the challenges and opportunities they present, and the ethical considerations that arise. Furthermore, we discovered valuable advice and recommendations from the faculty members who shared their experiences and expertise in incorporating AI into their teaching practices.

The interviews conducted for this study were facilitated through Zoom sessions, an online communication platform. Given the nature of the research and the geographical dispersion of the participants, conducting the interviews remotely was a practical and efficient approach. Using Zoom as the medium for interviews allowed us to overcome geographical barriers and connect with participants regardless of their location. It provided a convenient and accessible means of communication, enabling us to engage with a diverse group of individuals in real-time.

The Zoom sessions offered a collaborative and interactive environment, resembling face-to-face interviews to a certain extent. Through video conferencing, we were able to establish visual and auditory connections, which enhanced the quality of the interviews. It also provided a platform for non-verbal cues and expressions, allowing for a more nuanced understanding of the participants' perspectives. Below we present a selection of opinions from this group of faculty members:

- *In terms of learning outcomes, I have observed noticeable improvements in students' language proficiency and fluency. The AI chatbot provides instant feedback on grammar, vocabulary, and sentence structure, allowing students to correct their mistakes in real-time.* Fac-03
- *AI technologies have greatly improved student engagement and learning outcomes in my EFL classes, particularly through the use of adaptive learning platforms.* Fac-07
- *I have witnessed increased motivation as students find the content more relevant and tailored to their needs.* Fac-02
- *To EFL teachers considering the incorporation of AI in their classrooms, I would recommend exploring different AI tools and applications that align with their teaching goals and students' needs.* Fac-11
- *AI technologies have had a significant impact on student engagement and learning outcomes in my EFL classes, particularly using AI-powered language analysis tools*. Fac-01

- *Ethical considerations related to AI technologies are of utmost importance in our EFL classes. To address these considerations, we ensure that the AI tools and applications we use are built on ethical principles and adhere to data privacy regulations.* Fac-04
- *I have utilized AI-driven virtual language assistants like Google Assistant and Amazon Alexa in my EFL classroom. These assistants can engage in conversations with students, answer their language-related questions, and provide pronunciation guidance.* Fac-08
- *We emphasize the responsible use of AI in language learning. We discuss with students the importance of critical thinking and evaluating the information provided by AI tools.* Fac-12
- *The interactive nature of the AI-powered pronunciation tools has increased student engagement and motivation to improve their pronunciation. Students appreciate the accuracy of the feedback and the ability to track their progress over time.* Fac-05

## Discussion

The findings of this study shed light on the integration of Artificial Intelligence (AI) in English language learning and provided valuable insights into its effectiveness and potential in higher education (Vera, 2023). The interviews conducted with faculty members revealed various perspectives and experiences related to the use of AI in language acquisition, engagement, and overall learning outcomes.

One important aspect that emerged from the interviews was the ambivalence among researchers and teachers regarding the use of AI technologies in the language classroom. While AI promised personalized learning and showed potential benefits in language learning, there were still concerns and reservations among educators (Sumakul, *et al.,* 2022). This ambivalence could be attributed to factors such as the novelty of AI technology and the need for further exploration and understanding of its implications in educational settings.

Another important aspect dealt with ethical considerations related to AI in language learning. Issues such as data privacy, algorithmic bias, and the ethical use of AI tools and applications were raised. The importance of ensuring transparency, fairness, and accountability in the design and implementation of AI technologies in education was emphasized. This group of faculty members expressed the need for ethical guidelines and professional development opportunities to navigate these ethical considerations effectively.

## Conclusion and recommendation

The integration of AI technologies in the EFL classes of this group of faculty members has a transformative effect on student engagement and learning outcomes. The personalized nature of AI tools, the immediate feedback they provide, and the interactive learning experiences they offer have resulted in enhanced student motivation, improved language proficiency, and increased confidence in using English.

When it comes to addressing ethical considerations related to AI technologies in EFL classes, this group of teachers takes a proactive approach, prioritizing key aspects such as student privacy, transparency, and critical thinking. Recognizing the potential risks and implications of AI, they emphasize the importance of creating a responsible and ethical use of these technologies in the classroom.

One of the primary concerns for these teachers is ensuring student privacy. They advocate for clear guidelines and protocols to protect students' personal data and ensure that AI tools and applications used in the classroom adhere to strict privacy standards. By implementing measures such as data encryption, secure storage, and limited access to student information, they strive to maintain the confidentiality and security of student data.

Transparency is another crucial aspect addressed by this group of teachers. They believe in providing students with a clear understanding of how AI technologies are being used in the classroom, including the data being collected, the algorithms employed, and the potential implications of using these technologies. By fostering open and honest communication, they empower students to make informed decisions and develop a critical awareness of AI's impact on their learning process.

Critical thinking is also a key focus when discussing ethical considerations. These teachers actively engage students in discussions about the ethical implications of AI, encouraging them to question and analyze the biases, limitations, and potential consequences associated with AI technologies. They promote a culture of inquiry and reflection, encouraging students to think critically about the role of AI in their language learning journey and its broader societal impact.

In general, these teachers place student privacy, transparency, and critical thinking at the forefront of their approach to addressing ethical considerations related to AI technologies in EFL classes. By prioritizing these principles, they aim to create a learning environment that not only harnesses the benefits of AI but also ensures responsible and ethical use that aligns with the best interests of their students.

Finally, when considering the integration of AI in EFL classrooms, our recommendation would be to approach it with an open mind and a willingness to explore new possibilities. Begin by researching and experimenting with different AI tools and applications that align with your teaching objectives. Take the time to learn how to effectively incorporate these technologies into your lessons and activities. Seek support and collaborate with colleagues who have experience with AI in language learning. It's important to involve students in the process by explaining the purpose and benefits of AI technologies and encouraging their active participation and feedback. Emphasize the importance of using AI as a tool to enhance learning rather than a replacement for human interaction. Finally, stay updated on the latest advancements in AI and continuously reflect on its impact on student engagement and learning outcomes to refine your teaching practice.

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## NOTAS FINALES

***Revista Electrónica Transformar®*** es una publicación científica, con sistema de pares ciegos, editada y publicada por Centro Transformar SpA, una consultora en gestión organizacional y educacional, con base en Chile, con la colaboración de investigadores chilenos y españoles. Como tal, cuenta con código ISSN 2735-6302. La abreviatura de título según las normas del ISSN es "Rev. electron. Transform". Este último puede ser usado para efectos de citación y/o referencias bibliográficas.

Nuestra revista se publica tiene una periodicidad trimestral. Nuestro objetivo es mostrar las principales tendencias en educación y ayudar a diseminar las experiencias metodológicas del profesorado de educación primaria, secundaria y terciaria, a nivel nacional e internacional, permitiendo compartir sus mejores prácticas (*benchmarking*) de manera de potenciar y apalancar las competencias del estudiantado de cara a los desafíos del siglo XXI.

Para lograr nuestro objetivo, hemos definido las siguientes secciones principales: *Tendencias en educación, Experiencias docentes, Gestión educacional y Entrevistas.* Estas secciones serán desarrolladas con rigor académico, enriquecidas con los valiosos aportes experienciales del profesorado y dispuestas en la revista, según las necesidades editoriales. De este modo y teniendo como foco la construcción interdisciplinar del pensamiento pedagógico, ***Transformar*** busca el análisis de teorías y enfoques metodológicos de aprendizaje-desarrollo, la reflexión académica, la diseminación de conocimientos y el intercambio generoso de experiencias educativas. En este contexto, ***Transformar*** ofrece un espacio para el intercambio, la diseminación y promoción de la educación inclusiva y sostenible, relevando el paradigma del aprendizaje permanente (*life-long learning*) y el cuarto Objetivo de Desarrollo Sostenible (ODS 4) de las Naciones Unidas.

Actualmente, nuestra revista se encuentra corriendo bajo la plataforma Open Journal Systems.

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