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Prologue

University education is undergoing a profound transformation, and teacher education is no exception. In a global context marked by accelerating technological advances, the need for renewed pedagogical skills, and an emphasis on inclusive and sustainable education, teacher education programs face unprecedented challenges and opportunities. This foreword explores some of the most influential current trends in teacher education at the university level, highlighting how they are shaping the profile of the modern educator.

The first key trend in teacher education is digitization. The incorporation of emerging technologies in the teaching-learning process has ceased to be an option and has become a necessity. Online education platforms, virtual and augmented reality tools, and the use of artificial intelligence to personalize learning are some of the technological resources that are revolutionizing the way future teachers learn and teach. These technologies not only facilitate access to knowledge, but also enable the development of digital competencies in teachers, necessary to face a student body that is increasingly immersed in digital environments.

Another noteworthy trend is training in socioemotional competencies. The role of the teacher is no longer limited to the transmission of knowledge, but includes emotional and social support for their students. Training programs have begun to include modules on emotional intelligence, conflict management and empathy, recognizing that students' socioemotional development is directly linked to academic success. The COVID-19 pandemic accentuated this need by highlighting the impact of mental health on learning and the importance of having teachers who are able to recognize and address these issues in their classrooms.

Inclusion and diversity is another fundamental pillar of current teacher education. Education systems in many countries have adopted policies that promote inclusive education, where all students,

regardless of ability, gender, sexual orientation, or socioeconomic background, have the right to receive an equitable education. In response, universities have strengthened training in pedagogical strategies that ensure attention to diversity, training teachers who are sensitive to the needs of their students and capable of building inclusive learning environments.

Sustainability and education for sustainable development have also gained prominence in teacher training programs. Climate change and the need for sustainable development are high on the global education agenda. Future teachers must not only understand these issues, but also be able to teach them, promoting environmental awareness and a commitment to sustainable development in their students. This requires specialized training to integrate these concepts into the curriculum and to work on projects that sensitize students to the impact of their actions on the planet.

Finally, a focus on research and critical reflection on pedagogical practice has become a central component of teacher training. Rather than adopting a solely practical approach, training programs promote action research and reflective analysis, allowing future teachers to question their own practices and adjust them for continuous improvement. This training model allows teachers to develop critical and adaptive thinking, which is necessary to face the constant changes in the educational environment.

Teacher training in university education is in a process of continuous renewal, driven by the demands of a constantly changing society and by the need to train students prepared for the challenges of the 21st century. Current trends, from digitization to inclusive and sustainable education, offer a vision of an education system that strives to be more equitable, adaptive and committed to the holistic development of students. The transformation of teacher education programs not only responds to the immediate needs of society, but also projects a future where university education is an essential pillar in building more just and resilient societies.

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Religiosity and spirituality in university education: conceptual approaches for its study

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Introduction

Religiosity and spirituality are fundamental concepts in the study of human behavior and its impact in various contexts, including the university setting. However, there is no formal and universally accepted definition of religiosity, reflecting its complexity and variability. Religiosity can be defined in terms of connection and commitment to the church, internalization of its teachings, and the practice of its beliefs and rituals. These definitions emphasize the communitarian and emotional dimension of religiosity, as well as the importance of rituals and personal appropriation of faith.

The lack of a formal and widely accepted definition can make it difficult to operationalize and measure the construct in empirical research. To obtain a more complete and applicable understanding in diverse contexts, it is essential to consider other dimensions of religiosity, such as ethics and personal spiritual experience. A three-dimensional structure of religiosity identifies organizational, non-

organizational and intrinsic dimensions. This structure allows for a more nuanced analysis of how people live and express their faith, highlighting the variability in the practice and integration of religion in their lives.

In addition, it is crucial to differentiate between simply believing in God or religious traditions and having faith in them. Religious maturity implies a deep and motivating commitment to a spiritual belief system. This maturity provides individuals with a sense of life and motivation that transcends mere belief, affecting all their decisions and behaviors. People with a mature faith find purpose and direction in their lives through their religion, which can significantly transform their experience and outlook on life.

The university context presents a unique environment where religiosity and spirituality can influence students' lives in a variety of ways. Highly religious students tend to have more conservative attitudes toward sexuality, although spiritual exploration may lead to a reevaluation of these attitudes. In addition, religious disaffiliation in college may be due to lack of participation in religious rituals and exposure to new ideas. Contemporary universities, especially public and secular ones, do not actively encourage reflection on the inner life and spiritual development, which may contribute to a decline in religious commitment among students.

On the other hand, religiously affiliated universities can provide an environment that will curb these secularizing effects by providing resources and activities that integrate spirituality into academic life. This type of support is crucial to maintaining and strengthening students' religious commitment during their college years.

Religiosity and spirituality are essential components for understanding the variability in religious practice and its impact on the lives of university students. The integration of these dimensions in the academic context can facilitate a more balanced and enriching educational experience, promoting the holistic well-being of students.

The present text aims to explore the definitions, dimensions and role of religiosity and spirituality in the university context. It will analyze the different ways in which university students live and express their faith, as well as the impact of these practices on their emotional, social and academic well-being. This exploration will provide a better understanding of the influence of religiosity and spirituality in the integral formation of university students, providing a basis for future research and educational practices that integrate these dimensions in the academic environment.

To achieve the proposed objective, the text is organized into three sections. First, the definitions and dimensions of religiosity and its importance in the university are examined. Due to the absence of a formal accepted definition, several approaches to understanding religiosity are proposed. Next, spirituality is addressed as essential to human personality and the development of positive values. It is argued that spirituality helps college students face challenges with resilience and a positive outlook. And finally, how religious and spiritual coping helps college students manage stress and emotional struggles is discussed.

Religiosity: definitions, dimensions and its place in the university

There is no widely accepted formal definition of religiosity, which reflects the complexity and variability of the concept. However, certain authors, such as Duche-Pérez et al. (2024) and Mollin (2022), define it in terms of connection and commitment to the church, internalization of this institution and the practice of its beliefs and rituals. These definitions emphasize the communitarian and emotional dimension of religiosity, as well as the importance of rituals and personal appropriation of faith.

Despite these contributions, the lack of a formal definition can make it difficult to operationalize and measure the construct in empirical research. It is essential to consider other dimensions of religiosity, such as ethics and personal spiritual experience, in order to obtain a

more complete and applicable understanding in diverse contexts. The precise definition of religiosity is essential for studies that seek to measure this phenomenon in a consistent and valid manner. Craft and Rockenbach (2011) offer a three-dimensional structure of religiosity, identifying organizational, non-organizational, and intrinsic dimensions. The organizational dimension refers to the frequency with which a person attends religious services, capturing the communal and social aspect of faith. The non-organizational dimension focuses on time spent in private religious activities, such as prayer or meditation, reflecting a more intimate and personal relationship with religion. Finally, the intrinsic dimension measures the degree to which religion is integrated into a person's daily life, affecting his or her decisions and behaviors.

This differentiation allows for a richer and more nuanced understanding of the concept of religiosity, highlighting how people can live and express their faith in different ways. By including these three dimensions, a more complete analysis of religious experience is facilitated, essential for studies that seek to capture the complexity of religiosity in the lives of individuals. These dimensions are fundamental to understanding variability in the practice and integration of religion in different contexts. However, Prosek et al. (2020) and Gaban et al. (2020) differentiate between simply believing in God or religious traditions and having faith in them, emphasizing that religious maturity involves a deep and motivating commitment to a spiritual belief system. Believing refers to a superficial acceptance, whereas having faith is a deeper, emotional experience. Religious maturity is described as a feeling that provides meaning to life, overflowing with motivation and zest for life. This maturity implies a deeper inner communion, where religion is fully integrated into the individual's identity and daily life.

This maturity provides individuals with a sense of life and motivation that transcends mere belief, affecting all their decisions and behaviors. People with mature faith find purpose and direction in their lives through their religion, fully committing themselves to their

spiritual beliefs. This distinction is crucial for studies on the depth and impact of religiosity, highlighting how mature faith can significantly transform individuals' experience and outlook on life.

In this regard, Beckwith and Morrow (2005) note that highly religious and spiritual college students tend to have more conservative and less permissive attitudes toward sexuality compared to their less religious peers, which may result in fewer sexual experiences. Intense religiosity in the college context appears to be associated with a more restrictive view of sexuality, promoting abstinence or limiting sexual practices among students. However, the authors also note that college students who begin to explore their spirituality and are open to discussing these issues tend to move away from conservative views on sexual behaviors. This openness to dialogue and spiritual exploration during college may lead to a reevaluation of previously conservative attitudes, resulting in a more permissive or liberal perspective on sexuality.

This shift indicates that spirituality, although initially associated with conservatism among college students, can be transformed into a force that facilitates greater openness and acceptance of diversity in sexual behaviors. Willingness to dialogue and personal exploration are crucial factors in this process, allowing students to question and redefine their beliefs and attitudes in an academic environment that fosters personal growth and diversity of thought. Betts et al. (2023) suggest that college students begin to disaffiliate from their churches when they stop attending religious ceremonies, which in turn changes their perception of God. This phenomenon is not solely attributed to natural maturation, but the college experience appears to have a significant impact on religious decline. Lack of participation in religious rituals and services during the college years can erode students' connection and commitment to their religious beliefs.

College presents an environment that encourages critical thinking, exposure to new ideas and academic debate, which can challenge and modify students' pre-existing religious beliefs. Interaction with peers of diverse beliefs, along with openness to different perspectives

and lifestyles, can lead students to reevaluate and, in some cases, move away from their previous religious affiliations. This process of religious disaffiliation goes beyond simple maturation, indicating that the college experience plays a crucial role in the transformation of students' religious beliefs.

Dean and Means (2023) suggest that contemporary universities, especially public and secular ones, tend not to actively encourage reflection on students' inner lives, values, and spiritual development. This lack of incentive for spiritual introspection may lead to a decline in religious engagement among college students. In an environment where academic and professional development is primarily emphasized, crucial aspects such as spirituality and personal values may be relegated, contributing to a process of secularization. In particular, educational institutions with no religious affiliation, such as public universities, seem to accentuate this trend. The absence of an environment that promotes reflection on spiritual life and personal values may result in students not receiving the necessary encouragement to maintain their religious commitment. This environment may lead to a decline in religious affiliation and practice, as students may feel disconnected from the communities and rituals that were once an integral part of their lives (Lih et al., 2024).

On the other hand, religiously affiliated universities offer a different environment that can curb secularizing effects. These institutions often actively promote the integration of spirituality into academic life and provide resources for students to reflect on their inner life and values. This may include the availability of chapels, prayer groups, courses in ethics and spirituality, and other activities that encourage religious practice. As a result, students at religiously affiliated colleges may maintain or even strengthen their religious commitment during their college years.

Spirituality: wellness, care and development in the university context

Borragini-Abuchaim (2021) understands spirituality as a fundamental component of the human personality, essential for the growth of positive and creative values. According to this perspective, spirituality is not simply an isolated characteristic, but an integral part that profoundly influences how people perceive the world and relate to others. Spirituality, being part of the basic personality structure, has a significant impact on the development of qualities such as empathy, integrity and compassion. These positive values are crucial not only for the formation of healthy relationships, but also for the positive contribution to society at large. In addition, spirituality is linked to the development of creativity, which manifests itself in an enhanced capacity for innovative thinking, problem solving and artistic expression.

In the context of university students, this interpretation of spirituality has profound implications. During college, students go through a crucial period of personal and professional development. Recognizing spirituality as an elemental aspect of their personality can help students cultivate a deeper sense of identity and purpose (Prosek et al., 2020). College life, with its many challenges and opportunities, is a time of exploration and self-discovery. In this environment, spirituality can serve as a source of resilience and strength, allowing students to face challenges with a positive and constructive perspective. Fostering spirituality can also contribute to the development of core values such as empathy and integrity, which are fundamental to both personal and professional success.

The connection between spirituality and creativity is especially relevant in the university environment, where creativity is highly valued and necessary for learning and innovation. Students who integrate spirituality into their daily lives may find that it enhances their ability to think innovatively and approach problems from new perspectives. In an academic environment that often emphasizes intellectual and technical achievement, recognizing the importance of

spirituality can provide a healthy balance and promote more holistic development.

For Cowden et al. (2024) and Palmisano et al. (2021), the important thing is not to define what spirituality is, but rather spiritual well-being. For these authors, this concept is defined as the capacity to experience and integrate the meaning and purpose of existence through a connection with oneself, with others, or with a higher power. This definition underlines the importance of spirituality in human life, emphasizing that it is not an isolated attribute but a fundamental part of the personality that profoundly influences how people perceive the world and relate to it. Dimensions such as hope, forgiveness and experiences of meaning are considered crucial in this conceptualization, as they are substantially related to indicators of subjective well-being.

In the context of college students, the ability to experience and integrate the meaning and purpose of existence is especially relevant. During college, students face many significant challenges and transitions that can affect their personal and academic development. Spirituality offers an avenue for finding meaning and purpose in the midst of these changes. Hope can provide students with a positive vision for the future and motivate them to overcome academic and personal obstacles, while forgiveness can help them manage the stress and interpersonal tensions common in college life. In addition, meaningful experiences are essential for students to find a moral and emotional compass, helping them make decisions aligned with their values and long-term goals. College is a period of exploration and self-discovery, and spirituality can be a source of resilience and strength. By cultivating a spiritual connection, whether to themselves, others, or a higher power, students can find a healthy balance that promotes their emotional and psychological well-being.

The relationship between spirituality and subjective well-being is particularly significant for university students: those who cultivate a spiritual connection tend to report higher levels of subjective well-being. This can translate into better mental health, greater satisfaction

with life, and a clearer sense of purpose (Graça and Brandão, 2024). In an environment where academic stress and social pressures can be intense, spirituality can offer a valuable resource for students' overall well-being, helping them navigate the challenges of college life with greater resilience and perspective.

However, Hug (2021) and Muñoz-García and Villena-Martínez (2020) emphasize that not only is spiritual well-being necessary and important, but also spiritual care, which tends to be neglected for various reasons, including the secularization of modern society. This trend toward secularization means that religion and spirituality have less influence in public and private life, which can lead to spiritual aspects being relegated to the background in various settings, including health professional environments. Health professionals, as a result, may feel reluctant or incompetent to provide spiritual care, as they do not consider this dimension to be an integral part of their professional training or practice.

In the context of university students, especially those training in health-related disciplines, this perspective has significant implications. Students in medicine, nursing, psychology and other health-related fields are at a crucial stage in their professional and personal development. The training they receive at university not only provides them with technical and scientific knowledge, but also shapes their approach to patient care (Nogueira et al., 2024). Lack of focus on spiritual care during their education can result in incomplete care, where patients' spiritual needs are not adequately addressed. This not only affects the well-being of patients, but can also limit the satisfaction and professional fulfillment of future health care professionals.

Reluctance to address spiritual issues may be influenced by several factors, including lack of confidence, lack of adequate training, and fear of infringing on patients' personal beliefs. In an increasingly secular academic environment, it is critical that educational institutions recognize the importance of spiritual care and integrate it into their training programs. Providing students with the tools and

knowledge to address these aspects with sensitivity and competence is essential to ensure holistic care. Including spirituality as a dimension of care not only enriches professional practice, but also contributes to the overall well-being of patients, allowing for more comprehensive and person-centered care.

Finally, the concept of university spiritual development is highlighted. Borragini-Abuchaim et al. (2021) argue that personality is closely related to the spiritual and psychological well-being of college students. During their college years, students tend to become more compassionate and connected to others, reflecting significant spiritual development. This growth process is not only influenced by inherent personality characteristics, but also by the specific experiences students have during their higher education. The university thus becomes a fundamental space for the exploration and strengthening of these dimensions of well-being.

In this context, specific university experiences play a crucial role in students' spiritual and psychological development. Service learning, for example, allows students to apply their knowledge in practical situations that benefit the community. These types of activities not only reinforce a sense of social responsibility and empathy, but also provide a sense of purpose and connection to something larger than themselves. Interdisciplinary studies, on the other hand, fosters a more holistic understanding of the world, encouraging students to see connections between different fields of knowledge and to appreciate diverse perspectives. This breadth of vision is essential for the development of an open mind and a deep understanding of the complexities of the world (Duche-Perez et al., 2024).

Study abroad represents another transformative experience. Living and studying in a culturally different environment exposes students to new ways of thinking and living, broadening their worldview and strengthening their ability to empathize and connect with people from different backgrounds. These experiences not only enrich academic knowledge, but also foster personal growth by challenging students to adapt and thrive in unfamiliar contexts. Exposure to diverse

cultures and ways of life can awaken greater spiritual awareness and an appreciation for global interconnectedness, key elements for robust spiritual development.

Spiritual and psychological development during college not only has immediate benefits for students, but also lays the foundation for their long-term well-being. The ability to be compassionate and connected not only improves the quality of personal and professional relationships, but also contributes to a balanced and fulfilling life. College, therefore, should not only be seen as a place for intellectual growth, but also as a space where students can deeply develop their spiritual and psychological dimensions. Fostering experiences that integrate these aspects into students' academic life is essential to prepare them to face life's challenges with a holistic and balanced perspective.

Religiosity and spirituality: relationship, differences and debates

According to Anjum et al. (2021), the college experience has a significant impact on students' spiritual growth, leading them to become more caring, tolerant, connected to others, and engaged in an active spiritual quest. During this crucial period of their lives, students not only acquire academic knowledge, but also embark on a journey of self-discovery and personal development. The university provides a diverse and stimulating environment that facilitates the development of essential spiritual qualities. Exposure to a wide range of experiences and challenges, such as extracurricular activities, collaborative projects and living in diverse communities, fosters greater empathy and understanding. These interactions contribute to a more caring and tolerant environment, where students develop a greater ability to connect emotionally and socially with others, strengthening their sense of community and mutual support.

Active engagement in a spiritual quest is fueled by the many opportunities the university offers to explore new ideas, engage in discussions and reflect on existential questions. Students engage in a

variety of activities that reflect their spiritual values, such as discussion groups, meditation and volunteering, thus enriching their university life and providing a solid foundation for their emotional and psychological well-being. This holistic growth not only benefits students during their time in college, but also provides them with skills and perspectives that will prepare them to face life's challenges with a more balanced and enriching outlook (Mollin, 2022). The ability to connect deeply with others and to seek a meaningful purpose in life are crucial skills that will serve them well beyond their college years, contributing to a fuller and more satisfying life.

Spirituality and religiosity, although related, are conceptually distinct. Exline et al. (2022) argue that spirituality is described as the attempt to make sense of the self in connection with the world, which implies a deep, personal search for meaning and purpose that is not necessarily linked to religion. On the other hand, religiosity refers to the importance or predominance of religion in a person's life, reflecting a more structured and communal dimension that is linked to affiliation and practices within religious institutions. This distinction is crucial to understanding how people, and in particular college students, may experience and express their beliefs and values.

Kim et al. (2023) provide a complementary perspective, noting that spirituality is a personal search for the goal, meaning, or purpose of life, which does not necessarily have to be linked to a religious need. This highlights the individual and flexible character of spirituality, allowing each person to define and experience it in a unique way. In contrast, Fisher defines religiosity as how people experience God, the Creator or a transcendent being, and how this experience is shaped and expressed through religious affiliation and institutions. This conceptualization underscores the connection between the transcendent and the organizational structure of religion, providing a framework for understanding the importance of religious practices and communities in people's lives.

It highlights the conceptual discussions proposed by Williams-Smith and McMillan (2022) and Feldman and Barak (2021). For Williams-

Smith and McMillan (2022), spirituality is commonly perceived as a personal and subjective characteristic that is psychologically positive and life-enhancing for students, being an integral dimension of their emotional and mental well-being. Spirituality, although viewed as an individual experience, is not exempt from the influence of the social construction of religion, suggesting that students' spiritual beliefs and practices may be shaped by their cultural and religious contexts. In contrast, Feldman and Barak (2021) describe religiosity as an organized community that is dedicated to a supernatural power and shares a common belief system, set of principles and practices, code of conduct, and doctrine or dogma. In the university setting, this distinction implies that while spirituality can provide students with a personal sense of purpose and well-being, religiosity offers a community structure that can provide social support, moral guidance, and a sense of belonging. Students who participate in religious communities can benefit from emotional and social support, while those who practice spirituality on a more individual basis can find a personal path to well-being. Both dimensions are crucial to students' holistic development, helping them navigate academic and personal challenges, and contributing to an enriching and balanced college experience.

In the context of college students, these distinctions and discussions are particularly relevant. During the college years, students are in a phase of intense personal exploration and identity development. College provides an environment conducive to reflection and inner growth, where students can embark on a search for meaning and purpose. Spirituality, understood as a personal search for connection and meaning, can manifest itself in many ways in university life. Students can engage in activities such as meditation, volunteering, art or contact with nature to cultivate their spirituality, finding solace and meaning in practices that are not necessarily tied to a specific religion.

On the other hand, religiosity also plays an important role for many college students. Campus life offers numerous opportunities to explore or deepen religiosity through faith groups, religious services,

and community activities organized by religious institutions. These experiences can provide a sense of community, support and direction, helping students cope with the challenges and stresses of college life. In addition, religiosity can provide a strong foundation of values and practices that guide students in their decision making and in building their personal identity.

It is worth highlighting Madrigal et al.'s (2020) distinction between spiritual well-being and existential well-being as a crucial factor in understanding how young people can find balance and satisfaction in their lives. During the college years, students often face significant challenges that affect not only their emotional, academic, and social well-being, but also their spiritual well-being. Madrigal et al. (2020) argue that spiritual well-being, which includes both a connection to the divine and a sense of purpose and direction, provides a valuable framework for students to assess and improve their holistic well-being. Meanwhile, existential well-being refers to the sense of purpose and satisfaction a person feels in his or her life and the direction it takes. This type of well-being is critical for college students because, during this stage of their lives, they are often exploring and defining their personal and professional goals. Facing major decisions about their careers, relationships and personal values can be a source of significant stress. However, finding a sense of purpose and direction can provide them with a sense of stability and satisfaction, helping them navigate these challenges with greater resilience. Spiritual well-being includes a connection to the divine, which can manifest in a variety of ways depending on individual beliefs. For some students, this might involve the practice of organized religion, participation in religious rituals and ceremonies, or prayer and meditation. For others, it might mean a more personal and individualized connection with a higher power or transcendent force. The combination of spiritual and existential well-being provides a solid foundation for college students to not only survive, but thrive during their time in college. By cultivating a connection to the divine and a clear sense of purpose and direction, students can find a more effective balance between their academic, social and personal responsibilities. Universities can

support this development by providing resources and opportunities for spiritual and existential exploration, such as spiritual counseling, discussion groups, and activities that promote self-discovery and community connection.

Kim et al. (2021) highlight the importance of religiosity in the spiritual well-being of college students, noting that those who engage in religious practices and hold spiritual beliefs tend to experience higher levels of well-being. This is due to several key factors, including the social support provided by religious communities, which offer an essential emotional and social support system for students. These communities allow students to share experiences, receive advice, and form meaningful connections with others who share their values and beliefs. In addition, the structure and moral guidance provided by religious beliefs can guide students in making decisions and managing personal and academic challenges, providing them with a solid foundation for navigating the college environment. The sense of connection to something greater than oneself, a central feature of religiosity, offers students a deep sense of purpose and meaning in their lives. This transcendent connection can help them find meaning and motivation in their studies and daily lives, which is crucial to their overall well-being. Religious and spiritual practices, such as prayer and meditation, can also be effective tools for academic stress management, helping students stay balanced and centered (Exline et al., 2022).

Taken together, these positive influences suggest that religiosity plays a vital role in the holistic well-being of college students, facilitating not only their adaptation to the academic environment, but also their personal and emotional development. The positive relationship between religiosity and spiritual well-being suggests that universities should consider including resources and programs that support students' spiritual development. This could include creating spaces for religious practice, establishing spiritual discussion groups, and offering spiritual counseling. By providing an environment that values and supports spirituality, universities can help students cultivate a

sense of purpose and fulfillment that contributes to their academic success and personal well-being. Fostering an environment where spirituality and religiosity are recognized and supported can enable students to thrive in all aspects of their college life, thus paving a more balanced and meaningful path toward their future.

Religious Coping and Spiritual Dullness

Higgins' (1987) self-discrepancy theory provides a valuable framework for understanding how differences between the real self, ideal self, and ought-to-be can lead to significant emotional struggles. College students often face high expectations both internally and externally, which can create discrepancies between their real self (how they currently see themselves), their ideal self (how they would like to be), and their should-be self (how they believe they should be). For example, a student may feel pressured to achieve high grades and perform outstandingly (should be), while their actual performance (real self) does not match these expectations, which can lead to feelings of inadequacy, anxiety, and stress. In the spiritual realm, this self-discrepancy can be even more complex. Students may experience tension if their religious practices and beliefs (real self) do not align with their spiritual aspirations (ideal self) or with the religious expectations of their community (should be). These discrepancies can lead to deep internal conflicts, doubts about faith, and feelings of guilt or hypocrisy.

The emotional struggle resulting from these discrepancies can have a significant impact on students' well-being. Religious and spiritual coping can be a useful tool for managing these stresses, providing comfort and guidance through practices such as prayer, meditation, and spiritual counseling. However, when the discrepancy is too great, these coping practices may not be sufficient to alleviate the emotional struggle. This underscores the importance of addressing these discrepancies constructively and with appropriate support. Universities and religious communities must acknowledge and address these struggles by creating safe environments where

students can express their internal conflicts and receive the support needed to reconcile the different aspects of their self (Smith et al., 2021). Providing adequate resources and support can help students navigate these complexities in effective and healthy ways, promoting their holistic emotional, spiritual, and academic well-being. Ultimately, recognizing and supporting the process of reconciling self-discrepancy can facilitate a more balanced and satisfying college experience for students.

Religious coping, as theorized by Nogueira et al. (2024), is presented as a crucial guidance system to which individuals turn in times of stress. This system spans several domains, including social, behavioral, cognitive, religious, situational, and personal, and provides a general way of viewing and dealing with the world. For college students, who often face high levels of stress due to academic load, adjustment to a new environment, social pressure and future expectations, this type of coping can be particularly valuable. By turning to spiritual religious coping, students can find support and comfort through religious practices such as prayer, meditation, and attendance at religious services, as well as in religious communities that offer them a sense of belonging and emotional support (Madrigal et al., 2020).

The different domains of the religious coping system play an integral role in how students manage stress. The social domain provides emotional support from friends, family and religious communities, while the behavioral domain includes religious routines and behaviors that help students stay centered and focused. The cognitive domain provides a positive and hopeful outlook based on religious beliefs, and the religious domain ensures a connection to the divine and participation in spiritual activities. In addition, the situational domain influences how students perceive and react to stressful situations, and the personal domain strengthens identity and sense of self through spirituality. Together, these domains help students develop effective strategies for coping with academic and personal challenges,

promoting their holistic well-being and their ability to thrive in the college environment.

Spiritual coping can present significant challenges during times of stress. This type of coping is characterized by internal tensions with the self and the divine, as well as a sense of being abandoned by God (Lee et al., 2024). College students, already facing a variety of stressors such as academic pressure, family expectations, adapting to a new environment, and social challenges, may find that these spiritual conflicts exacerbate their stress. Internal tensions may manifest in the form of conflicts over their beliefs, doubts about their own faith, and a perceived disconnection or abandonment by the divine. This experience can be especially difficult for those students who have relied on their faith as a source of comfort and support.

The perception of abandonment by God in times of stress can lead to a profound spiritual crisis. Students who feel this disconnection can experience significant distress, which affects their ability to manage stress and maintain a sense of purpose and direction in their lives. This sense of abandonment can cause students to question not only their faith, but also their identity and their place in the world. The impact on their emotional and spiritual well-being can be considerable, as faith and spirituality often provide an important framework for resilience and stress management. Without this support, students can feel lost and disoriented, which can affect their academic performance and mental health.

It is crucial for universities to recognize and address these spiritual stresses in order to provide the necessary support to students. Offering resources and support for spiritual well-being can help students navigate their spiritual crises and find constructive ways to reconnect with their faith. This could include creating spaces for reflection and dialogue, as well as access to spiritual counseling. By providing these resources, universities can help students manage their spiritual challenges effectively, promoting their holistic well-being and their ability to thrive both academically and personally. Ultimately, recognizing the importance of spiritual coping and

offering appropriate support can facilitate a more balanced and fulfilling college experience for students.

Conclusions

The lack of a formal and universally accepted definition of religiosity reflects the complexity of the concept, but there are definitions that emphasize the connection and commitment to the church, as well as the practice of its beliefs and rituals (Duche-Pérez et al., 2024). A three-dimensional structure of religiosity has been proposed that includes organizational, non-organizational and intrinsic dimensions, allowing for a richer and more nuanced understanding of the concept (Craft & Rockenbach, 2011). Furthermore, the distinction between believing in God and having faith in Him underscores the importance of religious maturity in providing meaning and motivation to life (Duche-Perez et al., 2024). Religious college students tend to have more conservative sexual attitudes, but may also reevaluate these attitudes through spiritual exploration (Betts et al., 2023). Religious disaffiliation in college may be due to lack of ritual participation and exposure to new ideas (Dean & Means, 2023), whereas religiously affiliated colleges may curb these secularizing effects (Dean & Means, 2023). In summary, religiosity in the university context is a multifaceted phenomenon that influences students' lives in a variety of ways, from their sexual attitudes to their sense of identity and belonging (Anjum, Raquib, & Farooqui, 2021).

Spirituality is understood as a fundamental component of the human personality, essential for the growth of positive and creative values. In the university context, this interpretation suggests that spirituality can help students face personal and academic challenges with resilience and a positive outlook (Borragini-Abuchaim et al., 2021). Spiritual well-being is emphasized as the ability to experience and integrate the meaning and purpose of existence, which is crucial for students seeking meaning and direction in their lives (Graça & Brandão, 2024). However, spiritual care tends to be neglected due to the secularization of society, which may affect the training of health

professionals. Personality is closely related to the spiritual and psychological well-being of college students, and specific college experiences, such as service learning and study abroad, can promote this development. In summary, spirituality is crucial to the holistic well-being of college students and should be encouraged and supported within the academic environment.

The college experience can enhance students' spiritual growth, making them more caring, tolerant, and connected to others (Anjum et al., 2021). It is important to distinguish between spirituality and religiosity, noting that spirituality is a personal search for meaning, while religiosity involves the importance of religion in a person's life. Spirituality is defined as a personal search for purpose that is not necessarily linked to religion, while religiosity refers to the way people experience the divine through religious affiliation. The differences between spirituality as a personal characteristic and religiosity as an organized community are crucial to understanding how students experience and express their beliefs and values, and how these dimensions can influence their well-being and holistic development (Cowden et al., 2024). The university must recognize and support both spirituality and religiosity to promote a balanced and enriching educational experience (Anjum, Raquib, & Farooqui, 2021).

Self-discrepancy theory provides a framework for understanding how differences between the real self, the ideal self, and the ought-to-be can lead to significant emotional struggles in college students (Higgins, 1987). Religious and spiritual coping can provide comfort and guidance in times of stress, helping students manage these discrepancies constructively. Religious coping is presented as a crucial guidance system that includes several domains and provides a general way of viewing and dealing with the world. However, spiritual coping can present challenges, such as internal tensions and a sense of abandonment by God in times of stress. It is crucial that universities recognize and address these tensions by providing resources and support for students' spiritual well-being (Cowden et al., 2024). Ultimately, integrating religious and spiritual coping into university

support can facilitate a more balanced and satisfying experience for students (Graça & Brandão, 2024).

Alcohol consumption is a significant problem on college campuses, negatively affecting students' academic performance and well-being (Duche-Pérez et al., 2024). However, spirituality and religiosity can act as protective factors against heavy drinking, providing a sense of purpose, emotional support, and healthy stress coping mechanisms (Gabana et al., 2020). Participation in spiritual and religious activities provides a supportive framework and moral guidance that can help students make healthier decisions regarding alcohol consumption (Exline et al., 2022). In summary, fostering spirituality and religiosity in the college environment can be an effective strategy to mitigate the risks associated with alcohol consumption and promote students' holistic well-being (Kim et al., 2023).

Attendance at religious services and religious sentiments influence college students' sexual attitudes, promoting more conservative and responsible behaviors (Betts et al., 2023). Participation in religious communities provides a sense of belonging and social support that can reinforce these attitudes (Feldman & Barak, 2021). In addition, religiosity can provide a moral and ethical framework that guides students' sexual decisions and behaviors (Anjum, Raquib, & Farooqui, 2021). In summary, spirituality and religiosity not only influence college students' sexual beliefs and behaviors, but also provide a support network that can help them make healthy and responsible decisions regarding their sexuality (Dean & Means, 2023).

Spirituality and religiosity are crucial components for managing stress, anxiety and depression in college students (Graça & Brandão, 2024). These practices offer emotional comfort, a sense of purpose, and social support, which is essential for mental health (Huq, 2021). Participation in religious and spiritual activities provides a supportive framework and moral guidance that can enhance students' resilience and overall well-being (Kim et al., 2021). In addition, connection to a religious community can provide a sense of belonging and reduce feelings of isolation (Cowden et al., 2024). In summary, integrating

spirituality and religiosity into college support can facilitate a more balanced and enriching educational experience, promoting students' holistic well-being (Dean & Means, 2023).

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Reimagining nanotechnology education for teacher training through inclusive education

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Introduction

The training of teachers of teachers specialized in nanotechnology with the aim of educating on equal terms in the Latin hemisphere is an issue that grows day by day in today's education. The importance of being aware of the needs and difficulties in this area derives in the need to guarantee a pedagogical growth in educators in a first class inclusive way for all students, regardless of their abilities or particularities. In this sense, several studies have highlighted the importance of teacher training in legal, theoretical and practical aspects for the development of inclusive practices according to the needs of educational communities (Tello-Zuluaga, 2023). The implementation of Universal Design for Learning (UDL) in educational institutions has shown promising results in improving access and participation of all students in the educational process, although gaps have been identified in the comprehensive evaluation of its impact (Navas-Franco, 2024).

Inclusive education in Latin America has been a priority issue in the pedagogical and social agendas of the countries of the region, highlighting the importance of teacher training for the development and implementation

of inclusive education systems (Encalada, 2024). The promotion of leadership among students in an inclusive manner in institutes of higher education has proven to have a fundamental role in comprehensive training with positive impacts on society (Garzón, 2024). Teacher training in inclusive strategies and digital competencies has become imperative to ensure quality inclusive education (Arteaga-Alcívar, 2024; Gómez et al., 2019). In this context, recognizing the needs and challenges of teacher education in nanotechnology to achieve inclusive education in Latin America is a very important step to improve school practice and ensure equal opportunities in the education sector.

Systematic content review

Recent research has highlighted the importance of research training for higher education teachers as an essential component of their preparation for effective and quality teaching (Chuquimia, 2023). Likewise, studies on in-service training of basic education teachers have highlighted the importance of addressing the training needs and existing limitations in this area (Arana, 2023). Teacher competence in inclusive education has been a relevant topic in the literature, highlighting the need for teachers to be trained in the use of technological tools to support students in communication and learning (Founes-Méndez, 2023). The integration of Information and Communication Technologies (ICT) in teacher training has been identified as a challenge and an opportunity for the professionalization and updating of educators (Napa, 2023). In addition, the implementation of innovative tools to reduce the dropout of students with special educational needs has been the subject of study, highlighting the importance of developing practical guides for teachers (Pilatuña, 2024). These studies reflect significant advances in the training needs of teachers and the challenges they face in diverse educational environments.

Despite advances in the integration of the use of technology in education, there are significant gaps in the current literature that need to be addressed. One of the thematic gaps identified is the lack of focus on preparing teachers to implement inclusive practices using nanotechnology tools (Founes-Méndez, 2023). Although the importance of teacher training in technologies for inclusion is recognized, challenges remain in the effective implementation of these strategies in diverse educational settings (Jaramillo & Jaramillo, 2023). Another relevant thematic gap is the need for studies

that analyze in depth the teaching competencies in the context of inclusive education and nanotechnology, highlighting the importance of developing specific skills to address the diversity of students (Ribés, 2024). Despite efforts to promote in-service training of basic education teachers, a greater understanding of the training needs and challenges faced by educators in the implementation of inclusive classroom practices is still required (Gordillo, 2024). These gaps in the literature justify the need to accurately identify the needs and challenges in the training of nanotechnology educators in order to achieve inclusive education training in Latin America.

The objective of this book chapter is to address these thematic gaps identified in the current literature, in order to comprehensively identify the needs and challenges of teacher education in nanotechnology for inclusion in education in Latin America. Through a detailed search of recent research, we will be able to contribute to the advancement of knowledge and provide practical recommendations to improve teacher preparation in the use of nanotechnology and promote educational inclusion.

Field development in research

To carry out this systematic review, we followed the PRISMA Protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), which establishes clear and structured guidelines for conducting systematic reviews, ensuring transparency and quality in the review process. A thorough review of the relevant scientific literature was carried out using databases such as Scopus, ScienceDirect and Web of Science (WoS), following the PRISMA criteria for the selection of studies and subtraction of information.

In order to identify the needs and challenges in teacher growth in nanotechnology focused on inclusion in education in Latin America, the following research questions were posed: What are the main training gaps of nanotechnology teachers to promote educational inclusion in the region; What obstacles do teachers face when applying inclusive practices with nanotechnology in diverse educational environments? How does nanotechnology training influence teacher preparation to serve a diverse student population in inclusive contexts? What nanotechnology training strategies have been implemented in Latin America and what has been their

effect on inclusive education? How do teachers perceive nanotechnology training and its relationship with inclusive education in the region?

In order to find significant studies that explore the needs and challenges in the training of educators in nanotechnology oriented to inclusive instruction in Latin America, exhaustive searches were conducted in academic databases such as Scopus, ScienceDirect, WoS, SciELO and Latindex. Keywords such as "teacher training", "nanotechnology", "inclusive education", "Latin America", "training needs" and "educational challenges" were used. Filters were used to select research papers produced in the last five years, covering articles in English and Spanish, to obtain a broad spectrum of relevant research. The search strategies were designed and adapted to each database to guarantee the exhaustiveness of the search, using Boolean operators such as "AND" and "OR". Thus, the final search equation was: ("teacher training" OR "teacher education") AND "nanotechnology" AND "inclusive education" AND "Latin America".

During the literature review, exclusion criteria were defined to ensure the selection of relevant and high quality studies. Those that were not directly linked to the training of nanotechnology educators or inclusive education in Latin America were discarded. Similarly, research papers that did not deal specifically with the demands and challenges in the training of an educator in the field of nanotechnology and inclusive education were excluded. Priority was given to empirical studies, systematic reviews and meta-analyses that offered significant evidence to meet the goal of this methodical evaluation.

These search strategies and exclusion methods were rigorously applied to select studies that were relevant and of high quality, identifying the needs and challenges in the teaching of nanotechnology in educational inclusion in Latin America in the context of this review analysis. However, in order to reduce the initial number of papers found in the aforementioned databases, a variety of inclusion and exclusion criteria were used for their selection, which are detailed in Table 1.

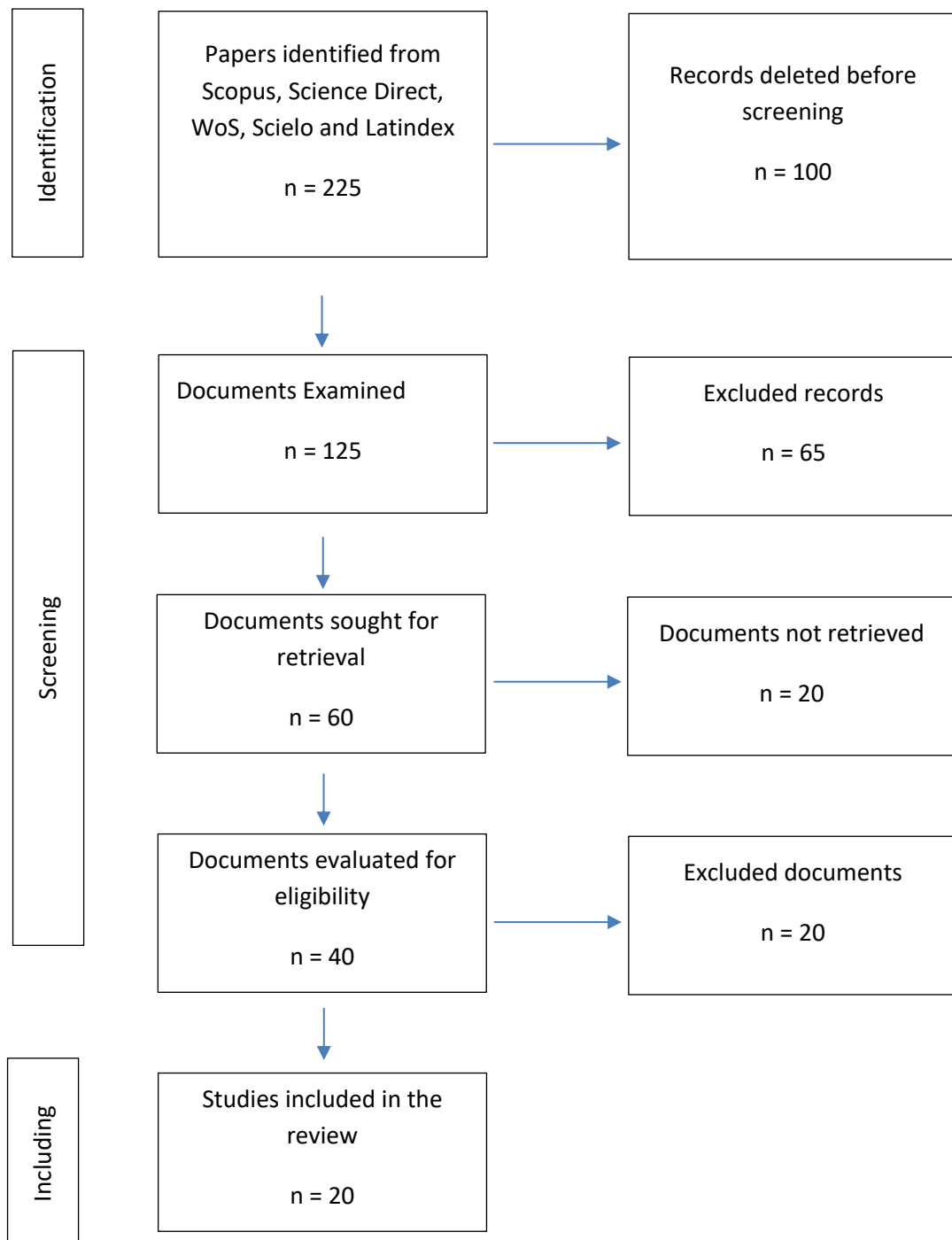
Table 1*Inclusion and exclusion criteria*

Inclusion criteria	Exclusion criteria
Research publications for the last three years (2021-2024).	Studies that are not directly related to teacher training in nanotechnology or inclusive education in Latin America.
Studies that address the needs and challenges in teacher training in nanotechnology for inclusive education in Latin America.	Studies that are not directly related to the needs and challenges in the growth of educators in the field of nanotechnology and educational inclusion.
Studies available in Spanish or English.	Research that is not available in English or Spanish.
Studies with evidence of quality and peer reviewers	Duplicate studies
Empirical, systematic and meta-analysis studies	Theoretical studies
All geographic contexts	

Consequently, the information obtained was imported into the Mendeley reference manager, with all the necessary data. The implementation of the publication protocol made it possible to identify potential papers. Given the large number of papers, it was necessary to perform a refinement by applying the selection criteria previously described. The main reasons for excluding the research identified were that the studies did not address the interests and challenges in teacher growth in nanotechnology for educational inclusion in Latin America, or were theoretical studies. The review was conducted by two independent experts, who analyzed the titles and abstracts, reducing the number of studies to 225. The coding performed by the experts for the present exercise revealed a high degree of agreement (96% of the studies reviewed). There was a discrepancy in 9 studies, so the reviewers reviewed these studies again to reach a consensus.

Figure 1

Identification of studies using the PRISMA method



Finally, a thorough evaluation of each study was carried out by means of a scrupulous reading of the complete text to ensure that they met the quality guidelines determined. As a result of this process, the final sample of this study is composed of 20 studies. Figure 1 presents a flow chart to explain the procedure for searching and refining the studies until the final selection was reached.

Identified findings of the study variables

The results show a variety of approaches. How the authors address the study questions is detailed below.

Table 2

Results obtained from the methodical evaluation

Ask	Author	Methodology	Contribution
What are the main requirements in the training of nanotechnology educators to promote educational inclusion in Latin America?	Anta (2024)	Systematic review	Teaching skills in order to incorporate students with special educational requirements must be in accordance with the guidelines of the National Agency for Quality Assessment and Accreditation (ANECA) in order to guarantee equal quality education for all.
	Lacruz-Pérez et al. (2022)	Variables analysis	It emphasizes the importance of education training for all teachers, particularly for those who have specific

			training in terms of the diversity of students that may be present in the classroom.
Guaman (2024)	Study of training programs		The implementation of training and education programs aimed at equipping educators with the essential competencies to address the particular needs of learners is observed.
Briones-Bermeo (2024)	Methodological strategy		The relevance of the preparation of high school teachers in inclusive practices to favor their preparation and performance in inclusive environments is highlighted.
Merino Gutierrez (2023)	Analysis of inclusive methodologies		The relevance of Neuromethodology and emerging inclusive methodologies in teacher training to promote educational

			inclusion is addressed.
What challenges do teachers face in implementing inclusive practices using nanotechnology in diverse educational settings?	Amaya (2024)	Case Study	It highlights the need to integrate Universal Design for Learning with the use of Information and Communication Technologies (ICT) in order to improve teaching practice and promote educational inclusion.
	Moral et al. (2022)	Qualitative research	Communication between teachers and families is believed to be a fundamental problem in advancing inclusive practices in diverse educational settings.
	Vargas (2023)	Multidimensional analysis	The importance of the diversity of teacher's dimensions within the field of hospital education as an inclusive point of view to solve problems in different study environments.

	Marí (2023)	Survey and attitude analysis	The perceptions and attitudes of educators regarding the use of technology as a resource for inclusion are examined, identifying possible challenges in its implementation.
	Rodriguez (2023)	Educational management analysis	It focuses on the administration of inclusive education and highlights the relevance of promoting diverse educational environments to address implementation challenges as inclusive resources.
How does nanotechnology training influence teacher preparation to address student diversity in inclusive contexts?	Gordillo (2024)	Systematic review	The importance of teacher training and pedagogical practice in inclusive education is emphasized, highlighting the need for curricular adaptations in university education institutions to address the

		challenges in teacher training.
Anta (2024)	Systematic review	It focuses on the competencies of teachers to serve students with different educational needs, highlighting the importance of aligning these competencies with educational quality proposals.
Marí (2023)	Survey and attitude analysis	Teacher perspectives and dispositions regarding the use of technology as a resource for inclusion are examined, identifying challenges in its implementation.
Vargas (2023)	Multidimensional analysis	It addresses the multidimensionality of the teacher in hospital education as an inclusive approach to meet the challenges in preparing teachers to meet student diversity.

	Portocarrero (2024)	Study at the university level	It underscores the importance of training educators in global citizenship education, recognizing the challenge of cultivating skills in global citizenship and inclusive pedagogy.
What nanotechnology training strategies have been implemented in Latin America and what has been their impact on inclusive education?	Moral & Villavicencio (2022)	Philosophical analysis	The requirements established by inclusive education policies for indigenous elementary school teachers are examined, highlighting the pedagogical guidelines provided to them for their work in the classroom. Emphasis is placed on the relevance of teacher training in diverse contexts.
	Gordillo (2024)	Systematic review	The importance of ensuring the support of university education entities in the adaptation of curricula to strengthen the

			preparation of teachers in inclusive education is highlighted.
Guaman (2024)	Study of training programs		It shows the implementation of training and capacity building programs aimed at providing educators with the necessary skills to effectively manage student diversity in the classroom, highlighting the positive impact on inclusive education.
González & Meriño (2022)	Philosophical analysis		It highlights the importance of using educational technology media in an equal manner in inclusive education, promoting equity and access to technologies for all students.
Valencia (2024)	Study of conceptions of disability and inclusion	of of and	Perceptions about disability and inclusion within an inclusive educational institution are explored, highlighting the relevance of fostering an

			education that is responsive to student diversity.
	Narvaez (2022)	Trend analysis	It highlights the importance of understanding and thinking about university education dedicated to inclusion for students with disabilities, in line with the messages of Salamanca and the schools.
What are the perceptions and attitudes of teachers towards nanotechnology training and its relationship to inclusive education in the region?	Vadillo & Fernandez (2023)	Didactic-methodological analysis	The need to rethink the logics and ways in which "educability" is approached in the school space, considering the presence and absence of certain subjectivities.
	Jaramillo & Jaramillo (2023)	Perception analysis	It is evident that most teachers consider inclusive education to be necessary and show a positive attitude towards it, based on the vocation and training they have received.

Cedillo-Quizhpe (2023)	Questionnaire validation	An instrument to evaluate participation in higher education was applied to a sample of educators and students at the University of Cuenca, Ecuador.
Monge (2022)	Factor analysis	It highlights the importance of considering multiple factors to achieve inclusive and equitable distance education.

When comparing the findings of this study with the available literature, it is evident that the perceptions and attitudes of teachers regarding nanotechnology training in the linkage with inclusive education in Latin America have been a topic of interest in previous research. In a study by Gordillo (2024), the importance of teacher training and pedagogical practice in inclusive education is highlighted, highlighting the need for curricular adaptations in higher education institutions to address the challenges in teacher training. This conclusion converges with the findings of this research, which demonstrate the importance of educating in nanotechnology to promote educational inclusion.

On the other hand, Gordillo (2024) proposes a curriculum of research competencies to strengthen teacher training in early childhood education, which suggests the importance of developing specific skills to address the diversity of students. This idea is related to our research, which analyzes the needs of teacher training in nanotechnology for inclusive education.

It is important to recognize the limitations of this study. One of these is the lack of access to detailed information on the implementation of

nanotechnology training strategies in Latin America, which could have affected the completeness of our review. In addition, the limited availability of specific studies on the correlation between nanotechnology training and educational inclusion in the region is also a limitation.

Thus, these limitations could affect the understanding of the results and in the generalization of the findings, as the lack of detailed data could have limited the depth of the analysis and the identification of significant patterns.

Given the recognition of the present limitations, it is proposed that future research in this area be oriented towards the collection of more specific data on nanotechnology training strategies implemented in Latin America and their influence when it comes to inclusive education. In addition, it is suggested that long-term follow-up research be conducted to analyze the impact over time of pedagogical updating in nanotechnology and the improvement of inclusive education in the region.

Similarly, it is advisable to investigate the educational perspectives regarding the integration of nanotechnology in their educational practices and how this affects educational intervention for diversity in inclusive settings. Future research could delve deeper into the evaluation of the pedagogical competencies needed to implement nanotechnology in an inclusive and effective manner.

In summary, this study provides an overview of the needs and challenges in teacher training for teaching nanotechnology with an inclusive approach in Latin America. Despite the limitations, the results obtained provide a solid basis for future research, contribute to improve teacher preparation in this field and enable the growth of quality inclusive education in the region.

Conclusions

The most salient findings of this research highlight the relevance of addressing needs and challenges within nanotechnology teacher training to achieve equitable education in Latin America. The relevance of nanotechnology training has been recognized to promote equity of opportunities to achieve education and improve attention to student diversity in different educational contexts throughout the region. These findings emphasize the need for nanotechnology-specific professional

development for teachers to promote inclusive and equitable practices in education, contributing significantly to the field of research.

In response to the proposed study objectives, which include determining the needs and difficulties of teacher training in nanotechnology as a purpose for educational equity in Latin America, this analysis successfully provides an accurate description of teachers' opinions and needs regarding nanotechnology training. Furthermore, its link to inclusive education in the area. It also demonstrates that it is truly relevant to pay attention to these demands in order to achieve high quality teacher training that meets the different needs of students.

As a research work, this paper provides a detailed collection and analysis of the existing theoretical basis for teacher training in nanotechnology, as well as its link to egalitarian education in the Latin hemisphere. The procedure used has the capacity to delimit the inclinations, difficulties and opportunities in the field of nanotechnology, and offers a comprehensive perception of the current condition of teacher training in this area and the possible ways to improve it in order to increase educational equality in the region.

Finally, it is suggested that future studies should focus on developing specific teacher training plans in nanotechnology and examining the effect of these projects on educational practices aimed at inclusion. Also, further exploration of how teachers view and think about the incorporation of nanotechnology into teaching practices is recommended in order to increase the preparation of Latin American teachers and promote equitable education applicable to all sectors.

In summary, this analysis highlights the relevance of teacher training in nanotechnology, becoming an essential means to promote equality and educational excellence involving the student world in the region.

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Predictive modeling for talent retention: using artificial intelligence to identify retention strategies

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Introduction

Artificial intelligence in the current generation has appeared as a facilitating tool when managing human resources and at the same time has come to obtain the potential to be definitive in decision making (Paigude et al., 2023). It generates efficient data processing, improving processes, analyzing performance. This measure makes organizations stay competitive in a business or social environment which makes it of vital importance in the subsistence of the organization (KİŞİ, 2022). Likewise AI has a relationship with Emotional Intelligence, it can predict the probabilities of employee turnover by analyzing factors such as job seniority and studies, thanks to this it is possible to implement preventive strategies to improve the work experience (Saxena et al., 2023). Highly qualified employees are an invaluable asset in the company, retaining them is a great benefit, so effective strategies should be employed to create a pleasant work environment, which will benefit the company's revenue (Ramalu & Kalimuthu, 2022).in the aviation industry employee retention is a major challenge as there are unpleasant factors which leads to employee turnover, if we develop effective strategies we could build

an engaged workforce and reduce costs (Siddiqui & Bisaria, 2021). Predictive models have proven useful in anticipating future outcomes, in the university context these models allow identifying key factors to predict which individuals are most at risk of quitting, understanding these variables can implement talent retention strategies (Zhao, 2021). Likewise its importance in the future of the academic productivity of students, the designs referred to in artificial intelligence, such as neural networks, to improve the accuracy of academic performance, in addition the temporal information must be considered for its application (Huang & Chen, 2024).

Artificial intelligence (AI) has significantly transformed the workplace, the worker, and job tasks. It has revolutionized human resource management especially in talent management, which includes attracting, recruiting, developing and retaining key employees (Raj, 2024). In addition, it proved to be very useful in knowing the probability of an employee leaving the organization (Al-Darraj et al., 2021).

We can note that talent retention applies in different environments:

Employee retention is a major challenge today. Organizations employ various tactics at the organizational and individual level to retain their talent. Artificial intelligence (AI) and emotional intelligence (EI) are emerging as key factors in this research (Marín Díaz et al., 2023), negatively affecting the productivity and profitability of companies. Turnover is costly and leads to loss of talent. Therefore, it is crucial to predict and understand attrition in order to take proactive measures and improve retention (Joshi et al., 2023).

Burnout in individuals goes beyond negatively affecting their physical and mental functioning and health; it has also been associated with poor outcomes. Data-driven technology also holds promise for predicting occupational burnout before it occurs (Dikshit et al., 2024).

This study analyzes student attrition in higher education, evaluating data mining methodologies to predict attrition. Using data from a

Mexican university, techniques such as RFE and SMOTE are applied (Yang & Islam, 2020).

Predicting employee attrition can help an organization understand its employees and gain their trust, ultimately providing them with a better work environment (Vyas et al., 2020). Currently, AI is widely applied to help organizations inform management decisions, organizational goals, and business strategies (Moreira-Area, 2024).

The above examples from the study can help management make informed decisions and implement changes to retain employees, ultimately improving productivity and loyalty and increasing organizational competitiveness (Lukanova & Ilieva, 2019), however, using predictive models to identify potential flight risks and develop retention strategies can lead to a stable and productive workforce, which positively impacts overall organizational performance (Rashed Khan, 2024) Research delves into factors that impact employee satisfaction and engagement, such as job security, career advancement opportunities, maintaining a healthy work-life balance (Wilton et al., 2024)

Artificial intelligence can be considered a quantum leap in the case of technological advancement. Advances in AI have profound implications for economic sectors and at the societal level (Okoye et al., 2024), explores a sustainable talent management framework, analyzing its applications in recruitment, skills mapping, career management, employee retention, and compensation programs (Yang & Islam, 2020). This research proposal seeks to use machine learning techniques to analyze employee retention factors in companies, highlighting their importance to organizational success and the costs associated with high turnover rates (Parvathaneni et al., 2023). It seeks to identify key factors that contribute to employee attrition and retention, culminating in the development of a predictive model using machine learning algorithms (Vyankatesh Bidnur & Anjali Avinash Kalse, 2024). Linear regression algorithms are very good at solving problems in a very authentic and useful way. It uses the line of

best fit and then finds the best results by differencing the variables (Rußmann et al., 2023).

The results are expected to include practical recommendations for improving retention strategies, information on the importance of various factors, and the creation of a proactive, data-driven talent management approach for companies. By empowering organizations to retain top talent and foster a positive work environment, this process is expected to yield good results (Lukanova & Ilieva, 2019).

The present work highlights the importance and urgency of the subject, the retention of talents in the academic, labor, etc. field. It is of great importance, there are certain people who are born with "talents" which distinguishes them from others, if not born, they work hard until it becomes a talent, but often these talents are not used in a good way from the environment that surrounds them, simply a well used talent has only one meaning: benefit. So discovering this talent is of vital importance, for which we plan to apply predictive models, there are certain qualities that a talent usually demonstrates, which we will use in favor to find this talent, our database will be the countless talents that supported the advancement of our world, only now by the modernization of the world, Artificial Intelligence (AI) will be of great help to avoid the fact of collecting a lot of data, while using AI we will use retention strategies, either information or simply how to retain that talent we have. Therefore, the purpose is to improve the development of talent retention in order to improve our society. Likewise, the relevance of this comes from the potential that talents possess to benefit from them either academically or occupationally.

To understand the impact that talents have in our society and try to find them by using predictive models while applying one of the most widely used things today, AI as it evaluates and develops retention strategies. As a result, the question of the paper was: Studying predictive models for talent retention: using artificial intelligence to identify retention strategies? Furthermore, the objective of this systematic review was to objectively understand the existing literature

in order to determine predictive models for talent retention: using artificial intelligence to identify retention strategies.

Artificial intelligence is an extremely valuable tool for examining the vast amount of data being managed. Currently, these methods have become a field of research with promising applications, such as (Barkhuizen, Nicolene) Predictive models supported by machine learning, have a fundamental role in improving the understanding of the functioning of sports disciplines and technical growth in a team (César Soto-Valero, 2020) The use of artificial intelligence in the area of education helps us to improve teaching and learning outcomes. It tells us how AI is improving learning (Tyagi et al., 2022).

AI can help us to prevent employee turnover and achieve strategies for effective retention first we must analyze the growth of the problem and its impact on production, (Plessis et al., 2015) also, classifiers were used to predict turnover in a test system, to have an effective result of the number of workers leaving the company.(Durst, Susanne,.2023).

This study compares six classification techniques for predicting customer churn in the enterprise. Using 10 demographic and personal data from 10,000 customers, it is concluded that an artificial neural network structure with five nodes in a single hidden layer is the best classifier (Charandabi & Charandabi, 2020).

These findings can help organizations develop predictive models to identify and address factors contributing to employee turnover, thus improving human resource management practices. (Alsubaie & Aldoukhi,2024) we can also use a method on Artificial Intelligence in Advanced Excel to calculate financial variables in two periods (before and after) of the given rule (consists of minimizing financial problems) (Barsallo Londoño & Gersán A., 2024).

It informs us about human talent in a company's work effort. It was found that the development of human talent influences most of the effort they put into their work, then follows the love of work, while retention has no effect on performance. This shows that there are

differences in how human talent affects job performance in a company (Armando Jacobo-Hernandez et al., 2024). The study provides implications for organizations on how to strengthen their firm and achieve business results through talent acquisition (Vadithe & Kesari, 2023), examines how identification with management and the organization explains the relationship between talent status and organizational behavior towards the organization (Wikhamn et al., 2021), examines the factors involved in the academic performance of incoming students in college (Perez et al., 2023), finds factors that influence school retention from the perspective of educational managers. These factors were found to be multidimensional and encompass both macro and micro educational dimensions (Mendoza Lira et al., 2024).

Individual data such as GPA from previous school and student entrance scores were used to improve retention prediction. This approach can aid in student identification and decision making for an educational practice. (Addison Letetia., 2023) It provides tight constraints for decision making based on accumulated survey-based data, allowing organizations to leverage their data history to improve the decision to select a constituent. (John Vianne Bauya Murcia, 2024)

Employees with lower job tolerance as well as job tenure and less time in the job are likely to feel more job insecurity than employees who do have such benefits as well as job seniority (Hngoi et al., 2024).

Job insecurity greatly affects employee engagement as well as their intention to leave. Job insecurity caused by COVID-19 had more influence on people belonging to generation Y indicating the negative job impact on such people (Jung et al., 2021).

Numerous studies have shown that employees who offer a high commitment to the company or organization are more productive and this leads to fewer accidents at work and are less likely to leave their jobs, which leads to a reduction in employee turnover (Chang et al., 2024).

The main strategies for teacher retention especially in times of crisis are adequate compensation, good work environment, initiative to promote engagement in the work environment, and clear and understandable communication (Yazbeck Karam et al., 2024).

In Malaysia, both small and medium-sized companies have a lot of difficulties in retaining talent as there are very few skills in Malaysia and that is why the loss of effective employees can have an impact on the company (Ramachandaran et al., 2023).

One strategy for talent retention is to incentivize employees by reducing assigned tasks and increasing compensation for service time to satisfy it in accordance with Maslow's hierarchy of needs that highlights the role of self-actualization (Srivastava & Eachempati, 2021).

Organizations should give merit to employees who are valuable by satisfying their needs in the work environment, family and aspects such as education. These satisfactions of employees' needs result in the fact that the intention to leave their workplace is reduced (Ahmad Saufi et al., 2023).

It is very important for companies to adopt proactive practices to educate employees for a next career step, inside or outside the company. This could also create a good work climate to retain talent and in turn improve company performance (Makarius et al., 2024).

For talent retention, it is very important to develop strategies that form a good emotional bond with the organization, as well as employee engagement and resilience (Selesho & Matjie, 2024).

Some of the most crucial factors for employee attrition include compensation, company values or beliefs and lastly the ability of leaders to guide the company and motivate the team (El-Rayes et al., 2020).

Regarding methodology, the PRISMA method was used, a tool that improves the quality and clarity of systematic reviews and meta-analyses in scientific research. It provides a set of essential criteria to

be followed to ensure that studies are detailed and reproducible. Prisma includes a checklist and flowchart to assist researchers in documenting the process of selecting studies, assessing their quality, and presenting results in an organized and clear manner.

The PRISMA method is structured in four main phases, which help to organize and document the process of conducting systematic reviews and meta-analyses. These phases are:

Identification:

A rigorous search of various information and other relevant sources is carried out to identify potential studies. All studies found in this phase are registered, including duplicates.

Selection:

Previously defined inclusion and exclusion criteria are applied to filter relevant studies. Study titles and abstracts are evaluated to decide which studies should be considered for the full review. In addition, the number of studies excluded at each stage and the reasons for exclusion are documented.

Eligibility:

The full texts of studies that passed the screening phase are reviewed and more detailed eligibility criteria are applied to determine which studies will be included in the final review. All reasons for excluding any studies at this stage are carefully documented.

Inclusion:

Studies that meet all eligibility criteria are included in the systematic review or meta-analysis. Relevant data from these studies are extracted and analyzed. In addition, a flow chart summarizing the study selection process is presented, showing the number of studies identified, selected, screened for eligibility and finally included in the qualitative and quantitative synthesis.

In considering the identification criteria, we took into account:

- 1) In this case the topic is "Predictive Models for Talent Retention: Using Artificial Intelligence to Identify Retention Strategies", a rigorous search is carried out in different information and other relevant sources.
- 2) 80 items were selected with their matrix in the Excel program, specifying their specifications in detail.
- 3) Documents were searched by typing only keywords, in this case they were: "Artificial Intelligence", "Talent Retention" and "Retention Methods".

For the "Selection" the Exclusion criteria will be applied:

For exclusion criteria, the following were taken into account:

- 1) Papers (Articles) that do not address the use of AI to generate retention strategies for talent.
- 2) Studies that deal with artificial intelligence in a generic way.
- 3) Articles that are made in conferences (do not generate good information or only unnecessary parts).
- 4) Scientific articles that are written in other languages that are not common.

In considering the eligibility criteria, we took into account:

- 1) The documents that were not discarded by the "exclusion criteria" are chosen and are formed for the final process.

In considering the inclusion criteria, we took into account:

- 1) Scientific papers addressing the topic of Talent Attrition and strategies to increase retention; specifically pulled from SCOPUS, MENDELEY or ResearchGate, using keywords via the topic title.
- 2) Articles downloaded in English and translated with "DEELP" to be able to work with them.
- 3) Most leaked documents with publication year between 2020 to 2024.

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- 4) Scientific articles that are written in other languages that are not common.

During the selection process, the exploration was carried out using key terms and phrases related to artificial intelligence and talent retention, in the Scopus and Web of Science databases, which functioned as primary ideas to extract information. To improve the search, a combination of descriptors and keywords was used, together with the use of Boolean operators such as AND, OR and NOT. The descriptors and key terms used covered various categories of talent retention, predictive modeling and artificial intelligence, with the search path being retention strategy for talent attrition:

((`"retention strategies"` AND `"attrition factors"`) NOT (`"artificial intelligence"`) AND (`"predictive models"`)). Being the path of the type search in predictive models environment:

((`"predictive models"` AND `"retention strategies"` AND (`"artificial intelligence"`) NOT (`"attrition factors"`)). Being the search by artificial

intelligence: (("artificial intelligence" AND "predictive models" AND "retention strategies") OR ("attrition factors")).

In addition, during the search, preliminary data and selected sources were meticulously recorded, documenting essential details such as year of publication, country, title, journal name, study objectives and methodological aspects. This methodical approach ensures accurate recording of all relevant information, facilitating subsequent analysis and evaluation. The purpose was to gather a wide and diverse range of literature to support the research objectives and provide a solid basis for further synthesis.

Table 1 shows the diversity of documents obtained from each information: 64 in Scopus and 21 in ResearchGate. All these articles were unclassified during the initial research.

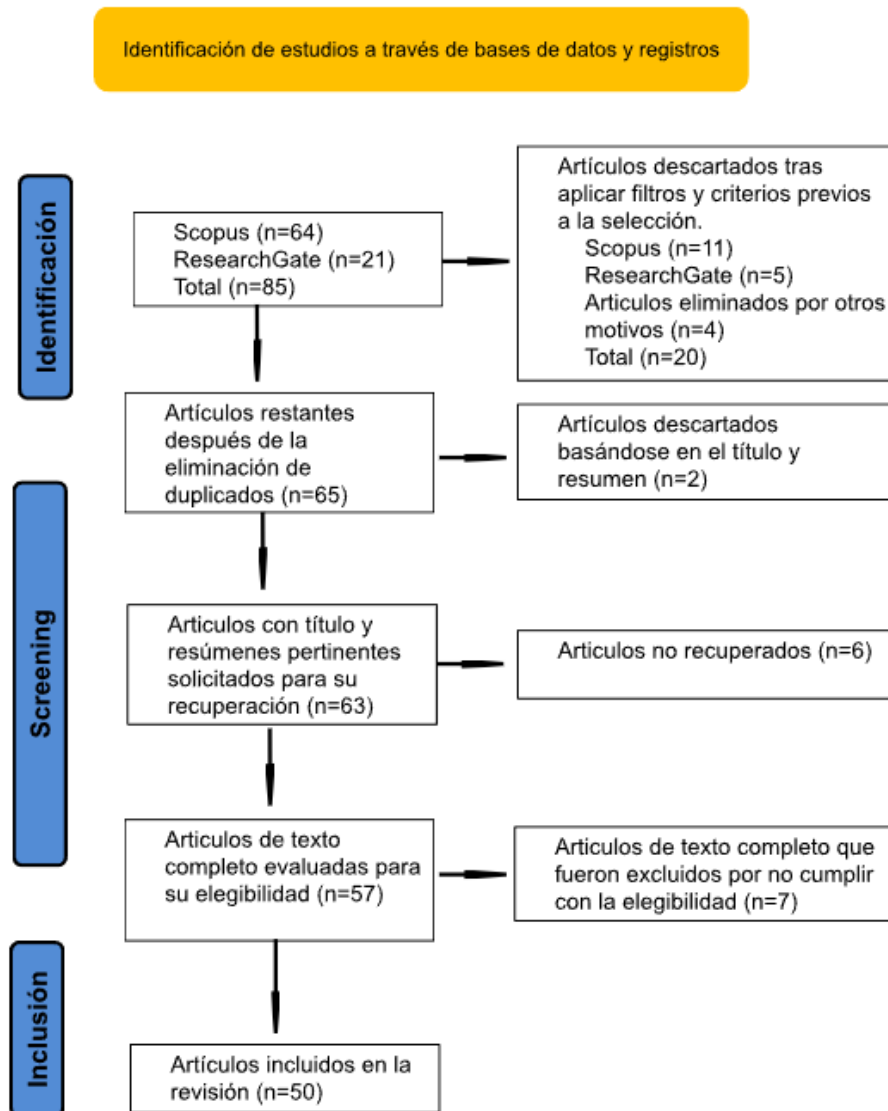
Table 1

Initial inquiry

Data repository	Quantity
Scopus	64
ResearchGate	21
Total	85

Subsequently, a screening process was carried out in which both inclusion and exclusion criteria were applied to the scientific articles. During the eligibility phase, the content of each paper was reviewed to verify its relevance to the study objectives. In this way, relevant articles were selected in the inclusion phase to perform the systematic analysis of the literature (See Illustration I).

Illustration 1
PRISMA flowchart



N°	Author; year and country	Approach	Design	Results
1	Liu et al (2019) China	Quantitative	Non Experimental	Importance of employee retention in corporate organizations, using machine learning methods to predict and better understand the elements that impact employee retention in a company.
2	Simon et al (2024) Germany	Quantitative	Experimental	Analysis of the relationship between smartphone use and insomnia symptoms using machine learning models, concluding that the performance of the models is limited in detecting such symptoms.
3	Chuang et al (2024) Taiwan	Quantitative	Quasiexperimental	Processing speed and functional mobility as key factors to improve the ability to perform daily activities in older adults. Highlights the importance of strengthening these skills during interventions to promote healthy aging and functional independence. Provides evidence-based guidance for developing effective disability prevention strategies in this population.
4	Alcauter et al (2023) Mexico	Quantitative	Does not indicate	Data mining methodologies can be powerful tools to address the challenge of student attrition in STEM fields. The results highlight the importance of implementing effective retention strategies to promote academic success in these critical areas.
5	Tocto et al (2023) Peru	Mixed	Non Experimental	Artificial intelligence can be a useful tool to address the challenge of student attrition in engineering in Peru. The results highlight the importance of implementing effective retention strategies and underscore the value of engineering education for students.

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6	Das et al (2023) India	Quantitative	Quasiexperimental	Crucial customer retention and explores how machine learning can improve this area. Case study to illustrate the benefits and challenges of this strategy. Highlights the potential of machine learning to strengthen customer retention at the enterprise level.
7	Nofal (2024) Jordan	Mixed	Quasiexperimental	They promise to have a significant impact on event planning and reducing congestion on urban streets.
8	Chen et al (2024) China	Quantitative	Quasiexperimental	Key practices such as professional development and employee wellness, highlighting the relevance of a strong corporate culture to the long-term success of organizations.

N°	Author; year and country	Approach	Design	Results
9	Wang et al (2024) China	Quantitative	Does not indicate	Machine learning models combined with oversampling techniques (SMOTE) to develop a predictive model of pulmonary hypertension associated with bronchopulmonary dysplasia.
10	Luna et al (2024) Cuba	Quantitative	Does not indicate	Importance of retaining talent in organizations, highlighting the need to implement effective strategies to increase efficiency and decrease employee turnover in a competitive work environment.
11	Wang et al (2024) China	Quantitative	Quasiexperimental	Importance of retaining the best workers in a competitive work environment. It highlights four essential elements: providing opportunities for professional growth, valuing and rewarding outstanding performance, providing work flexibility, and fostering a positive organizational culture.
12	Adisson & Williams (2023) Jamaica	Mixed	Experimental	This analysis serves as the basis for developing a Predictive Student Retention Model (SRP) to provide HEI administrators with information on the estimated risks of attrition in student cohorts.
13	Cardona et al (2023) USA	Mixed	Does not indicate	This algorithm system seeks to answer questions that would be very key to answer as it would lead to an improvement in education today.

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14	Huang & Chen (2024) China	Mixed	Non Experimental	The use of temporal graph networks in the paper offers an innovative approach to predict academic performance in online learning environments, which can optimize learning adaptation and automated response.
15	Saxena et al (2023) India	Quantitative	Experimental	Emotional intelligence and artificial intelligence impact employee retention in the service industry, offering organizations key tools to improve employee satisfaction and retention.
16	Díaz et al (2023) Spain	Quantitative	Quasiexperimental	Explainable AI can help organizations predict and manage employee turnover more effectively.
17	Gupta et al (2019) India.	Quantitative	Does not indicate	The results show that there is a positive correlation between talent management practices and perceived organizational and supervisory support, and a negative relationship with intention to resign.
18	Malik et al (2022) China	Quantitative	Does not indicate	Review of research on technology and human resource management over the past six decades, focusing on how artificial intelligence is changing human resource practices and the need to adapt to these advances.
19	El-Rayes et al (2019) USA.	Quantitative	Quasiexperimental	Ability to identify and quantify the critical elements that affect employee turnover, which can assist companies in implementing effective strategies to retain talent and enhance employee job satisfaction.

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20	Ramalu and Kalimuthu et al (2022) Malaysia	Quantitative	Experimental	Valuable perspective on how servant leadership and job embedding can contribute to employee retention in the IT industry.
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N°	Author; year and country	Approach	Design	Results
21	Paigude et al (2023) India	Quantitative	Quasiexperimental	Use of artificial intelligence, including machine learning and deep learning, in the human resources industry, specifically to improve employee retention.
22	Satardien et al. (2019) India.	Mixed	Experimental	Valuable comparison between Jet Airways and Indigo Airlines in terms of the motivation and hygiene factors of their ground employees, based on Herzberg's theory.
23	Naim et al (2014) India	Quantitative	Does not indicate	Perceptions and attitudes of Gen Y employees in the Indian hospitality industry, as well as on talent management practices and how they relate to employee retention.
24	Selesho & Matjie et al (2024) South Africa	Quantitative	Non-experimental	Positive relationships with colleagues and supervisors serve as a great retention strategy that the board should consider.

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25	Makarius et al (2022) USA	Quantitative	Semi-quantitative	It is important to maintain strategic human resources through labor mobility, suggesting that retaining and attracting mobile employees is crucial to organizational success.
26	Jung et al (2021) South Korea	Quantitative	Semi-quantitative	Valuable insight into the negative effects of job insecurity on luxury hotel employees during the COVID-19 pandemic.
27	Hngoi et al (2024) Malaysia	Mixed	Semi-quantitative	Factors involved in employees' organizational commitment, such as job involvement, perceived organizational support and job insecurity.
28	Yazbeck Karam et al., (2024) Lebanon	Mixed	Semi-quantitative	Factors involved in faculty retention during times of crisis, such as job satisfaction, financial support, and effective leadership.
29	Srivastava et al (2021) India	Mixed	Semi-quantitative	Predicting employee turnover by combining machine learning techniques and multi-criteria decision making.
30	Ahmad Saufi et al (2023) Malaysia	Quantitative	Does not indicate	Retaining academic talent is crucial to maintaining the educational quality and reputation of universities.

N°	Author; year and country	Approach	Design	Results
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31	Sowmya et al (2024) India	Quantitative	Quasiexperimental	AI in talent management has been transformative. From candidate attraction and recruitment to talent development and retention.
32	Chaurasia et al (2023) Peru	Mixed	Experimental	Employee burnout is a key concern for companies. AI has proven to be an invaluable tool in preventing the possibility of employee resignation.
33	Rahman et al (2023) India	Quantitative	Does not indicate	Retaining talent is crucial today. AI is a tool that helps to understand and meet the needs of employees.
34	Rahman et al (2024) Bangladesh	Quantitative	Non-experimental	Machine learning to analyze which factors affect employee retention in the company, identifying keys to employee retention.
35	Gautam et al (2023) India	Quantitative	Semi-quantitative	Using Artificial Intelligence is a good way to avoid problems in companies.
36	Sharma et al (2023) Mexico	Quantitative	Semi-quantitative	One more background that student attrition and desertion is increasing in different universities.
37	Rose et al (2023) India	Mixed	Semi-quantitative	AI represents a leap in technological advancement with profound implications across all sectors.
38	Rahman et al (2018) England.	Mixed	Semi-quantitative	It is based on the problems in education and the use of AI to solve or reduce these problems.

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39	Prakash et al (2024) Bangladesh	Mixed	Semi-quantitative	It focuses on using learning techniques employing or utilizing AI.
40	Rose et al (2022) England	Quantitative	Does not indicate	The most important issue in the telecommunications industry is the leaping of customers to another network of so-called loss of interest. It has a direct impact on business revenue.
<hr/>				
N°	Author; year and country	Approach	Design	Results
41	Ganthi et al (2018) India	Quantitative	Quasiexperimental	Use a programmable robot to provide feedback and encouragement in programming tasks.
42	Dogan et al (2023) India	Mixed	Experimental	Artificial intelligence is spreading its wings around the world. This technology helps to make predictions and forecast future predictions.
43	Wilton et al (2023) England	Quantitative	Does not indicate	Modern organizations have a multitude of technological tools at their disposal to augment decision-making processes, with artificial intelligence standing out.

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44	Krishna et al (2024) India	Quantitative	Non-experimental	Burnout in healthcare workers goes beyond negatively affecting their functioning and their physical and mental health.
45	Okoye et al (2023) India	Quantitative	Quasiexperimental	The purpose of the paper is to present a machine learning model that uses the logistic regression algorithm to look at the probability of employees leaving an organization.
46	Marin Diaz et al (2023) India	Quantitative	Quasiexperimental	Seeks to identify key motivators that contribute to employee turnover and provide information on how to reduce employee attrition rates.
47	Krishna et al (2023) Spain	Mixed	Quasiexperimental	Organizations are increasingly turning to AI to predict employee attrition and implement active retention strategies.
48	Vapiwala et al (2023) India	Mixed	Quasiexperimental	The study's findings can help management make informed decisions and implement changes to retain employees.
49	Phadke (2023) India	Mixed	Quasiexperimental	Objective To employ machine learning techniques to analyze employee retention factors in software companies, recognizing their crucial role in organizational success and the potential costs of high turnover rates.

50	Patil (2023) Turkey	Quantitative	Does not indicate	Within the human resources department of a consulting firm with the goal of improving employee satisfaction and retention through data- driven tactics.
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Regarding the origin of the selected scientific articles, 13 articles were from China and Iran, and 3 Taiwan, India, Germany, Germany, Iraq, Turkey, 1Peru, Latvia, Australia, Qatar, Turkey, United Arab Emirates, Oman, Pakistan and United Kingdom. Regarding publication: 6 articles in 2019, 9 articles were published in 2020, 12 articles in 2021, 6 articles in 2022, 4 articles in 2023 and 13 article in 2024, giving a total of 50 articles within the period 2019-2024 and an average of 4 articles per year. In relation to the database, ERIC is the one that presents the most published articles (50), It is worth mentioning that all articles extracted from Scopus.

In addition, AI is also closely related to emotional intelligence, as it can predict employee turnover by analyzing factors such as seniority and education. Saxena et al. (2023) stress that this predictive capability allows implementing preventive strategies to improve the work experience, thus benefiting companies by retaining highly qualified employees, who are considered invaluable assets. The retention of these employees represents a great benefit, as their loss can have a significant negative impact on the organization. In this regard, Ramalu & Kalimuthu (2022) suggest that effective strategies should be employed to create a pleasant work environment, which will benefit the company's revenues.

In the aviation industry, employee retention represents a significant challenge due to adverse factors that encourage turnover. Siddiqui and Bisaria (2021) suggest that developing effective strategies can build an engaged workforce and reduce operating costs. Likewise, in the university context, predictive models are useful for anticipating future outcomes and designing talent retention strategies, as

mentioned by Zhao (2021) and Huang & Chen (2024), who highlight the importance of these models in predicting academic performance.

AI has transformed the workplace, impacting the worker and job tasks significantly. Raj (2024) mentions that AI has revolutionized talent management, including attracting, recruiting, developing, and retaining key employees. Likewise, Al-Darraj et al. (2021) emphasize the usefulness of AI in predicting the likelihood of an employee leaving the organization. Therefore, we can note that talent retention applies in different environments: Employee retention is a major challenge today. Organizations employ various tactics at the organizational and individual level to retain their talent. In addition, artificial intelligence (AI) and emotional intelligence (EI) are emerging as key factors in this research (Marín Díaz et al., 2023). This negatively affects the productivity and profitability of companies. Turnover is costly and leads to loss of talent. Therefore, it is crucial to predict and understand attrition to take proactive measures and improve retention (Joshi et al., 2023).

Moreover, burnout in individuals goes beyond negatively affecting their physical and mental functioning and health; it has also been associated with poor outcomes. Data-driven technology also holds promise for predicting occupational burnout before it occurs (Dikshit et al., 2024). In higher education, student attrition is a critical problem. In this regard, Yang & Islam (2020) use data mining methodologies to predict attrition, applying techniques such as RFE and SMOTE to evaluate data from a Mexican university. For their part, Vyas et al. (2020) argue that predicting employee attrition can help organizations better understand their employees and gain their trust, thus improving the work environment.

On the other hand, AI is widely applied to help organizations inform management decisions, organizational goals, and business strategies (Moreira-Area, 2024). The above examples from the study can help management make informed decisions and implement changes to retain employees, ultimately improving productivity and loyalty and increasing organizational competitiveness (Lukanova & Ilieva, 2019).

However, using predictive models to identify potential flight risks and develop retention strategies can lead to a stable and productive workforce, which positively impacts overall organizational performance (Rashed Khan, 2024). In addition, research delves into factors that impact employee satisfaction and engagement, such as job security, career advancement opportunities, maintaining a healthy work-life balance (Wilton et al., 2024).

Therefore, artificial intelligence can be considered as a quantum leap in the case of technological advancement. Undoubtedly, advances in AI have profound implications for economic sectors and at the societal level (Okoye et al., 2024). Moreover, it explores a sustainable talent management framework, analyzing its applications in recruitment, skills mapping, career management, employee retention, and compensation programs (Yang & Islam, 2020). In this context, this research proposal seeks to use machine learning techniques to analyze employee retention factors in companies, highlighting their importance for organizational success and the costs associated with high turnover rates (Parvathaneni et al., 2023). It also seeks to identify key factors that contribute to employee attrition and retention, culminating in the development of a predictive model using machine learning algorithms (Vyankatesh Bidnur & Anjali Avinash Kalse, 2024). In this regard, linear regression algorithms are very good at solving problems in a very authentic and useful way. They use the line of best fit and then find the best results by differentiating the variables (Rußmann et al., 2023).

In terms of outcomes, the results are expected to include practical recommendations for improving retention strategies, information on the relative importance of different factors, and the creation of a proactive, data-driven talent management approach for companies. Thus, by empowering organizations to retain top talent and foster a positive work environment, this process is expected to yield good results (Lukanova & Ilieva, 2019). In addition, the present study is based on its importance and the urgency of the issue, talent retention whether it is in academics, work, etc. It is of great importance, there

are certain people who are born with "talents" which distinguishes them from others, if not born, they work it hard until it becomes a talent, but many times these talents are not taken advantage of in a good way from the environment that surrounds them, simply a talent well exploited has only one meaning: benefit. So discovering this talent is of vital importance, for which we plan to apply predictive models, there are certain qualities that a talent usually demonstrates, which we will use in favor to find this talent, our database will be the countless talents that supported the advancement of our world, only now by the modernization of the world, Artificial Intelligence (AI) will be of great help to avoid the fact of collecting a lot of data, while using AI we will use retention strategies, either information or simply how to retain that talent we have. Therefore, the purpose is to improve the development of talent retention in order to improve our society. Likewise, the importance of this research comes from the potential that talents possess to benefit from them either academically or occupationally.

Understanding the impact of talent in our society and trying to find it through predictive models, while using one of the most used tools today, artificial intelligence, to evaluate and develop retention strategies. After that, the working question was: Exploring predictive models of talent retention: Using artificial intelligence to identify retention strategies? In addition, this systematic review aimed to objectively understand the existing literature.

In addition, artificial intelligence is an extremely valuable tool for examining the vast amount of data being managed. Currently, these methods have become a field of research with promising applications, as for example (Barkhuizen, Nicolene). Predictive models supported by machine learning have a fundamental role in improving the understanding of the functioning of sports disciplines and in the technical growth of a team (César Soto-Valero, 2020). On the other hand, the use of artificial intelligence in the area of education helps us to improve teaching and learning outcomes. It tells us how AI is improving learning (Tyagi et al., 2022).

Finally, AI can help us to prevent employee turnover and achieve strategies for effective retention first we must analyze the growth of the problem and its impact on production, (Plessis et al., 2015) also, classifiers were used to predict turnover in a test system, to have an effective result of the number of workers leaving the company.(Durst, Susanne, 2023). This study compares six classification techniques to predict customer churn in the firm. Using 10 demographic and personal data from 10,000 customers, it is concluded that an artificial neural network structure with five nodes in a single hidden layer is the best classifier (Charandabi & Charandabi, 2023).

Based on the results of the review, artificial intelligence has proven to be an invaluable tool in human resource management and talent retention. Its ability to analyze large amounts of data and predict future behaviors enables organizations to implement effective strategies and maintain an engaged and productive workforce. These advances not only improve the competitiveness of companies, but also contribute to the overall well-being of employees and long-term organizational success.

The advantages include optimizing human resource management through the analysis of a large amount of performance data, which enables the identification of patterns and prediction of employee behavior. This facilitates the development of more informed retention strategies and improves evidence-based decision making. Predictive models also help anticipate turnover problems and create preventive strategies to reduce the costs associated with employee turnover. Last but not least, the use of AI in retention processes makes organizations more competitive, ensures retention of important employees, and increases overall productivity.

The disadvantages of using AI in human resource management include dependence on technology, which can be detrimental in the event of technical failure. The development of predictive models and the integration of AI involve significant costs in terms of technology acquisition, training and maintenance. The quality and quantity of available data determine the effectiveness of these models;

inaccurate data can lead to inaccurate predictions and wrong decisions. In addition, there are ethical and privacy issues associated with handling large amounts of data, so it is essential to handle data securely and comply with data protection regulations. Last but not least, the adoption of new technologies can face obstacles from management and employees. This can hinder the success of AI-based strategies.

The effect of artificial intelligence on talent retention is not limited to the business environment. Predictive models can be employed in academic environments to recognize students who may face dropping out of school, enabling the implementation of preventative actions to improve their education and academic performance. AI's ability to analyze large amounts of data and identify patterns has brought about a significant change in the way students are remembered in schools.

In addition, the use of AI to predict grades has yielded positive results. The use of machine learning algorithms and temporal factors can improve the accuracy of predicting students' academic performance, enabling informed decision making and the implementation of targeted interventions to improve students' educational experience.

An organization's competitiveness depends on retaining highly skilled workers in the workplace. The study has emphasized the importance of ensuring that workplaces are attractive and appropriate, and that employees feel valued and motivated. Organizations can use AI to identify and address factors that affect job satisfaction, such as work-life balance, career advancement opportunities, and job security.

The use of AI-based strategies can help develop a more engaged workforce and reduce the costs associated with employee turnover, particularly in the aviation industry, where this is a major obstacle. Predictive models make it possible to predict problems and create proactive measures, resulting in greater job stability and improved service quality.

Talent retention is crucial for organizations because of the contributions they make to the industry. The success and growth of the company depends not only on talent, but also on the contributions of these individuals, who are also crucial for innovation and competitiveness. The use of AI and predictive models is essential to identify and retain talent in organizations to ensure their sustainable success in an increasingly competitive and changing business context.

The research emphasizes the importance of taking action and using data-driven approaches to retain talent, while using artificial intelligence and other tools to improve employee contentment and engagement, thus ensuring the long-term success of organizations. Integrating AI with human resource management not only improves internal procedures, but also gives a considerable competitive advantage, enabling organizations to thrive in an ever-changing world.

Conclusion

Ultimately, the implementation of artificial intelligence in human resource management and talent retention has proven to be an invaluable tool. Organizations can use the analysis of large data sets and future behaviors to implement effective strategies to maintain a productive and active workforce. Implementing predictive models with machine learning is crucial for improving talent retention, which not only improves the competitiveness of companies, but also contributes to employee well-being and long-term organizational success. The findings of this study confirm that AI can effectively manage employee turnover and develop effective retention tactics. By recognizing and addressing factors that contribute to turnover, such as compensation, company values, and leadership capabilities, organizations can improve their human resource management practices and overall performance. In addition, the implementation of sophisticated artificial intelligence techniques, such as artificial neural networks, has proven successful in categorizing and predicting

employee turnover, providing a solid foundation for data-driven retention strategies.

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Teacher preparation for the care of children with aggressive traits. A review study

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Introduction

The need for a constant preparation of teachers, in accordance with the demands of the vertiginous development of science and technology, is an object of attention in the educational field and a recurring theme in the work of many researchers who deal with this area of knowledge.

The importance of teacher preparation for educating students is present in universal pedagogical thought. In 1657, Comenius was concerned about what to teach, where, when and how, in order to form good men (Comenius, 1986). In the 19th century, pedagogical ideas on the personal and social development of the individual are presented in order to achieve their integral development, synthesized in the form of letters whose ideas deal with "the right of man to preserve the rule over all his powers, to dominate and govern the lower part of his nature and to lead him to those acts that ensure him a place in the scale of moral being" (Pestalozzi and Cabanas, 2006).

About teacher preparation, taking into consideration that it poses that as an indispensable component of lifelong learning it acquires increasingly greater social significance in a globalized world, which requires competent professionals to face a professional pedagogical

process of quality, with the purpose of meeting the needs of students and enhancing their development. This should provide information and resources to teachers to facilitate the renewal and innovation of the teaching-learning process of their subjects (Herrera et al., 2018).

Several authors consider that when responding to certain needs for the achievement of progress in the academic order from the attention to diversity, and it is shown as necessary requirements in the educational processes in the orb, attending to its improvement, from the development in general sense of individuals, and this is not achieved without the effort required from the use of certain methods developing an insertion of minors and conflict with the criminal law from social and educational activities (Chaviano, et al., 2021).

Contemporary authors such as Sifontes (2013) state that preparation, "is the professional education that adapts man for a position or function. It is a short-term educational process applied in a systematic and organized manner, through which people learn knowledge, skills and abilities based on defined objectives (Hernández and Concepción, 2019).

Coaching constitutes the result of a permanent, systematic and planned activity that is based on real needs and perspectives of an entity, group or person and is oriented to make a favorable change in terms of knowledge, skills and abilities developed by the subject, which enables a comprehensive development and better effectiveness in the performance of their work (Saroza, 2014).

Teacher preparation is conceived as a permanent process to obtain knowledge, skills and values for the performance of their function; thus, in order to reach higher levels in the performance of teachers, a permanent education of those who direct the teaching-learning process is required.

This is necessary in order to be the bearer of the required knowledge, skills and values that allow them to influence schoolchildren and their own work style, as considered by the pedagogue Raúl Ferrer (Palacios et al., 2013).

Castillo (2011) conceives it as a process of individual transformation that allows him/her to change the school context in which he/she acts, as a result of the improvement and updating of contents, science methods and values, which is achieved in the interaction of the group and the individual, together with the theoretical-practical experience of the teacher and the individual commitment assumed.

The objective of this study is directed towards a systematization of researches and authors that deepen the preparation of teachers to favor self-control in schoolchildren with behavioral alterations; particularly in the manifestations of aggressiveness that occur in curricular and extracurricular spaces of educational institutions.

Development

The teacher's preparation is decisive to face the increasingly complex challenges involved in educating, becoming more complex when educating students who show signs of aggressiveness and present difficulties in self-control. Therefore, it is necessary to name a variety of methods and procedures to teach as demanded by our students (Aquerreta and Arbea, 2023).

The teacher must start from the diagnosis, to provoke change in the performance of his/her work and at the same time contribute to the transformation of the school context, which includes, first of all, the student as the center of attention of the school, family and community agents.

The theoretical conceptions expressed by the previous authors are based on conceiving the preparation of teachers as a permanent pedagogical process that allows the appropriation of theoretical and methodological knowledge that enables successful modes of action in their educational practice, which favors the learning of their students by facilitating the required help and support, when designing and developing actions that allow them to lead more students to find solutions to their needs.

The preparation is focused in such a way that they require superior achievements in the methodological order of the teachers in their performance, therefore, its purposes are directed both individually and collectively to make the teaching-educational process efficient.

The preparation of the teacher is developed with the purpose of offering an integral methodological conception that offers all the ways to make possible the management of this process in a way that favors the integration, generalization and transfer of the acquired knowledge and skills.

Developing a preparation allows the teacher who presents schoolchildren with aggressive traits to reach high levels of productivity from his work and to stimulate the interest of constant improvement to transform this reality. In addition, it allows him/her to be creative and therefore more competitive, which is a fundamental link to face the challenges of the transformations of the third improvement in education carried out in primary education.

The improvement of human resources in their professional performance, regardless of their educational category and the educational terminal level reached, requires that the preparation of teachers not be a spontaneous process but rather a process directed and executed based on the educational diagnosis of teachers in the various spheres of their professional performance, taking into consideration the scientific and academic categories.

Therefore, it is important to emphasize the importance of teacher preparation, based on the diagnosis of their potential and needs, as well as that of their group and of the students in question with manifestations of aggressiveness, to bring about change in the performance of their work and at the same time contribute to the transformation of the school context that includes, first of all, attention to the student with manifestations of aggressiveness in the school.

It is also pointed out that it is very evident that the teacher's preparation is decisive to face the increasingly complex challenges involved in educating. It imposes the need to name varied methods

and procedures to teach as demanded by our students (Cobas and López, 2014).

Based on the preceding criteria, it is necessary to prepare teachers to work on the transformation of schoolchildren with manifestations of aggressiveness, seen from the interest in the continuous improvement of their educational work is expressed from the approach that: "... the cornerstone of all efforts aimed at raising the quality of education is the preparation and improvement of teachers, who with their intelligence, sensitivity, humanism and commitment directs the processes of instruction and education" (Velázquez, 2015, p. 1). (Velázquez, 2015, p. 1).

All this shows that the teacher, more than a pedagogical professional, is a dynamic and creative actor who must not only possess knowledge about a specific subject, but must also approach and deepen the psychic particularities of the student he/she teaches.

These criteria demand therefore a theoretical-methodological preparation that adjusts to the psychological characteristics of the students who do not manage to handle the forms of self-control, expressed in manifestations of aggressiveness and that consequently, this situation needs the preparation of the teachers to offer an effective and pertinent attention to the students contributing adequately to the direction of the pedagogical process.

The preparation of teachers to promote self-control in primary school children is one of the greatest challenges facing education today. Therefore, it is an essential goal to achieve a quality education for all without exception.

It is important in this sense to highlight that within this diversity there are schoolchildren who from an early age begin to show signs of aggressiveness and although teachers are trained, this does not meet their needs because the methodological resources necessary to attend to these schoolchildren are insufficient to provide them with timely follow-up.

In primary education it is very common to have students with special educational needs, among which behavioral difficulties stand out, but when they do not manifest themselves in a stable manner, teachers, in a preventive manner, together with specialists, must analyze the level of alteration presented by the student, and take preventive measures early on, as long as the alteration is disorganized, sporadic and situational.

Even when this topic has been investigated and special attention is given to it, it has been found that teachers have limitations in this area. If these behaviors are not detected in time, schoolchildren can become a behavioral disorder, hence the importance of knowing how these manifestations are characterized and outlining methodological and preventive actions for their education, constituting one of the greatest challenges faced by teachers at the primary level from their continuous preparation.

The reasons are demonstrated by the complexity of their characteristics and the controversial prognoses of change, considering that achieving self-control in these schoolchildren is a challenge for practicing teachers, since professional improvement continues to be a necessity in the face of this problem.

Human beings from the beginning of life learn about what is around them, in their environment, where they develop day by day, through experiences that are significant and that are shaping their behavior which is reflected in the way they act, also indicates what are the skills they have developed throughout their lives, allowing the individual to fend for himself.

School children go through different moments of development, which we should know, as it helps to understand behaviors that usually occur at school age, where special attention should be devoted to those elements related to the formation of self-control in the face of aggressive manifestations.

Therefore, there is a need for the teacher to achieve the development of important skills in the student, such as reasoned decision making,

self-control, self-evaluation of the process and result, an essential element in the development of self-reflection, to the extent that the student consciously accepts or rejects his achievements and difficulties and is able to reflect on his own activity, which corresponds to the research carried out.

After determining both in the group and individually the psychopedagogical characterization, the differences between the students begin to be marked, and one of the most significant aspects is the low possibility of concentration of some students, who sometimes also present behavioral problems, hyperactivity, emotional imbalances, among others.

At these ages, they achieve higher levels of voluntariness, as occurs with behavior, since a greater stability of the motivational sphere is gradually achieved, which shows how a higher level of unity between the cognitive and affective spheres is gradually obtained, and the child is capable of orienting his behavior not only by the objectives set by adults, but also by others that he consciously proposes.

Important aspects of their development can be consolidated, such as those related to the voluntary and conscious character of their psychic processes, whose gradual passage began in the previous moment and must be consolidated in this one.

It is possible to achieve higher levels in the development of the student's evaluative control of his or her learning activity, actions that play an important role in raising the child's level of awareness in his or her learning.

The schoolchild should reach at this time a development in the assimilation of rules that can be manifested in their behavior, as well as in the development of feelings in these ages is more marked the selective nature of friends.

This has its complexity for the teacher since one of the psychopedagogical characteristics of these students is that they cannot self-control their actions, especially those who present aggressive manifestations, all of which affects learning.

Self-control is a process that allows each individual to respond to demands in the social order of the surrounding environment and as independently as possible.

Self-control is one of the skills that is developed from a very early age; through interaction first with the family and secondly within the educational context, that is, in an external way and later in an internal way, which is of vital importance in everyday life because a good development of this skill will be reflected in all areas, such as cognitive, socioemotional, communicative and psychomotor.

Baumeister et al. (2007) argue that self-control has also been considered as the ability of a person to regulate his or her own behavior, thoughts and feelings, to override, change or interrupt internal responses (such as impulses) and to refrain from them. It was later expanded to encompass the ability to resist temptations, regulate emotions, cognitions, control and adjust behavior in service of general long-term goals; altering one's responsibilities in order to align them with standards such as ideals, values, morals and social expectations, and thus support the pursuit of long-term goals.

Hofmann et al. (2014) have described it as the ability to control short-term impulses and desires that conflict with long-term goals. Ridder et al. (2012) have seen it as a state as variations of self-control depending on situations and time, or as a trait or dispositional state that is relatively stable across situations and time. Elias et al. (2000) considered various aspects such as planning long-term objectives, maintaining behaviors in favor of goals, delaying immediate gratifications, resisting temptations and controlling thoughts, impulses and behaviors, where in the opinion of the author of this research she considers that the aspects referred to aggressiveness should continue to be investigated in greater depth in terms of various ways of how to provide teachers who face these situations on a daily basis in the educational context.

Another aspect of self-control is the ability to moderate one's own emotional reaction to a situation. (Uziel and Baumeister, 2017) value it from another from a more ecological position self-control is valued

as what helps people develop within society and allows them to function more effectively.

Hofmann et al. (2014) and Wiese et al., (2017) considered self-control as a relevant aspect for almost all forms of behavior, to the one that leads to a satisfying life, where people with high levels of self-control present higher satisfaction with their lives.

San-Sebastian (2017) self-control is formed by different components that fulfill a necessary function for its development, as well as for the other capacities, such as cognitive, emotional, social, etc. It is necessary to point out that self-control is not only the control of behavior, but as they value that the control of all personal dimensions, such as cognitive control, emotional control, control of interpersonal relationships, in addition to behavioral control.

Hofmann, et al. (2014) states in this regard that self-control is expressed in "... the competence to eradicate or make changes in the face of effects in the internalization of certain responses, which are denoted by acting impulsively, the materialization of immediate emotions and attitudes in order to achieve other opportunities that may be in line with values or with social aspirations that are relevant to individuals."

Self-control refers to the regulation of behavior by the individual in the context in which he finds himself, with the objective of showing behaviors that can help him to solve his problems in the situations he faces without harming anyone, feeling involved to consider that he has achieved his objective and the results are beneficial to him.

When schoolchildren have problems with self-control, it may be very difficult for them to integrate and behave appropriately in academic situations. Domjan (2010) highlights that self-control is a crucial component of socialization and emotional adjustment and fortunately for society self-control can be learned by training people to increase tolerance for delayed rewards, which in turn hinders learning.

Polaino-Lorente et al. (2009) point out that there are two stages of control behaviors: The first is decisional self-control, which is

characterized by the presence of a conflict that requires an immediate response and resolution, through the choice of a single option among several. The second stage is prolonged self-control, which is observed in the prolongation in time in which the controlled response is maintained; this stage requires continuous decision making to persist in the chosen behavior.

According to studies carried out, self-control is characterized by physical conditions: it may seem that the body has nothing to do with self-control; muscular tension generates nervous tension.

Psychological: regarding the psychological aspect we must think that thoughts are a world that penetrates us and makes us what we are, therefore it is necessary to work with them and avoid distorting thoughts (Ruiz-Alva, 2015).

Social: self-control is trained and enhanced and we can all improve, the good news is that we have no limits to our possibilities for improvement.

For many authors, self-control constitutes perhaps the most significant condition of the will of the human being, expressing that it is the mastery or control of oneself, which is revealed in the personal mastery of the various forms of behavior that are inadequate or harmful under certain conditions.

Findings

Among the studied aspects of the subject it is noted that the regulating and self-regulating function of the personality allows the subject to direct his own psychic development or self-regulation, to condition harmonious and stable forms of orientation and execution of the activity that takes into account the internal and external influences and reflects the level of development of the unity of the affective and the cognitive.

In this way, it is intended to insist on the importance of the need for schoolchildren to develop their self-control, since this helps them to

regulate their emotions and thus prevent behaviors that are considered inappropriate or problematic, which do not bring any benefit to their personal development or their interaction with the environment.

Based on the above analysis, it is considered that an adequate preparation of teachers in terms of knowledge, the development of methodological procedures and their professional performance in relation to schoolchildren who show signs of aggressiveness, will allow them ways to favor the development of self-control in these students.

When the schoolchild acquires and understands an action model guided by self-control, he/she improves his/her capacity to process information, improves his/her problem-solving skills and increases his/her self-control in order to adapt his/her behavior to the demands of the environment (Calderón, 2001).

Therefore, the importance of developing self-control from an early age allows schoolchildren to reflect on their behavior, seek solutions that best suit them and control the responses they make, as well as to prevent them from affecting other people and to feel satisfied with their decisions.

In the educational context, if the teacher helps the student to recognize his or her emotions in situations that are not to his or her liking, when a situation occurs in the student, before he or she reacts aggressively; if he or she talks to the student, persuades him or her and makes him or her understand what can be done to self-regulate his or her behavior, the student will be in a better position to develop self-control.

On the other hand, if schedules are established, the student knows that until he finishes his homework he cannot change activities, he will have a key that will serve as an indicator to control his behavior and know what he has to do.

Based on the above, teachers should acquire knowledge, ways and techniques that allow them to develop educational actions in the first cycle of primary education, in order to promote self-control. Through

their educational work, they should be able to teach them mechanisms of self-regulation in their behavior and thus avoid manifestations of aggressiveness.

In child development, there are processes of changes and transformations in which there are contradictions generated between the schoolchildren's own possibilities and the forms of educational influence in the different environments, between their needs and the way in which these are satisfied.

If these contradictions are not timely and adequately addressed, insufficiencies, difficulties or disorders may appear in the development of schoolchildren, with emphasis on those who present behavioral alterations. There are many factors that intervene in the formation of children at school age, so behavioral difficulties may appear, which if not identified and intervened in time, may increase the likelihood of occurrence of behavioral disorders.

On the other hand, social factors play a fundamental role since they evaluate how people and their environment interact and relate to each other, including the environment, learning and socialization. Therefore, it is easy for children to be influenced by situations that arise in their environment and even more so when they do not have a person to help them discern the good from the bad, the right from the wrong that they observe in their environment.

Aggressive behavior

Rimaicuna (2014), Ramírez-Guzmán (2018), Ortega-Bernardo and Flórez-Beledo (2020) and Samblancat (2020) in their inquiries address about aggressive behavior of children.

According to Rimaicuna (2014) "the main influencers in these behavioral manifestations are the social and cultural environment, since the infant replicates the patterns that the context offers, such as gestures and attitudes observed in the most representative figures. This shows that it is much more possible for a child to copy

inappropriate behaviors, usually with his peer group, when he is commonly in contact with similar behaviors" (p.5).

In these schoolchildren, among the elements of both family structure and family functioning, these authors include: lack of affection between parents or in the family, the use of physical violence within the family and lack of clear and constant rules of conduct. Another interpretation of these authors maintains that parents of socially aggressive children use inadequate techniques for their control (Ortega-Bernardo and Flórez-Beledo, 2020).

Aggressive behavior is a multidimensional phenomenon. Among the factors that influence aggressive behavior, organic and behavioral factors can be distinguished, which correspond approximately to those previously called physical and cultural, the author states that the former produce organic effects that can influence behavior, the latter serve as direct stimuli for psychological reactions (Little et al., 2003).

In the face of such a situation the set of reactions that children will experience and reflect in their behavior will be diverse, when "manifestations in behavior deviate from the norm in a negative sense" (López-Álvarez et al., 2014, p.113).

When analyzing the term inappropriate behavioral manifestations, reference is made to a broad set of these with behavioral expression and deficits in behavioral regulation, including: aggressive manifestations, hyperactivity, shyness, inhibition, withdrawal, rejection of the school environment, phobias, psychosis, egocentrism and negativism (López-Álvarez et al., 2014; Leyva and Barreda, 2017).

Barreda (2017) argues that in educational practice it has been evidenced the existence of different levels of behavioral alteration that the teacher must know; these are by their severity: difficulties, problems and behavioral disorders. The knowledge and understanding of these levels of alteration allow different alternatives of attention to be adopted with each student and his family, and to project a better prevention work.

When we go deeper into the theory of the term when referring to schoolchildren with behavioral problems, we can see some forms of expression that, due to their own problems, have appeared in their development and this hinders them in their purposes.

Within this situation, behavioral difficulties appear, inconsistently which limits the schoolchildren's knowledge, and if certain situations are not prevented, they can be maintained permanently throughout their lives" (Leyva and Barreda, 2017, p.42).

At this level, the student benefits from help, support and educational resources, which can lead in a short time to achieve the objectives. In these cases the frequency and intensity of the manifestations may vary, they are isolated, unstable and above all they are due to developmental changes in certain critical periods.

When going deeper into the study of this topic "situations in the affective sphere are appreciated, where secondary effects can be caused in less or greater gradient in their personality denoting learning problems, in relationships with their peers and in the surrounding environment, which manifests itself in difficulties within families, school and community" (Genaro, 2010, p.17).

When delving into the family dynamics that favor the appearance of behavioral difficulties, these authors continue their analysis by referring to the fact that the family may be emotionally immature, its members are not balanced as persons; the distribution of roles or roles is not correct (dominant mothers, passive fathers); communication among its members is altered; the couple lives in a situation of discord; interest in the children is not constant; sometimes the parents are maladaptive role models (Ortega-Bernardo and Flórez-Beledo, 2020); as well as the position of the only child, if the father or mother assumes parenting, inconsistency in parenting patterns and coming from extended families (Rodríguez, 2010).

The family and the school, being the two environments in which the child spends the most time per day, become the contexts that would

have the greatest influence on the child development stage (Castillo et al., 2019).

Aggressiveness is a behavioral characteristic as old as the existence of man himself, a behavior that is generally expressed in the disposition to attack, to use violence against the environment. It is one of the manifestations that has received more attention from the theoretical and practical point of view due to its social repercussion, in this direction several authors have projected.

These aspects reveal the importance of the teacher being prepared to prevent in the educational context manifestations of aggressiveness in certain schoolchildren and thus seek new ways to promote self-control in a conscious and self-regulated manner.

Usually, when diagnosing aggressiveness as a behavioral problem, the typical manifestations of this state are taken as a reference, which does not mean that it is present at any given time in a given schoolchild.

Taking into account the researcher's opinion, aggressiveness is a disposition of the individual to challenge or attack others, which can be expressed through actions, words or a combination of both.

When we talk about aggressiveness, we are talking about doing harm, physical or psychological, to another person, that is to say those school children who are characterized by their bad behavior, this in turn can be learned or acquired from others, these children call attention in a violent way, they do not respect their classmates and teachers, they find it easier to solve problems by shouting or physical aggression. For this reason, teachers must intervene to avoid those things that can cause negative effects in children, and in the face of this problem, they must remain calm and thus achieve a positive behavioral change.

Individuals who show overt aggressiveness tend to be irritable, show frequent bitchiness, are very sensitive in social relationships, try to be the center of attention in the group, show body movements to communicate and maintain good social relationships until they

contradict it, show difficulties to learn, to behave according to their age and demands of others.

Schoolchildren who show hidden aggressiveness are anxious, insecure, have difficulties in relating to other schoolchildren and adults as their expressions show hostile feelings towards others, they may have night terrors, enuresis, among others. In the case of hostile aggressiveness, schoolchildren, when faced with adult requests, assume a disinterested attitude, are delayed in carrying out their activities, and generally become negative. But it is also possible to find indirect or displaced aggressiveness, according to which the schoolchild attacks the objects of the person who has been the origin of the conflict, or contained aggressiveness according to which the child gesticulates, shouts or produces facial expressions of frustration.

Aggressiveness is relatively desirable in the socialization process, understood as a certain dose of combativeness, thanks to which small achievements can be obtained. But this dose should not exceed acceptable limits in order to be considered adaptive. It is not good for a schoolchild to be afraid of exercising his rights, but neither is it good to give free rein to aggressiveness. The bearer of aggression is not at ease with others or with himself. Aggressive attacks encourage aggressive responses, so it is normal to find that these schoolchildren are not popular.

The child who presents behavioral difficulties has inability or difficulty to participate in school life and obtain school learning, while presenting problems to relate to the environment affecting their personal, emotional and intellectual development.

There is no single cause of aggressive behavior. There is always a personal and a social element involved in the explanation of aggression.

Aggressiveness can be expressed in many different ways and are not stable and constant behavioral traits, so we must take into account the stimulus situation that provokes it. Among the main manifestations of aggressiveness are: a) Physical as a fight with explicit

bodily manifestations. b) Emotional can be presented as rage, anger, manifesting itself through facial expression and gestures or through changes in tone and volume in the language, in the voice. c) Cognitive, it may be present as destructive fantasies, elaboration of aggressive plans or ideas of persecution of oneself or others. d) Social, it is the framework in which, in one way or another, aggressiveness takes concrete form.

External factors play an important role in the development of the personality of schoolchildren and can influence aggressiveness. On the other hand, parental discipline plays an important role in the expression of aggression. In fact, it is known that an undemanding or, on the contrary, too rigid or hostile upbringing encourages aggressive behavior in schoolchildren.

Another important factor that influences the expression of aggressiveness is the behavioral patterns that the schoolchild receives, especially from his or her parents. This is known as modeling and refers to the process of imitation of behavior that the child sees in his or her environment.

There are many cases of childhood aggressiveness that are based on organic problems, such as hormonal alterations or even nutritional deficiencies. More complex factors may also be involved, such as alterations in some of the brain mechanisms, especially in the frontal lobes, which regulate behavior.

Social skills are those that allow us to insert ourselves into social life from a tolerant, flexible and open posture. However, not all children are able to develop these skills, which can trigger a tendency to respond aggressively.

The need for preventive action is determined by the will to reduce the factors that hinder human aspirations, to provide mental health, as well as to obtain effective results in treatment efforts. Prevention, as a central category in the pedagogical processes, is especially aimed at improving the professional performance of the pedagogical team in dealing with inappropriate behavior in children and adolescents.

Aggressiveness in educational centers has acquired an important magnitude, therefore in all educational centers, as one of the actions of Educational Prevention, a group of indicators have been defined as essential elements in the fulfillment of the duties that all students must maintain within the institution in order to maintain a conduct in accordance with the discipline established for these centers.

These indicators known as school duties establish the responsibilities that regulate the formation and development of the personality of the students in correspondence with the social conditions and demands; and the right approach. Assuming as responsibility, the fulfillment of the commitment contracted before oneself, the family, the collective and society. It is considered that school duties are not fulfilled when one or more rules are repeatedly violated according to the provisions for each level and type of education, caused by an inadequate attitude, lack of motivation or aspirations and other elements of the inductive regulation of the personality, which may be determined by the incidence of school, family and community context.

Parameters are considered to evaluate school duties such as school attendance and punctuality; continuity and permanence in the national education system; fulfillment of homework; student behavior; correct use of the uniform; care of the study material base and school facilities.

In the case of the present investigation, indicator 4 is of utmost importance: This indicator refers to the behavior of students, specifically to Discipline, to adequate interpersonal relations with classmates, educators and all people in general, to practice the rules of formal education and to be consistent with the values considered fundamental in Cuban society today: dignity, patriotism, humanism, solidarity, responsibility, industriousness, honesty, honesty and justice. It is not complied with when at least one of the above elements is repeatedly violated.

In order to identify aggressive children, the teacher must be attentive to the presence of 1. Intense anger, 2.

American Academy of Child and Adolescent Psychiatry (2019) states that it is necessary to try to prevent and correct this type of behavior in the infant stage, since it is the age of formation of schoolchildren and their behavior can be shaped more easily by parents and teachers. Closely related to aggressive behavior is the more or less effective regulation of impulses, a subject that refers us to the analysis of the formation and development of self-control at school age.

The knowledge about the attention to behavioral alterations in primary school children is an important way for the teacher to carry out corrective and developmental work in the educational process, which requires the teacher's knowledge based on his or her preparation to work on the possible causes that influence a schoolchild to present these manifestations of aggressiveness.

For this reason, pedagogical sciences need results that allow to guarantee the preparation of teachers in correspondence with their needs and potentialities, in order to be able to provide attention to schoolchildren that favor their self-control in the face of manifestations of aggressiveness, and in this way, to propose a system of workshops that contribute to prepare teachers in this subject from their professional role.

Conclusions

The theoretical and methodological foundations that support the teacher's preparation to favor self-control in students in the first cycle of elementary school are based on the integral character of his actions with the students in the cognitive, procedural and attitudinal order with the purpose of developing behaviors that allow the formation of values or social expectations that are considered relevant for the development of the personality.

Preventive action seeks to identify and address the underlying causes of aggressiveness as individual, family, social and school factors, being necessary to implement actions such as the promotion of socioemotional skills, the promotion of empathy, the teaching of

conflict resolution strategies and early attention to risk situations, seeking to avoid the escalation of aggressive behavior and promote healthy alternatives for communication and relationship.

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Influencing factors in relations with Venezuelan immigrants for an inclusive education at the university.

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Introduction

In the context of university education, recognition and respect for cultural diversity are fundamental to achieve effective inclusion of immigrant students, as is the case of Venezuelans. The incorporation of immigrants in various sectors, including education, can not only benefit the country macroeconomically, but also enrich the academic environment, as pointed out by (Reátegui, 2019). However, for this diversity to translate into added value, it is essential that universities implement policies and practices that promote intercultural interaction and mutual respect. This requires the development of orientation and awareness programs for both students and faculty to address the realities and challenges faced by immigrants, and to encourage activities that celebrate cultural diversity, such as festivals and seminars that facilitate exchange and learning among all students.

One of the most significant challenges facing universities in Peru is the effective incorporation of diversity and respect as pillars of their educational approach. This challenge, however, also represents a crucial opportunity to enrich the educational experience, promote an inclusive environment and prepare students for an increasingly globalized world. By integrating strategies that directly address the inclusion of Venezuelan immigrant students and other diverse groups, universities will not only be fulfilling an ethical and social imperative, but will also strengthen their academic reputation and their ability to attract and retain talent. The implementation of cultural exchange programs, training in intercultural competencies, and the strengthening of support services are key actions that can transform challenges into opportunities for institutional growth and innovation.

Within this framework, the present research poses the following question: What are the factors that influence interpersonal relationships with Venezuelan immigrants in the university context to promote inclusive education? The objective of this study is to identify and analyze these factors, thus providing a solid basis for the development of policies and practices that foster a more inclusive and respectful university environment. The findings of this research will contribute to science by offering new perspectives and empirical evidence on how educational institutions can effectively address the challenges posed by cultural diversity, especially in the context of increasing Venezuelan migration in Peru. This, in turn, will allow the formulation of conclusions and recommendations that can be applied in the design of future interventions to improve social cohesion and respect in universities.

Venezuelan migration in Peru, a problem to be solved

The Venezuelan migratory crisis, as described by Gissi et al. (2021) as the most significant in Latin America in the last decade, highlights the serious socioeconomic problems that push Venezuelans to migrate. This massive flow of migrants poses unique challenges and opportunities for Peru, which is home to one of the largest Venezuelan populations in the region. Public perception and integration of these

migrants varies considerably, influencing policies and social acceptance of these new residents.

Vargas (2020) highlights that although some political sectors and the media see Venezuelan migrants as a problem, many of them bring an entrepreneurial spirit and seek to integrate and contribute to the receiving country. This duality in perception suggests a need for more nuanced approaches that recognize the economic and cultural benefits that migrants bring, rather than focusing only on the challenges.

For his part, Castro (2019) y Lozano (2019) address the additional complexities that migration brings to the Peruvian labor market. Lozano notes that the increase in the labor force due to Venezuelan migration requires the creation of jobs at a pace that the current economy is failing to sustain. This phenomenon underscores the importance of developing educational and labor policies that not only address the integration of migrants, but also strengthen the local economy through their effective inclusion.

Incorporate into the university curriculum the issue of migration and the challenges associated with the health system and public services, as described in the comments of Lujan (2018), Castro (2021), y Cruz (2021) as well as the observations of Mendoza & Miranda (2019) on the social and health vulnerability of Venezuelan migrants, can provide students with a comprehensive perspective on how public policies and rhetoric affect both local and migrant populations. Including these topics would foster a critical and multidisciplinary approach, preparing students to confront and contribute solutions to these complex social and health issues that directly affect contemporary society. This would not only enrich students' academic understanding of global and local issues, but also enable them to participate effectively in relevant debates and public policies.

Relations with Venezuelan immigrants

Incorporating the study of Venezuelan migration into the university curriculum offers a crucial opportunity to delve deeper into contemporary socioeconomic and humanitarian dynamics. Torres (2019) suggests that, despite the challenges of managing such a large flow of refugees, Peru should strive to facilitate their integration, seeing it not only as an act of solidarity but also as an investment in the country's future. Agustí (2019) reinforces this view, arguing that Venezuelans are already contributing significantly to Peru and that effective management of this situation could position the country as a leader in humanitarian response and social adaptation globally. This approach in the curriculum would foster a greater understanding of migration policies and their direct and indirect effects on local society and economy.

The significant contribution of Venezuelan immigrants to the educational and professional sector in Peru presents an opportunity to address the deficit of skilled professionals in the country. Likewise, Mendoza & Miranda (2019) suggest that these professionals could help mitigate the shortage of personnel in the healthcare system, exacerbated by the emigration of Peruvian professionals in recent decades.

This scenario underscores the need for universities to develop programs that facilitate the integration of these professionals into the local labor market. This would not only enrich the academic environment with new perspectives and competencies, but also strengthen national services in critical areas. By tapping into this diversity of talent, universities can play a crucial role in promoting inclusive development and reducing inequalities in strategic sectors such as education and health.

Perceptions towards migration (positive/negative)

Venezuelan migration in Peru represents a duality of perceptions that has a profound impact on Peruvian politics and society. From a

positive angle, as highlighted by Mendoza & Miranda (2019) the arrival of Venezuelan immigrants to the country is seen as an opportunity to revitalize and enrich the health field with new professionals and perspectives. This contribution can be crucial in a context where Peru has faced the emigration of many of its own health professionals. However, it is essential that public and social policies accompany and facilitate this integration process in order to maximize the potential benefits.

In contrast, Vargas (2021) highlights the negative perceptions that arise from the difficulties faced by Venezuelan immigrants, especially in terms of mental and physical health. Discrimination, low socioeconomic status and insufficient access to health services create a vicious cycle that deteriorates their quality of life and can perpetuate poverty and marginalization. This situation presents a significant challenge for Peru, which must address these issues with inclusive and effective policies that ensure equitable treatment and access to necessary services for all residents, regardless of their origin.

The arrival of Venezuelan immigrants highlights the need to expand and adapt university health services, especially in critical areas such as sexual and reproductive health. According to Mendoza & Miranda (2019), insufficient health care has led to inadequate control of communicable diseases, which could be addressed through more robust educational and clinical programs at universities, ensuring the well-being of all students, including immigrants.

In addition, studies on social perception and xenophobia, such as those mentioned by Loayza (2020) e Igartua et al. (2018), highlight the importance of incorporating courses that foster inclusion and reduce prejudice within the university community. Through education and narrative persuasion, universities have a key opportunity to lead in transforming attitudes towards immigrants by fostering a more welcoming and respectful academic environment.

Venezuelan immigrants

Venezuelan migration to Peru, according to figures from the International Organization for Migration, reflects a growing global phenomenon, with Peru experiencing one of the largest migratory waves of Venezuelans, reaching almost 1.3 million people by 2020. This phenomenon poses both challenges and opportunities in the university context, especially in areas such as social and educational integration.

Challenges include addressing the poverty, limited job opportunities, and crime that affect this population, as noted by Rodriguez (2021). These challenges highlight the need for inclusive and supportive policies within universities to ensure that immigrant students not only access education, but also receive the necessary support to overcome these barriers.

However, there are also positive aspects, such as the incorporation of Venezuelans into the productive system. According to figures from the Ministry of Labor cited by La_República (2018), many Venezuelans have found employment in Peru, which demonstrates their ability to support themselves and contribute to the country. This underscores the importance of integrating these elements into the university curriculum, preparing students to understand and manage diversity and inclusion in the professional and social environment.

Based on the above considerations, the following key factors emerge:

- a) *Immigration and Venezuelan immigrants*: The integration of Venezuelan immigrants into the university curriculum addresses diversity and enhances social inclusion. By educating students about the realities of immigration, they are better prepared to contribute effectively in a globalized society. This approach not only responds to immediate needs, but also enriches academic learning with multicultural perspectives.
- b) *Major problems of the country*: Social challenges such as poverty and unemployment, which are intensified by migration, can be addressed at the university level through programs that foster applied research and social engagement. Integrating these issues into university courses prepares students to

face and solve complex problems in their professional future, promoting an education that is relevant and committed to national development. c) *Relations with Venezuelan immigrants*: The university curriculum should include content that promotes understanding and collaboration between local and immigrant students. By implementing courses that foster intercultural competence and mutual respect, universities can reduce prejudice and strengthen community relations. This not only improves the campus climate, but also prepares students to be responsible and conscientious citizens in a diverse society. Therefore, they posit the following hypotheses.

H1: There is a statistically significant relationship between immigration and Venezuelan immigrants in Peru (IIVP) and relations with Venezuelan immigrants (RIV).

H2: The relationship between the country's main problems (PIP) and relations with Venezuelan immigrants (RIV) is statistically significant.

Population and sample

The research sample consisted of 349 undergraduate students from the public Universidad Nacional de San Agustín and the private Universidad Católica de Santa María in the Arequipa region of Peru (see Table 1) (see Table 1).

Table 2

Sex	University	f	%
Man	Private	42	12.0%
	Public	85	24.4%
Total Male		127	36.4%
Woman	Private	83	23.8%

Public	139	39.8%
Total Female	222	63.6%
Grand total	349	100.0%

Source: Own elaboration.

The ages are in the range of 18 to 20 years of age, which represents 59.0%; between 21 to 23 years with 27.8%, between 24 to 26 years with 8.3% and between 30 to 32 years with 1.1%. The instrument was administered to the study units between July and September 2023.

The questionnaire applied is adapted from María Soledad Navas, *Nuevas herramientas de medida para el nuevo racismo* Navas (1998) and the contributions of Juan José Igartua Perosanz of the University of Salamanca. Data collection was carried out by means of an on-line survey.

The estimated reliability reached values greater than 0.700, which can be considered acceptable for the Omega coefficient and Cronbach's Alpha (see Table 2).

Table 3

Reliability statistics on a frequency scale.

	McDonald's ω	Cronbach's α
Degree of estimation per point	0.743	0.779
95% lower limit CI.	0.705	0.746
Upper 95% CI limit.	0.781	0.809

Source: Own elaboration.

Table 3 presents the results of the Exploratory Factor Analysis (EFA) and provides a comprehensive view of the factors influencing relations with Venezuelan immigrants in the university context.

The AFE has identified three key factors:

Important problems of the country (PIP): This factor includes items that reflect respondents' general concerns about national problems. The high factor loadings on this factor (ranging from 0.620 to 0.838) suggest that these concerns are deeply internalized and may influence attitudes toward Venezuelan immigrants. This implies that perceptions about macroeconomic and social problems may mediate interpersonal relationships and the integration of immigrants into the university environment.

Immigration and Venezuelan Immigrants (IIVP): This factor groups items that specifically address perceptions and attitudes toward immigration and Venezuelan immigrants, with factor loadings ranging from 0.513 to 0.744. This indicates that these perceptions play a key role in shaping opinions and behaviors toward immigrants. To promote inclusive education, it is critical to address and possibly transform attitudes and perceptions related to immigration.

Relations with Venezuelan immigrants (IRI): This factor includes items that evaluate direct personal interactions with Venezuelan immigrants, with factor loadings between 0.506 and 0.695. This factor is essential for understanding the social dynamics and integration of immigrants in the university environment. Interpersonal relationships are significantly influenced by general and specific perceptions toward immigration.

These factors highlight the need for multifaceted interventions that address both macroeconomic and social contexts as well as specific attitudes and perceptions towards immigration to foster inclusive education. The factor structure obtained is robust and well-defined, providing a reliable basis for future research and for the development of policies and intervention strategies in the field of university education. The statistical software JASP v. 0.18.3.0 was used. The Kaiser-Meyer-Olkin test result was 0.892 and was acceptable.

Table 4

Common factor items - factor loadings

	Factor 1	Factor 2	Factor 3
PIP1	0.734		
PIP2	0.782		
PIP3	0.773		
PIP4	0.838		
PIP5	0.687		
PIP6	0.756		
PIP7	0.620		
PIP9	0.735		
PIP10	0.652		
IVP1		0.734	
IVP2		0.642	
IVP4		0.634	
IVP5		0.705	
IVP6		0.744	
IVP7		0.513	
IVP8		0.678	
IVP10		0.627	

	Factor 1	Factor 2	Factor 3
IRI1			
IRI2			0.695
IRI3			0.583
IRI5			0.667
IRI7			0.685
IRI9			0.506

Note. The varimax rotation method was used.

Factor 1 (PIP), means: Important problems of the country; factor 2 (IIVP), means: Immigration and Venezuelan immigrants and factor 3 (IRI), means: Relations with Venezuelan immigrants.

As for the results of the model, Confirmatory Factor Analysis (CFA) tests were performed as an analytical condition for the factors; therefore, its application would contribute to determine the robustness of the proposed model.

The comparative fit index CFI (*Comparative Fit Index*) which has a value of 0.913, which is an adequate fit, for its part, the TLI (*Tucker-Lewis*) fit index, would be considered an adequate fit for the model $\geq .90$ according to Keith (2015)(see Table 4).

Table 5

Adjustment indexes

Index	Value
Comparative Fit Index (CFI)	0.913
Tucker-Lewis Tightness Index (TLI)	0.904

Source: Own elaboration.

Different authors suggest different criteria for the validation of the fit measures, such is the case of the RMSEA (*Root Mean Square Error of Approximation*), so its values less than or equal to 0.05 would be valid; Brown (2015) however, it should be noted that authors such as Jöreskog & Sörbom (1996) suggest $P > .50$ values. As for the SRMR measure, it is proposed that a value of $\leq .08$ = good fit is intuitively appealing, although $\leq .06$ may be a better criterion (Keith, 2015). Table 5 presents the fit measures achieved.

Table 6

Other adaptation measures.

Metrics	Value
Root mean square error of approximation (RMSEA)	0.059
RMSEA lower limit at 90% CI.	0.052
RMSEA 90% upper limit of CI.	0.066
RMSEA p-valuation.	0.013
Standard Root Mean Square Residual (SRSR)	0.064

Source: Own elaboration.

For the development and structuring of the proposed model, variance-based Structural Equation Modeling (SEM) was employed using SmartPLS software (v.4.1.0.6), which implements the partial least squares modeling algorithm designed by Christian M. Ringle, Sven Wende and Jan-Michael Becker (Henseler et al., 2015).. The external loadings test is used to assess the contribution of the indicators in the conceptualization of the theoretical construct, so that the measurement model is shaped by the indicators and the trajectories connecting them to their respective factors. The values of

the external loadings can vary between 0 and 1; the closer they are to 1, the greater their capacity to explain the validity of the model.

Table 6 presents the external loadings of the items that met the validity criterion established in the Confirmatory Factor Analysis (CFA), i.e., factor loadings above 0.700, and were therefore retained as independent variables in the model. This criterion ensures that the selected items have a strong association with the corresponding factors, improving the reliability and validity of the factor analysis. For the factor "Immigration and Venezuelan immigrants in Peru" (IIVP), items IVP2 and IVP7 were eliminated because they did not reach the threshold of 0.700. For the factor "Important problems of the country" (PIP), items PIP1, PIP3, PIP4, PIP7, PIP9 and PIP10 were eliminated, all with factor loadings below the established criterion. As for the factor "Relations with Venezuelan immigrants" (RIV), items IRI1 and IRI9 were eliminated because they did not meet the validity criterion. These results ensure that the retained items are reliable and valid indicators of the constructs they represent, providing a solid basis for exploring the "Influencing factors in relations with Venezuelan immigrants mediated by emotional state for an inclusive education at the university". The elimination of items from the model with factor loadings below 0.700 reinforces the clarity and precision of the identified factors proposed in the structural model in Figure 1.

Table 7

External loads

	Immigration and Venezuelan immigrants in Peru (IIVP)	Major problems of the country (PIP)	Relations with Venezuelan immigrants (RIV)
IIVP1	0.779		
IIVP10	0.768		
IIVP4	0.711		

IIVP5	0.765	
IIVP6	0.778	
IIVP8	0.735	
PIP2		0.829
PIP5		0.870
PIP6		0.842
RIV2		0.789
RIV3		0.769
RIV5		0.779
RIV7		0.768

Source: Own elaboration.

The consistency of the model, assessed by Cronbach's alpha in SmartPLS, indicates levels of reliability of the indicators that exceed the threshold of 0.700, which is considered acceptable for the structural model (Mallery, 2003). Figure I shows the relationships between the factors "Important problems of the country" (PIP), "Immigration and Venezuelan immigrants in Peru" (IIVP) and "Relations with Venezuelan immigrants" (RIV). The model shows that the perception of important problems in the country has a slight influence on relations with Venezuelan immigrants (0.107), while a more negative perception of immigration is associated with more deteriorated relations with Venezuelan immigrants (-0.390). These results highlight the complex dynamics between perceptions of national problems, attitudes toward immigration, and interpersonal relationships with Venezuelan immigrants, providing a solid foundation for future interventions and studies in the context of inclusive education at the university.

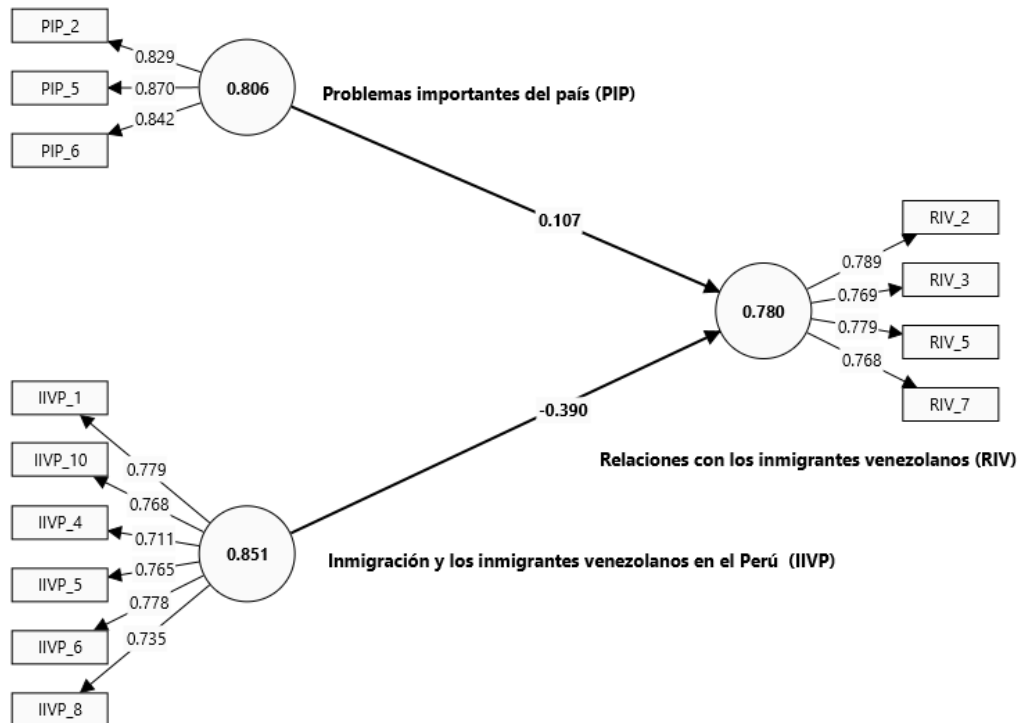


Figure I: Cronbach's alpha of the SmartPLS model

Figure II, presents the coefficient of determination R^2 for the dependent variable "Relations with Venezuelan immigrants" (RIV) is 0.165, which indicates that 16.5% of the variability in the relations with Venezuelan immigrants can be explained by the factors "Important problems of the country" and "Immigration and Venezuelan immigrants in Peru". As for the structural model, the *path coefficient* between "Important problems of the country" and "Relations with Venezuelan immigrants" is 0.107 with a p-value of 0.041, indicating a positive and significant relationship. On the other hand, the path coefficient between "Immigration and Venezuelan immigrants in Peru" and "Relations with Venezuelan immigrants" is -0.390 with a p-value of 0.000, indicating a negative and highly significant relationship.

These results highlight the complex dynamics between perceptions of national problems, attitudes toward immigration, and interpersonal relationships with Venezuelan immigrants. The strong association and

significance of the items in the corresponding factors, as well as the relationships between the factors, provide a sound basis for future interventions and studies in the context of inclusive education at the university.

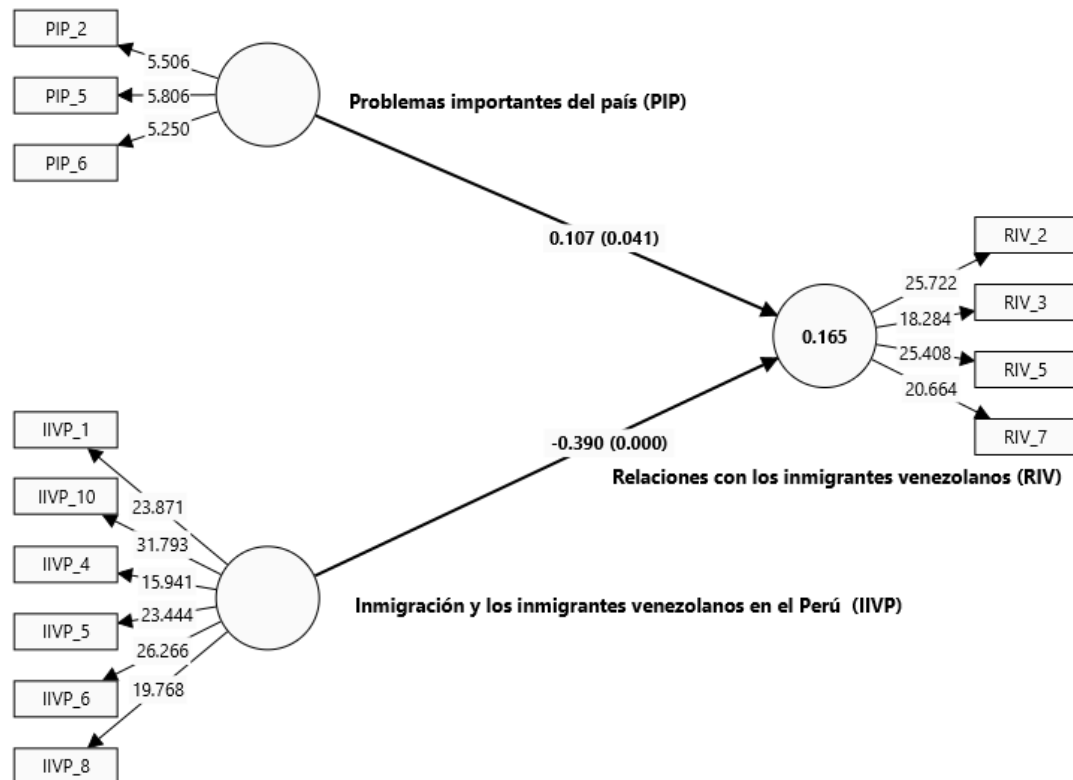


Figure 2: R² of the SmartPLS model

To assess the reliability and validity of the construct, the correlation coefficients in all its dimensions are considered, as well as the reliability and validity of the construct in relation to the variables involved. The Cronbach's alpha values, ranging from 0.780 to 0.851, are statistically significant and reflect a high internal reliability of the constructs, which supports the consistency of the results obtained. The average variance extracted AVE (*Average Variance Extracted*), with values ranging between 0.572 and 0.717, exceeds the recommended minimum threshold of 0.50 according to Hair et al. (2012) suggesting that the constructs explain an adequate proportion of the variance of the items. Composite reliability, with values

between 0.858 and 0.889, indicates a high level of internal consistency in each of the variables, exceeding the threshold of 0.60 recommended by several authors (Bagozzi & Yi, 1988; Hair et al., 2012).. In addition, the rho_A coefficient, used to verify the reliability of the values in the construction and design of the PLS, presents values higher than 0.70, as suggested by Henseler et al. (2015), which further confirms the reliability of the constructs. Taken together, these results, presented in Table 7, validate the reliability and validity of the constructs used in the model, providing a solid basis for the structural analysis and research conclusions. These findings reinforce the robustness of the model and the reliability of the conclusions obtained, which is crucial to ensure the scientific validity of the study.

Table 8

Reliability and construct validity

	Cronbach's alpha	rho_A	Composite reliability	Average variance extracted (AVE)
Immigration and Venezuelan immigrants in Peru (IIVP)	0.851	0.860	0.889	0.572
Major problems of the country (PIP)	0.806	0.823	0.884	0.717
Relations with Venezuelan immigrants (RIV)	0.780	0.781	0.858	0.603

Source: Own elaboration.

To verify the discriminant validity of the model, two approaches were used. The first is the criterion of Fornell & Larcker (1981) which states that the square root of the AVE of each construct must be greater than the correlations between the constructs. In Table 8, the values on the diagonal represent the square root of the AVE for each construct: "Immigration and Venezuelan immigrants in Peru" (IIVP) with a value of 0.756, "Important problems of the country" (PIP) with

0.847, and "Relations with Venezuelan immigrants" (RIV) with 0.776. These values exceed the correlations between the constructs, indicating the presence of discriminant validity. The correlations observed between the constructs are: between IIVP and PIP is -0.022, between IIVP and RIV is -0.392, and between PIP and RIV is 0.116. Comparing these values confirms that each square root of the AVE is higher than the corresponding correlations, which verifies that each construct is distinctive and different from the others. Consequently, the results support the existence of discriminant validity between the constructs assessed, ensuring that the factors are unique and are being measured independently within the model. This is crucial to ensure that the variables represent distinct concepts and do not overlap with each other, which reinforces the validity of the model and the interpretation of the results.

Table 9

Analysis of the Fornell-Larcker criterion to verify and validate discrimination.

	(IIVP)	(PIP)	(RIV)
Immigration and Venezuelan immigrants in Peru (IIVP)	0.756		
Major problems of the country (PIP)	-0.022	0.847	
Relations with Venezuelan Immigrants (RIV)	-0.392	0.116	0.776

Source: Own elaboration.

The second method used to verify the discriminant validity of the model is the Heterotrait-Monotrait criterion (HTMT), proposed by Henseler et al. (2015). This method is based on the HTMT coefficient to identify more precisely the lack of discriminant validity. According to the results presented in Table 9, the values of the HTMT coefficient are below the conservative threshold of 0.85 suggested by Franke &

Sarstedt (2019).. In particular, the relationships between the constructs are: 0.077 between "Immigration and Venezuelan immigrants in Peru" (IIVP) and "Important problems of the country" (PIP), 0.470 between IIVP and "Relations with Venezuelan immigrants" (RIV), and 0.142 between PIP and RIV. These values indicate that the correlations between the different constructs are considerably lower than the threshold of 0.85, suggesting a clear discrimination between the constructs. It has been shown that HTMT can achieve higher specificity and sensitivity rates (97% - 99%) compared to other methods, such as cross-loadings. Therefore, the results presented in Table 9 confirm the discriminant validity of the model, ensuring that each construct is unique and clearly differentiated from the others. This provides a solid basis for the interpretation and application of the study results, ensuring that the variables measure distinct concepts and that the inferences derived from the analysis are reliable and accurate.

Table 10

Heterotrait-Monotrait Criterion - HTMT for verification and discriminant validity

	(IIVP)	(PIP)	(RIV)
Immigration and Venezuelan immigrants in Peru (IIVP)			
Major problems of the country (PIP)	0.077		
Relations with Venezuelan immigrants (RIV)	0.470	0.142	

Source: Own elaboration.

Table 10 presents the results of the hypothesis test using the Bootstrapping method. In the case of hypothesis H1, which states that "Immigration and Venezuelan immigrants in Peru (IIVP) -> Relations with Venezuelan immigrants (RIV)", it is observed that the original sample coefficient (O) is -0.390. The sample mean value (M) is -0.399, with a standard deviation (STDEV) of 0.050. The t-statistic value,

calculated as $IO/STDEV$, is 7.789, suggesting high significance. The associated p-value is 0.000, which is significantly lower than the commonly accepted significance level of 0.05. This indicates that the negative relationship between perceptions of immigration and Venezuelan immigrants in Peru and relationships with Venezuelan immigrants is statistically significant. This finding implies that more negative perceptions of immigration are correlated with more unfavorable interpersonal relationships with Venezuelan immigrants, underscoring the importance of attitudes toward immigration in interpersonal dynamics.

In the case of hypothesis H2, which proposes that "Important problems of the country (PIP) -> Relations with Venezuelan immigrants (RIV)", it is observed that the original sample coefficient (O) is 0.107. The sample mean value (M) is 0.117, with a standard deviation (STDEV) of 0.053. The t-statistic value, calculated as $IO/STDEV$, is 2.041, and the p-value is 0.041, which is less than the significance level of 0.05, indicating that this relationship is statistically significant. This result suggests that the perception of important problems in the country has a positive, albeit slight, influence on relations with Venezuelan immigrants. This implies that, as concern about national problems increases, relations with Venezuelan immigrants tend to improve, although the effect is modest.

Table 11

Hypothesis testing - Bootstrapping

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ($IO/STDEV$)	P values
H1: Immigration and Venezuelan Immigrants in Peru (IIVP) -> Relations with Venezuelan Immigrants (RIV)	-0.390	-0.399	0.050	7.789	0.000

H2: Important problems of the country (PIP) -> Relations with Venezuelan immigrants (RIV)	0.107	0.117	0.053	2.041	0.041
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Source: Own elaboration.

The results of the hypothesis testing provide empirical evidence on the influential factors on relationships with Venezuelan immigrants in the context of an inclusive education at the university. The negative and significant relationship between perceptions of immigration and Venezuelan immigrants and interpersonal relationships with them suggests that negative attitudes toward immigration may impair integration and relationships with immigrants. This finding is crucial for designing interventions and policies that seek to improve attitudes toward immigration as a step toward better integration and interpersonal relations in the university setting.

On the other hand, although the relationship between the perception of important problems of the country and relationships with Venezuelan immigrants is positive and significant, its effect is relatively small. This indicates that, although concerns about national problems may have some impact on interpersonal relationships with immigrants, this effect is not as strong as that of direct attitudes toward immigration.

These results underscore the importance of addressing both specific perceptions about immigration and broader concerns about national issues in promoting inclusive education that fosters positive and constructive relationships with Venezuelan immigrants in the university setting.

Conclusions

The need to recognize and respect cultural diversity in university education to promote an inclusive and respectful environment is

confirmed (Reátegui, 2019). The results show that negative perceptions of immigration (IIVP) are significantly associated with poorer relationships with Venezuelan immigrants (RIV), as evidenced by the negative and significant coefficient of -0.390 ($p = 0.000$). This highlights the relevance of university policies and practices that foster intercultural interaction and mutual respect, as described in the theoretical framework.

In addition, the implementation of orientation programs and cultural activities is crucial to sensitize the university community to the challenges faced by immigrants (Gissi et al., 2021; María José Vargas, 2020). Public perception of migrants, which varies considerably, influences social integration and acceptance, which is evident in the correlations observed in the study. This finding highlights the importance of educational strategies that directly address the inclusion of Venezuelan immigrant students.

Regarding challenges and opportunities in diversity inclusion, the study confirms that integrating these topics into the university curriculum can prepare students to contribute effectively in a globalized society (Lujan, 2018; J. Castro, 2021; Cruz, 2021). Results indicate that perceptions of important country problems (PIPs) also influence immigrant relations, although to a lesser extent (coefficient of 0.107, $p = 0.041$). This suggests that addressing national problems in the educational context may have a positive impact on immigrant inclusion.

The significant contribution of Venezuelan immigrants to the educational and professional sector in Peru is also corroborated by the data (León, 2019; Mendoza and Miranda, 2019). Programs that facilitate the integration of these professionals into the local labor market would not only enrich the academic environment, but also strengthen national services in critical areas. The duality of perceptions about migration, with both positive and negative aspects, highlights the need for inclusive and effective policies to maximize potential benefits and mitigate challenges (Vargas, 2021).

Finally, studies on social perception and xenophobia (Loayza, 2020; Igartua et al., 2018) highlight the importance of education in reducing prejudice and promoting a welcoming academic environment. The results of the HTMT analysis confirm that the correlations between the constructs are lower than the conservative threshold of 0.85, indicating a clear discrimination between the constructs and validating the independence of each in the model. This emphasizes the ability of universities to lead in transforming attitudes toward immigrants through courses that foster inclusion and mutual respect.

Therefore, the results obtained confirm and expand the key ideas of the theoretical framework, underscoring the importance of inclusive educational policies and university practices that promote cultural diversity, integration and mutual respect. These results provide a robust foundation for future interventions and studies in the field of inclusive education in universities, underscoring the importance of adopting a comprehensive approach to address the challenges and capitalize on the opportunities arising from Venezuelan migration in Peru. By highlighting the complexity of the migration phenomenon, it is argued that strategies should be varied and coordinated, involving both institutional policies and pedagogical practices that promote an environment of integration and mutual understanding. This multifaceted approach not only addresses current problems, but also anticipates future migration dynamics, strengthening the capacity of universities to adapt and offer a truly inclusive education.

Valuable findings emphasize the complexity and multidimensionality of the inclusion of immigrant students in the university environment. The results highlight that negative perceptions towards Venezuelan immigration are significantly associated with poorer interpersonal relationships, which underscores the urgent need to implement policies and practices that promote intercultural interaction and mutual respect. Orientation programs, cultural activities, and the incorporation of migration issues into the curriculum can sensitize the university community to the challenges faced by immigrants, fostering a more inclusive and respectful environment. In addition, the results

show that addressing national issues in the educational context has a positive impact on improving relations with immigrants, albeit modestly, indicating that a contextualized and critical education can better prepare students to contribute to the solution of complex social problems.

From a qualitative approach, the testimonies and lived experiences of Venezuelan immigrants and local students in the university environment reflect the duality of perceptions and the need for a more nuanced and humanizing approach in educational policies. The immigrants' personal stories of success and self-improvement highlight their ability to contribute significantly to the academic and professional environment, despite the socioeconomic challenges they face. This narrative approach reveals the importance of recognizing and valuing cultural diversity not only as an ethical imperative, but also as an opportunity to enrich the educational experience and strengthen social cohesion. Universities, by taking the lead in transforming attitudes and promoting a climate of respect and inclusion, not only enrich the academic environment, but also prepare students to become conscious global citizens committed to social justice and equity. These qualitative findings underscore the importance of implementing inclusive educational policies and practices that favor diversity, integration, and mutual respect, providing a solid foundation for future research and action in the field of inclusive education.

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Use of textisms as a representation of inclusive language: a comparative study in two universities

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Introduction

Gender theory offers a framework of analysis for understanding identities in written communication. The theory has expanded the understanding of gender identities as more than a binary category, gender identities are understood as social and cultural products that are represented in a variety of ways in everyday life, including written language (Bravo, 2007; Butler, 2011).

Teresita de Barbieri examined the social construction of gender, that is, how gender expectations and roles are culturally constructed and not inherently natural or biological; she also argued that, to fully understand gender inequalities, it is essential to examine the underlying power structures and how they manifest themselves in social, economic, and political relations. Barbieri also stressed the importance of education and awareness in transforming restrictive gender norms and promoting equality. (De Barbieri, 1991; 1993).

In this context, the phenomenon of textisms, which considers the graphic representation of gender in written text, through graphemes and other linguistic signs, can play a crucial role in the manifestation and recognition of non-binary gender identities. (Tosi, 2021) This

dimension is particularly significant in the digital era, where written modes of communication have multiplied and diversified.

However, the relationship between gender theory and textism is still under exploration, with possibilities open for future research. By inquiring into this intersection, this study aims to contribute to an emerging body of knowledge that can inform not only academic theory, but also policies and practices that seek to promote inclusion and respect for all gender identities in written communication. In a context where inclusive language has become a central topic of debate in communication and education, especially in the representation of non-binary gender identities, the need arises to investigate how these new linguistic forms, such as inclusive textisms, are adopted and perceived by university students. This study focuses on comparing the use of these textisms between students at a private and a public university, in order to better understand their role in promoting equity and inclusion in academia. Therefore, the research question asks: What is the use of textisms by students of a private and a public university?

The representation created by the language

The vision of the world is shaped by the words we use to describe it, the proposal of inclusive language aims to name all people in everyday speech and writing, there are many feminist proposals that respond and promote the use of inclusive language as strategies to achieve equality (Furtado, 2013). Likewise, there are many authors who recognize that we are still in early stages to achieve equality in the linguistic field, (Adokarley Lomotey, 2015; Formanowicz & Hansen, 2022) (Nissen, 2013). Hansen, 2022) in several countries have emerged language policies that aim to promote language with the idea of achieving a more egalitarian society (Adokarley Lomotey, 2015; Nissen, 2013) for example in Argentina the gender identity law in Argentina established that everyone has the right to recognition of their gender identity, to the free development of their person

according to their gender identity and to be treated according to their gender identity (Congreso de la República Argentina, 2012)

This law laid the groundwork for the paradigm shift for the visibilization of all gender identities in writing and everyday speech, which constitutes a space to think about the transformation of reality through speech for non-discrimination of different identities (Storani, 2017), another case is neutral pronoun "hen" in Swedish as a generic form and for transgender use (Gustafsson Sendén et al., 2015) for English speakers have proposed the use of the pronoun "they" (Saguy & Williams, 2022) likewise there are similar proposals in other languages such as French (Kosnick, 2019) and German (Körner et al., 2022).

In the Peruvian case the Ministry of Women and Vulnerable Populations of Peru, elaborated in 2013 the "Guide for the use of inclusive language" which aimed to promote the use of inclusive communication in all areas of public administration. (Ministry of Women and Vulnerable Populations [MIMP] 2017) Equal Opportunities between Women and Men (Law No. 28983).

Textisms cannot be considered as misspellings resulting from a lack of knowledge of the language, but constitute new forms of language generated by technology such as smartphones. (Gómez-Camacho, Hunt-Gomez, and Valverde-Macías 2018).

The generic masculine has historically been used to refer to both women and men, functioning in many cases to exclude women, the experiment conducted by Mary Crawford and Linda English, suggest that the use of generic masculine in written texts influence the interpretation and interest depending on the sex of the reader. (Crawford & English, 1984) in the research of for María Teresa Bejarano Franco evidenced the importance of properly using language to include all and all gender identities (Franco, 2013).

This discrimination is also present in the field of language because, as Fernandez states, sexism is a totalizing category in the life of the human being, language being one of the most outstanding, since it

implies the way we see and communicate with the world (Fernandez, 1999), therefore the use of language or the words we use to communicate can be considered as linguistic sexism. The Royal Academy of the Spanish language does not accept the splitting of language in its masculine and feminine form, that which names nouns in its two forms, for example teacher and master, but it does defend the false generic (Franco, 2013) in the same sense Violi argues that:

In language, sexual difference is symbolized mainly through the category of gender (...) gender is not only a grammatical category that regulates purely mechanical concordant facts, but, on the contrary, it is a semantic category that manifests within language a deep symbolism linked to the body. (Voli, 1991, p. 36).

The reality represented by the language

Languages are in constant change and evolution; a language that does not evolve is a dead language (Alario, 1995) In this sense, questioning the change that originates in the language does not make sense because it is part of the natural process of a living language.

The process of change of a language is due to the evolution of a society and the need to create new words to represent the new forms and groups that emerge, following Alario and the other authors:

It is not rare, then, that words like "Man" become smaller and smaller and more and more unjust to denominate the human race...language uses its own resources or, when necessary, invents or innovates perfectly adequate solutions (Alario, 1995, p. 8).

Spanish words have a grammatical gender and this can be masculine or feminine which is not necessarily related to sex, being the grammatical gender the vision that the speakers of a language have (Roca, 1992) where the feminine gender is a form that derives from

the masculine form, in this way the feminine gender appears as a subgenre of a subordinate form.

Language in a society has a determining role in the socialization process, because "in gender discrimination and prejudice occur in the field of everyday speech" (Ministerio de la Mujer y Poblaciones Vulnerables, 2017, p. 5) language is used to hide the female presence or pretend to show the superiority of one gender over another.

The university, as an environment committed to questioning and critical analysis, becomes an ideal space to promote meaningful and profound debates on contemporary issues such as inclusive language. (Medina 2020) This commitment to critical reflection not only fosters understanding of complex concepts, but also drives the adoption of inclusive practices that reflect and respond to the demands of an ever-evolving society. In this sense, the university plays a crucial role in facilitating the integration of linguistic and conceptual changes, promoting a culture of equity and respect through education and informed dialogue. (Ledeneva et al. 2023)

Texting as a new dimension in the use of language

In the digital age, textisms are increasingly common due to the prevalence of online communication (Núñez-Román et al., 2022), they have also caused some controversy, as some believe that their use can negatively affect comprehension and the quality of written communication. (Formanowicz & Hansen, 2022)

Gómez-Camacho et al (2018) classified the mechanisms to be used in textisms in Spanish, finding the following: omission of graphemes or syllables, simplification of digraphs.

The research was characterized by having a comparative exploratory scope and was developed through a non-experimental cross-sectional design, carried out between April and May 2024. It focused on students in the first cycles of the Professional School of Psychology

of the Universidad Nacional de San Agustín (UNSA), which had 323 students enrolled in those cycles, and the Universidad de San Martín de Porres, Filial Sur (USMP-FS), with a total of 180 students in the same academic stages.

To ensure the reliability of the study, a non-probabilistic sampling of accidental type was chosen, adequate to comply with the parameters of 95% confidence and a margin of error of 5%. The validity of the tools used for data collection was corroborated through a reliability assessment, obtaining a Cronbach's Alpha coefficient of 0.973 for the variables of the Textismos instrument, which indicates excellent reliability.

The study was structured around three main objectives:

- To assess the level of knowledge about inclusive language among students, through the application of questionnaires designed to capture their understanding and familiarity with this form of communication.
- Determine the importance and use of inclusive language, as well as students' abilities to represent all identities through speech, gathering their opinions and direct experiences.
- To explore students' perceptions of representativeness and recognition of diverse identities through inclusive language, using both surveys and interviews to gather their views and personal experiences.

The research was conducted only on psychology students from a public and private university since psychology students are prepared to understand and analyze human dynamics, social constructions and communication patterns. The study of inclusive language and textisms is relevant to them since, in their future professional practice, they are likely to interact with diverse groups and communities. Understanding and adapting to these emerging forms of communication may be essential to establish effective and empathetic communication. The research process was sequential and

the universe was divided proportionally by professional career, selecting students from the first 3 years per cycle.

Table 1

Number of sample by university of study cycle

UNIVERSITY	CYCLE 1	CYCLE 2	CYCLE 3	TOTAL
PUBLISHES	59	59	58	176
PRIVATE	41	41	41	123

- The first type of information collected was on the level of knowledge of inclusive language.
- For the second objective, the information required is about the importance and use they give to inclusive language and its capabilities to represent all identities through speech.
- The last objective of the research was the young people's perception of representativeness through language, as well as the recognition of its existence.

This section presents the results of the research conducted with the instrument "Use of textisms in university students".

Of the 299 students who participated in the study, it was determined that 191 (64%) were female and 108 (36%) were male, the average age of the students being 18.7 years with variations of 2 years. On the other hand, when asked about the origin of the school, it was found that 70% came from private schools, while 30% came from national schools, in the case of USMP students, while at UNSA it was 25% parochial and 60% from national schools.

In table 2 about the knowledge of inclusive language according to the graphemes of textismos is qualified with the average of 2.74 in both universities in that they prefer not to give an opinion in favor or against

for the identification of gender. With respect to the representation of women in the written language, the private university mentions disagreement with the addition of language variations and the UNSA is rated with an average of 2.56 in that they neither agree nor disagree. And in the importance of textisms in both universities they consider neither agree nor disagree.

Analysis of the frequency of use of textisms

In order to determine the frequency of use of inclusive language textisms from the students' perspective, the mean and standard deviation of each one of them were calculated, and the results are presented in Table 2.

Table 2

Analysis of the use of textisms by universities

Factor studied	USMP		UNSA	
	Average	D.S	Average	D.S
Frequency of use of speech and writing	1.81	0.76	1,8	0.73
Frequency of use of textisms	1.54	0.58	1.72	0.63
Frequency of use of other forms	2.45	0.81	2.52	0.66

From the analysis of Table 3, it is observed that students who rarely use inclusive language according to the average of 1.8 as explained in both universities. In the use of textisms of "@" "E" "X" in inclusive language are rarely used as detailed in the average of 1.54 in the survey at USMP and at UNSA with 1.72 as a mark of gender distinctiveness. And in the denominations of work they consider with the average of 2.45 in USMP and in UNSA with 2.52 in which it is used more frequently.

Table 3

Frequency of the level of knowledge of textisms

	USMP	UNSA
Knowledge level	%	%
Very low knowledge	11%	12%
Low Knowledge	26%	26%
Moderate knowledge	44%	44%
High Knowledge	15%	14%
Very high knowledge	4%	5%
Grand total	100%	100%

The results of Table 3 reveal similar patterns in the level of knowledge of textisms between the two universities. The majority of students at both institutions have a moderate knowledge of textisms, reflecting a generalized but not comprehensive familiarity with this form of communication.

Table 4

Frequency of responses on the representation of women in the written language of the use of textisms.

	USMP	UNSA
Representation of women in the written language	%	%
Very low	70%	28%
Scarce	4%	12%
Moderate representation	0%	47%
Good	11%	5%
Excellent	15%	9%
Grand total	100%	100%

At USMP, the majority of students perceive that the representation of women is very low. On the other hand, at UNSA, a more balanced trend is observed with a notable proportion of students who consider representation to be moderate.

Table 5

Frequency of the level of importance of textisms

	USMP	UNAS
Importance of inclusive language	%	%
Nothing important	15%	2%
Not very important	11%	16%
Moderately important	33%	30%
Important	30%	28%
Very important	11%	23%
Grand total	100%	100%

In both universities, the predominant trend reflects that students consider inclusive language as moderately important to important,

highlighting a significant awareness of this issue. However, there is a contrast in the more extreme opinions: a minority of students at USMP consider that inclusive language is not important, while, at UNSA, a considerable proportion rate it as very important.

Table 6

Kolmogorov-Smirnova and Shapiro-Wilk tests by university

University		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistician	gl	Sig.	Statistician	gl	Sig.
San Martin de Porres University	Knowledge level	.23	27	.001	.91	27	.020
	Representation of women	.44	27	.000	.62	27	.000
	Importance of inclusive language	.20	27	.005	.90	27	.015
National University of San Agustin	Knowledge level	.23	43	.000	.90	43	.002
	Representation of women	.25	43	.000	.85	43	.000
	Importance of inclusive language	.18	43	.002	.90	43	.001

a. Lilliefors significance correction.

Previously, the normality of the data on the level of knowledge of textisms and its dimensions is explored, which according to the Shapiro Wilk test in the bilateral sig. are lower than the significance level of 0.05 and do not follow a normal distribution.

Comparison of the level of knowledge of textisms by university

To analyze the difference in the knowledge of textisms, the Mann Whitney U test was used to identify that the dimensions follow a normal distribution.

Table 8

Mann-Whitney U and Wilcoxon W test

Test statistics^a

	Knowledge level	Representation of women	Importance of inclusive language
Mann-Whitney U	580,000	419,000	476,000
W for Wilcoxon	1526,000	797,000	854,000
Z	-,006	-2,072	-1,303
Asymptotic sign (bilateral)	,995	,038	,193

a. Grouping variable: University

To evaluate the difference by gender in the level of knowledge of textisms, it was found that it is similar in both universities according to the result of the bilateral sig. of 0.995, which is higher than the significance level. And in the dimensions of representations of women for women in inclusive language there is a significant difference and in the importance of inclusive language there is no difference in the qualification in both universities.

Table 9

Kolmogorov-Smirnova and Shapiro-Wilk tests by dimensions

University		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistician	gl	Sig.	Statistician	gl	Sig.
Frequency of use of speech and writing	San Martin de Porres University	.23	27	.001	.85	27	.001
	National University of San Agustin	.21	43	.000	.87	43	.000
Frequency of use of textisms	San Martin de Porres University	.27	27	.000	.82	27	.000
	National University of San Agustin	.17	43	.002	.90	43	.001
Frequency of use of other forms	San Martin de Porres University	.13	27	.200*	.95	27	.214
	National University of San Agustin	.21	43	.000	.92	43	.008

*. This is a lower limit of true significance.

a. Lilliefors significance correction.

In the frequency of the use of textisms, it was found with the Shapiro Wilk test that, being below the significance level, they do not follow a normal distribution in the dimensions of use of speech and writing, use of textisms and other forms of language.

Table 10

Mann Whitney U test to compare the dimensions of frequency of textisms use with both universities.

Test statistics^a

	Frequency of use of speech and writing	Frequency of use of textisms	Frequency of use of other forms
Mann-Whitney U	572,500	475,500	534,000
W for Wilcoxon	1518,500	853,500	912,000
Z	-,100	-1,294	-,577
Asymptotic sign (bilateral)	,920	,196	,564

a. Grouping variable: University

In the non-parametric test that evaluates the frequency of use of textisms when comparing both universities, it was shown that there is no significant difference. It can be seen that in the use of speech and writing the bilateral sig. was 0.92, in the use of textisms 0.196 and other forms 0.564 higher than 0.05.

Reflections on the Knowledge and Practices of Inclusive Language in the University Community

One of the initial findings of this study is related to the level of knowledge about inclusive language among university students. By applying questionnaires specifically designed to capture their understanding and familiarity with this form of communication, it was

possible to observe a general trend of moderate to high knowledge among participants, both at the National University and the Private University, these results suggest a growing familiarity with inclusive language, a reflection of contemporary debates on gender and diversity present in society and educational institutions, but this adoption is not uniform and faces criticism, a result that is aligned with the theory that holds that gender identities are social and cultural constructions, as argued by Bravo (2007) and Butler (2011). These theorists stress that gender identities and their representation in language are complex and constantly evolving and subject to criticism with many detractors.

The level of knowledge about inclusive language among university students turns out to be an indicator that measures how contemporary discussions about gender and diversity become more present in university classrooms, the proposal of inclusive language aims to name all people in everyday speech and writing. Feminist proposals have pushed for the use of inclusive language as a strategy to achieve equality, but recognize that we are still in the early stages of achieving equality in the linguistic realm.(Furtado, 2013; Adokarley Lomotey, 2015; Formanowicz & Hansen, 2022).

Teresita de Barbieri (1991; 1993) stresses the importance of examining the power structures underlying social relations and how these are manifested in language. In this context, the phenomenon of textism, which uses graphemes and other linguistic signs to represent gender, can play a crucial role in the visibilization and recognition of non-binary gender identities. However, as Núñez-Román et al. (2022) point out, the adoption of gender-inclusive textisms on digital platforms such as Twitter (now X) is still in the process of consolidation and faces resistance.

It was also observed that the tendency of students to recognize more easily the limitations than the strengths of inclusive language may be influenced by the educational and family environment. In many educational institutions and homes, a culture that highlights weaknesses more than skills still persists, which could be affecting

students' perception of inclusive language. This phenomenon suggests the need for a change in educational and communication strategies in these environments, promoting a more balanced and positive valuation of students' linguistic and communicative abilities.

This finding resonates with the work of Violi (1991), who argues that gender in language is not just a grammatical category, but a semantic category that deeply symbolizes sexual difference in language. The use of textisms such as "-@" and "-x" in inclusive language can be seen as an attempt to challenge and transform these traditional categories.

The university, as a space dedicated to questioning and critical analysis, is in a privileged position to introduce and consolidate these linguistic and conceptual changes. However, it is essential to underline that a high level of knowledge does not necessarily imply a favorable stance or an active practice of inclusive language.

The research also reveals that spellings (-@ and -x) are used as tools to promote inclusive language. These textisms have been consolidated as preferred mechanisms for this purpose, coinciding with the findings of Núñez-Román et al. (2022), who found that gender-inclusive textisms are commonly used on platforms such as Twitter.

It is critical to consider the differences and similarities in the level of knowledge among different groups of students, such as those from different faculties, ages, or socio-cultural backgrounds. These nuances can provide richer and more detailed insights into how language inclusivity is being assimilated and what challenges remain around language inclusivity in the university context.

The second objective of this study was to determine the importance and use of inclusive language, as well as students' abilities to represent all identities through speech. The results indicated that most students recognize the importance of inclusive language in promoting equity and representation of all gender identities. However, its use in practice is not as frequent as might be expected. The mean and

standard deviation for the importance of inclusive language were 3.11 and 1.21 for USMP students, and 3.53 and 1.09 for UNSA students, suggesting widespread recognition of its importance.

In terms of frequency of use, textisms such as "-@" and "-x" are not the most used forms of inclusive language, with a mean of 1.54 and 1.72 for USMP and UNSA respectively. In contrast, language splitting, such as using "los and las" instead of masculine generic terms, had a higher frequency of use in students of both universities, which is in line with the indications (Gustafsson Sendén et al., 2015) that the expressions of language splitting, are more used forms by young people.

Textisms are new forms of written language enhanced by technology, and although students recognize the importance, their practical use faces cultural and social barriers. (Gómez-Camacho et al., 2018) The preference for language unfolding over textisms could indicate a more gradual and socially acceptable adaptation of traditional linguistic norms.

Textisms cannot be seen as misspellings resulting from a lack of knowledge of the language, but constitute new forms of language generated as a result of technology such as the smartphone (Gómez-Camacho et al., 2018) likewise Tosi (2021) suggests that the graphic representation of gender in written text, such as the use of inclusive graphemes, can play a crucial role in the manifestation and recognition of non-binary identities. However, the lower frequency of textisms use observed in this study could reflect a reluctance to change traditional forms of writing, possibly due to lack of familiarity or general acceptance.

The third objective of this study was to explore students' perceptions of the representativeness and recognition of diverse identities through inclusive language, The results indicated that a significant majority of students consider inclusive language to be essential for the representativeness and recognition of all gender identities. However, variations in perceptions were observed, with some students expressing criticism and concerns about the practical

implementation and effectiveness of inclusive language. These findings are in line with the observations of authors such as Violi (1991) and Fernandez (1999), who argue that language plays a crucial role in identity formation and in perpetuating or eliminating gender biases. Violi argues that gender in language is a deep semantic category that reflects and reinforces social power structures. The results underscore the need for a more inclusive educational approach that not only teaches about inclusive language, but also promotes its active and conscious use. Educational institutions have a crucial role to play in standardizing inclusive language to ensure that all gender identities are recognized and adequately represented.

Students' personal experiences gathered through interviews reveal that many still face challenges in using inclusive language, whether due to lack of knowledge, social resistance or uncertainty about how to apply it correctly. These barriers need to be addressed through educational programs and awareness campaigns that include all stakeholders, from educators to families.

Limitations of this study include the representativeness of the sample, which is restricted to psychology students from two universities. In addition, the specific cultural context may influence students' perceptions of inclusive language. Future research should expand the sample and consider other contextual variables.

Conclusions

University students show a moderate to high level of knowledge about inclusive language, reflecting a growing familiarization driven by contemporary debates on gender and diversity. However, the practical adoption of these textisms is not uniform and faces cultural, social and educational barriers, being so that in the national universality have greater openness in use than in the private university. Although students recognize the importance of inclusive language, the practical use of textisms such as "-@" and "-x" is less frequent compared to more traditional forms such as language

splitting ("los and las"). This suggests a preference for linguistic adaptations that are socially more acceptable and less disruptive especially in the private university than in the public university.

Despite the fact that most students consider inclusive language essential for the representativeness of all gender identities, there are critical perceptions about its implementation and effectiveness. This indicates the need for a more comprehensive approach that promotes not only knowledge, but also acceptance and active use of inclusive language.

The barriers observed in the adoption of inclusive language, such as lack of knowledge or social resistance, underscore the importance of implementing educational programs and awareness campaigns. These should involve all social actors and ensure that educational institutions lead the normalization of inclusive language, guaranteeing adequate and equitable representation of all gender identities.

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Factors affecting upstart undergraduates

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Introduction

Nowadays being an upstart student is a major social phenomenon as it is a macro issue, foreign students often face significant challenges in adapting to their new educational and social environment. By identifying and understanding the factors that influence this process, more effective support can be provided to students to enhance their academic and social experience.

On the other hand, upstart students may face specific barriers and difficulties related to their culture, dialect, previous experience, among other factors. By identifying these barriers, specific policies and programs can be designed to address these problems and improve the student experience. The study of factors affecting foreign students is important because it contributes to the understanding of students' adaptation difficulties, identifies

specific problems, promotes inclusion and diversity, generates economic benefits and has a positive social impact.

Up-and-coming college students face a variety of factors that affect their adaptation and academic success. These factors include cultural and social differences, academic pressure and mental health, as well as economic and logistical barriers.

First, cultural and social differences play a crucial role in the college experience of upstart students. The transition from a familiar and known environment to a new one can generate feelings of isolation and disorientation. Social integration and adaptation to new cultural norms are significant challenges that can affect students' emotional well-being and academic performance. According to Garcia Coll and Szalacha (2004), students who do not feel socially integrated in college are more likely to experience emotional and academic problems.

Second, academic pressure is another critical factor. Workload, academic expectations and competition can be overwhelming for new students. Lack of study and time management skills, as well as adjustment to a more demanding academic level, can contribute to stress and anxiety. A study by Misra and McKean (2000) found that college students experience high levels of stress due to academic demands, which can negatively affect their performance and mental health.

In addition, mental health is a critical aspect that influences the college experience for upstarts. Anxiety, depression, and other mental disorders are prevalent among college students, and these problems can be exacerbated by the transition to college life. Lack of emotional support and inadequate mental health services at some institutions can exacerbate these problems. Hunt and Eisenberg's (2010)

research highlights that mental health is a key determinant of college students' academic and personal success.

Finally, economic and logistical barriers also affect upstart students. The costs of tuition, housing, books and other associated expenses can be prohibitive for many students and their families. In addition, students who must work while studying face an additional challenge in balancing their work and academic responsibilities. Research by Goldrick-Rab, Kelchen, and Houle (2014) shows that financial problems are one of the main reasons students drop out of college.

In summary, upstart college students face multiple factors that can affect their academic success and overall well-being. Addressing these challenges comprehensively is crucial to ensure that these students can thrive in their new educational environment.

Study variable, problem situation, research question, hypothesis, .

As a substantial question we can identify the following:

How do upstart students cope with the changes and difficulties of the local climate?

From there we can start with the fundamental variables, which are the upstart students and the factors that affect their cognitive and social level.

This research was generated in an educational population comprising students who commonly have to leave home to adapt to an abysmal change full of extremely important nuances.

In order to generate an adequate hypothesis we must analyze the following:

hypothesis about the factors influencing upstart students could be:

"The combination of personal, family and academic factors, such as motivation, family support, quality of education received and opportunities to access resources, significantly influences the performance and perseverance of upstart students, i.e., those who come from disadvantaged or marginalized backgrounds and who manage to overcome obstacles to academic success."

Development of the research, methodological process, results

This inquiry corresponds to a descriptive research, information is collected from the population studied and described through different data collection techniques, such as surveys, interviews or questionnaires. In this research, it describes the causes and consequences of the factors that affect upstart students. Then, the data is analyzed to determine patterns and trends, focusing on students from the State Technical University of Chile, comprising 25 students from different majors.

The instrument is a survey questionnaire consisting of 10 items with open and closed questions. The proportion of students who have experienced difficulties in finding accommodation near the university is 80% (20/25) and the proportion of students who have not experienced difficulties is 20% (5/25). This result suggests that the majority of foreign students have experienced difficulties in finding accommodation near the university, which may be a factor affecting their ability to adapt to the educational and social environment.

Most of the foreign students surveyed are not completely satisfied with the accommodation they have found near the university, with 60% of the respondents answering that their accommodation was fair or poor. Only 40% of the

respondents answered that their accommodation was good or excellent. In addition, only one student responded that they were completely satisfied with their accommodation. This result suggests that there may be a widespread problem in the quality of accommodations available to foreign students near the university and that this problem may affect their ability to adapt to the educational and social environment.

Eighty percent of the foreign students surveyed have had difficulty adjusting to life in the city where the university is located, while 20% have had no problems in this regard. This result suggests that there may be a significant need to provide support and resources to help foreign students adjust to life in the city. Lack of adaptation may negatively affect the well-being and academic performance of foreign students.

Fifty-two percent of the foreign students surveyed believe that the change of environment has affected their academic performance, while 48% do not believe that the change has affected their academic performance. This result suggests that change of environment may be an important factor affecting the academic performance of some foreign students. Adapting to a new environment can be challenging and may take considerable time to get used to. On the other hand, it is also important to keep in mind that change of environment can have positive effects on some students by providing new opportunities and enriching experiences. Sixty percent of the foreign students surveyed believe that the lack of support from the university or teachers has affected their adaptation or academic performance, while 40% do not believe it has affected their adaptation or academic performance. Lack of support may be an important factor affecting the academic performance and adaptation of some foreign students. The university

can address this problem by offering specific support programs to help foreign students adapt to the new environment and improve their academic performance.

Of the respondents, (56%) responded that cultural exchange programs could help, while (44%) responded that extracurricular activities could be beneficial. Cultural exchange programs and extracurricular activities can provide an opportunity for foreign students to interact with other students and experience the local culture and society.

Of the respondents, (56%) responded that the place where they live does not prevent them from having a healthy habit and 44%, which is the minority, do perceive this problem. The majority of respondents do not feel that the place where they live affects their ability to lead a healthy lifestyle, while a minority does perceive this relationship.

This result indicates that the majority of the students surveyed (80%) do not have the necessary economic resources to cover their basic needs, while 20% do. This can have a negative impact on their ability to adapt to university life and on their academic performance. It is important that these circumstances be taken into account when designing policies and support programs for foreign students.

From the responses, it can be seen that the majority of respondents (22) indicated that they have been affected by external factors, while only 3 responded that they have not. It is important to keep in mind that foreign students may face additional challenges beyond those related to their adaptation to university life, which may impact their academic performance.

The analysis of question 10 indicates that the vast majority of respondents (23) believe that differences in the educational system and academic demands can generate pressure and stress in foreign students, while only 2

answered no. Differences in the educational system and academic demands are an important factor to take into account when considering the difficulties that upstart students may face in their adaptation process and academic performance.

Analyzing the results of the survey, it is observed that the majority of respondents have experienced difficulties in finding accommodation near the university (20 out of 25). In addition, the majority are not satisfied with the accommodation they found (15 out of 25). This indicates that the problem of accommodation is an important factor affecting foreign students. Another relevant finding is that the majority of respondents have had difficulties adjusting to life in the university town (20 out of 25). In addition, more than half of the respondents believe that the change of environment has affected their academic performance (13 out of 25). This indicates that adapting to university life is a challenge for foreign students and may affect their academic performance.

Regarding the lack of support from the university or teachers, the majority of respondents believe that it has affected their adaptation or academic performance (15 out of 25). Therefore, it can be concluded that the lack of support from the university or teachers is another important factor affecting foreign students, resources or tools that could help foreign students adapt better to university life, the majority of respondents mentioned cultural exchange programs and extracurricular activities. This indicates that international students could benefit from activities that allow them to interact with local students and learn more about the university culture and environment.

In relation to the influence of factors external to the university on the academic performance of foreign students, the majority of respondents believe that it has been affected

(22 out of 25). This indicates that it is important to consider these factors when analyzing the academic performance of foreign students.

Finally, the majority of respondents believe that differences in the educational system and academic demands can generate pressure and stress on foreign students (23 out of 25). This indicates that it is important to take cultural and educational differences into account when designing support programs for foreign students.

Conclusions

It is necessary to understand the educational problems in which most students are immersed when facing a new place full of dreams and hopes, this research serves as a very accurate gap to analyze the cognitive and social field of students who go through this transition in some cases hard and in others it is simply a construct of what we call in psychology, personality.

This research provides the opportunity to establish further research based on it in order to deepen the significant impact of these processes and experiences, not only in the personal sphere but also in the academic sphere.

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Artificial Intelligence as a strategic tool for the university student: A 21st century learning model

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Introduction

Technological advancement has transformed global habits, especially in communication and information, driving the need for educational systems, especially universities, to adapt. Artificial Intelligence (AI) has grown exponentially since its origin in 1950, encompassing areas such as natural language processing and self-learning, and is used in education to automate administrative and pedagogical tasks. However, it still does not fully contribute to the development of subjects with creative judgment or critical thinking factors. Higher education needs to reflect on the pedagogical and ethical implications of AI, also considering concerns about plagiarism. Emerging technologies, such as quantum computing and 5G, can revolutionize teaching and educational management, as indicated in their study (Chen & Lin., 2020). Therefore, we ask ourselves the following question: Is Artificial Intelligence the new strategic tool for university students?

While we know that AI in education (AIEd) is an emerging field that, despite its existence for more than 30 years, has not yet been fully exploited in pedagogical terms. Mostly research comes from

disciplines such as Computer Science and STEM, using mainly quantitative methods (Zawacki et al., 2019).

In this environment Ajevski et al (2023), indicate that ChatGPT, as a language model developed by Open AI, has multiple benefits for university education. Its ability to answer questions in natural language covers a wide range of topics, which is essential for students seeking information quickly and accurately.

If we talk in terms of strategy, this smart tool not only streamlines the research process, but also allows students to explore and delve into different areas of knowledge autonomously. (Michael et al., 2024). In addition, ChatGPT can generate complex content such as essays, articles and codes, adapting to the specific needs of users.

This capability not only expands educational possibilities, but also promotes creativity and intellectual exploration. The quality of its responses, which effectively simulate human language, facilitates educational interaction and can improve understanding of difficult concepts (Ahmad et al., 2024). In legal terms artificial intelligence, allows the branch of legal education, to be especially useful for exam preparation and understanding complex legal cases. Its ability to analyze and generate answers based on previously trained data can help students apply legal theories and solve practical problems more effectively (Patel & Gandhi, 2023).

On the other hand, Akiba, & Fraboni, (2023) mention that ChatGPT is an instrument that allows improving accessibility and academic advising, especially for students from disadvantaged backgrounds. The responses generated by ChatGPT were evaluated as high quality, clear and comprehensive, suggesting its effectiveness in providing relevant academic guidance. In this same aspect, Martinez and Gonzalez (2024), analyze this AI application in aspects of academic writing within the social sciences. They review the use of these tools to improve the clarity and accuracy of scientific communication.

Impact of AI on academic training

The use of AI in academia is transforming education with promising results. Basáez & Mora (2022), as in medicine, where AI complements clinical practice and improves diagnoses and treatments, in education it allows personalizing teaching and analyzing large volumes of data. Disruptive technologies offer valuable information for a more accurate and personalized educational intervention, as well as an automated monitoring of student progress, but also promote a more adaptive and effective education.

George & Wooden (2023), Smart universities can achieve personalized learning paths, increased accessibility, economic efficiency, and a boost in overall operational performance through the strategic use of AI. The predictive model developed to anticipate student academic performance proves to be a key to academic success.

Pacheco et al (2023), indicate that to fit the predictive model in the Gretl software. Where the results highlighted the importance of aspects such as study time, age, and the use of AI-based tools, with p-values < 0.001 and positive coefficients indicating a significant impact on academic performance. These findings underline that AI can improve educational strategies, adapting variables and optimizing student performance.

In education AI improves student learning, minimizes teacher workload and helps in various administrative factors, which makes the teacher more focused on teaching and guiding students (Ahmad et al., 2022). The use of this tool can circumstantially impact how academic and administrative staff use their time and how individual students are served.

Students' abilities and intellectual levels vary considerably within the same classroom and it is often very difficult to give the necessary attention to each student, especially in those institutions and countries where budgets are limited and faculty are insufficient. AI applications fill this important gap by providing personalized tutoring.

Adaptive learning and personalized education are also features of AI applications that enable each learner to learn according to his or her mental level and capabilities (Ahmad et al., 2022).

Encountering challenges in different environments is common in many universities, a theme that can occur in inequality in terms of quality in academic teaching or also the inequality that exists within them. Ansor et al (2023), academic inequality, learning preferences, difficulty in understanding lecture material, reliance on AI-based adaptive learning, and willingness to try this technology, a complex and informative picture is drawn. Likewise, a specific trend or preference in the way students learn illustrates the need for diverse learning approaches and necessary adjustments in the presentation of material to accommodate different learning styles. On the possibility that technology can contribute to solving the problem of academic inequality.

In a multidisciplinary field, AI can enrich the education sector, in terms of helping in fields such as statistics and other complex problems where the student does not have a full-time teacher, issues that would demand more costs in their recruitment (Martínez et al., 2023). One of the main contributions of this intelligence is to maximize the benefit of taking education to another level, with the monitoring of the student by creating more personal or group classes. Analyzing evaluations with greater precision, thus leaving time for the student and teacher, generating a more attractive educational level for students.

The use of AI to replace formal exams during the pandemic, but faced negative public reaction. Denes. (2023) AI, specifically machine learning (ML) models, can offer a viable alternative to formal GCSE exams in the context of a selective, independent school. Predictions are accurate ($MAE < 1$ grade). All models explored, including the Ofqual 2020 model, perform comparably well. There are some significant mispredictions, with some grades underestimated by up to 3 or overestimated by up to 4 grades (on a scale of 9 to 1). This indicates that numerical models alone are not yet adequate to replace

public examinations. Future research incorporating individual appeal processes could help mitigate these limitations. Technologies offer valuable tools for more accurate and adaptive educational intervention, promoting more effective learning tailored to every academic need.

Challenges facing AI in educational practice

Artificial intelligence presents important challenges, especially in health research, such as data protection and cybersecurity, where the reliability and integrity of medical information is essential. In this aspect Leon et al (2023), artificial intelligence poses ethical and regulatory challenges, which require transparent decisions and adequate legal frameworks to avoid biases and that care with equity can be guaranteed. Other challenges include guaranteed and equitable access to care and fostering effective collaboration between healthcare professionals and AI systems.

In the field of medicine and radiology, AI impacts the way it is taught and learned. Gorospe et al (2020), AI training should start at the undergraduate stage, be consolidated during residency and maintained throughout the professional's continuing education. This technology poses a number of challenges at all stages of training, from initial education to lifelong learning.

From the perspective of a strategic model, universities must adapt to these changes, facing challenges and opportunities. According to López et al (2024), university education has been structurally modified in many aspects by the integration of AI in processes such as learning and teaching. AI is used in universities to develop deep learning and activate higher cognitive processes, requiring the pedagogical guidance of trained teachers (p. 7).

However, creators of academic content should avoid promoting bad practices. What should be supported is its proper way of use, and not curb, the student's skills in the excessive use of this tool. The excessive

use of AI tools negatively affects the effectiveness of learning activities and raises value issues (Castillejos, 2022),

On the other hand, George & Wooden (2023), evaluate the strategic adoption of this tool in higher education by integrating quantum technologies to improve academic and administrative processes. They highlight benefits such as personalized learning, greater accessibility and operational efficiency. However, they also warn about the risks related to educational quality, job loss, bias, privacy and security.

Emphasizing the difficulties these have in the educational environment, ChatGPT's capabilities to answer questions and create texts, its use in education has sparked research. While some academics fear its potential for academic dishonesty, others, such as PhD students with experience in the military, consider that the use of AI does not constitute cheating or plagiarism (Brent, 2023). Rather than banning AI, it is suggested that the definitions of plagiarism and cheating be adjusted to reflect their integration into education, promoting AI literacy for both students and teachers.

Lack of transparency and oversight. It points out how AI affects key processes in universities, such as teaching and administration, with concerns about loss of skills and privacy. As well as risks to ethics, creativity and critical thinking in students and employees (Ivanov, 2023). Within higher education AI directly impacts the way students teach and learn, added to the technological advances and rapid adoption of these tools. They explore the educational implications and the transformation that institutions experience in an environment where AI is progressively integrated into their processes. Where the challenges faced by universities and students in implementing AI in teaching, administration and student support. It becomes not only a strategy but a malpractice (Duan & Dong, 2023).

If we look at it from a negative ethical term, in careers such as medicine. Inglada, Corral & Miramontes (2024). The risk of dehumanization in medical care. Added to the overreliance on this technology can generate a decrease in person-to-person interaction,

crucial elements in patient care. In addition, biases in AI algorithms can perpetuate inequities in treatment and affect equity in medical care. Lack of transparency and potential vulnerability of personal data also represent significant concerns in the integration of AI in medicine.

Conclusions

The present research highlights the role of AI in university education. It underlines how this tool in operational efficiency became an important tool, personalizing teaching and optimizing educational processes. In addition, it is confirmed that AI, when integrated in universities, contributes to improve academic performance and facilitates information. However, despite its benefits, more studies on it are still needed to know how it impacts cognitive skills and their development.

In relation to the impact of AI in education, it is confirmed that it not only helps automate administrative tasks, but also enables more adaptive and personalized learning. Through the use of data analytics and predictive models, universities can anticipate student needs and respond to them more effectively, promoting greater accessibility and acting as a catalyst for innovation, improving both the educational experience and institutional performance.

On the other hand, the challenges facing AI in educational practice are significant. These include ethical concerns related to data privacy, the potential dehumanization of the educational process, and the risk of algorithmic bias. Also, in many educational settings, barriers such as lack of technological infrastructure and resistance to change need to be overcome. These obstacles must be addressed so that AI is managed in a balanced and ethical manner, preventing its excessive use from harming the development of critical competencies in students.

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Innovation in Business Management through Information Systems: A Strategic Approach to Decision-Making

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Introduction

In today's business landscape, characterized by an accelerated digital transformation, innovation has emerged as a key element to achieve success (Bresciani et al., 2021). Companies seeking to stay ahead must adopt new strategies and tools that allow them to adapt to new market realities, globalized competition and changing customer demands (Ensari & Gürsoy, 2020). Technology has transformed management processes, from production to marketing, creating new opportunities and challenges for companies. Information has become a strategic resource, being essential the ability to access accurate, timely and relevant data to make strategic decisions (Molchanova, 2021).

Driven by technology, digital transformation has profoundly changed the way companies operate, make decisions and interact with their customers. In this context, information systems emerge as one of the fundamental tools in all business management, providing crucial data for strategic decisions that foster innovation and growth (Feroz et al., 2021).

Innovative business management goes beyond simply adopting new technologies; it encompasses a complete transformation process that involves reviewing existing processes, optimizing resources, increasing operational efficiency and creating new business opportunities (Vasilenko, 2021). By providing accurate, timely and relevant information, information systems enable companies to make more informed decisions, reduce risks, improve processes and maximize decision-making efficiency.

However, incorporating information systems into business management is not an easy task. It requires strategic planning, effective change management, and investment in training and information security. Strategic planning involves setting precise goals, determining the needs of the business, choosing the appropriate tools and developing an implementation plan. Change management is crucial to ensure acceptance and successful adoption of new systems by employees. Staff training and education is essential to ensure that they can use the new systems efficiently. Protecting sensitive company data is crucial to protecting information, which requires implementing strong security measures.

Challenges such as resistance to change, scarcity of resources, data security, and compatibility with existing systems confront the adoption of information systems. However, technological innovation in business management offers significant opportunities to improve efficiency, reduce costs, create new products and services, and expand into new markets. Companies that manage to overcome the obstacles and take advantage of the opportunities provided by technological innovation will provide a considerable advantage for success in today's business environment (Zhabin, (2023).

In this chapter, using a strategic approach to decision making, we explore the connection between the integration of information systems and innovation in business management. We will see how efficiency, as well as competitiveness and profitability in organizations can be optimized through the incorporation of information systems. We will present a conceptual model that highlights the importance of

strategic planning, change management and data protection, describing the challenges of technological innovation and the benefits in business management.

It also seeks to provide a comprehensive perspective on information systems and innovation in business management, offering a conceptual model that can serve as a guide for the successful implementation of these technologies in organizations.

Innovation in Business Management: A Challenge in Today's Context

It focuses on how innovative technology influences the improvement of the decision-making process within organizations. Innovation in business management implies the ability of companies to adopt new ideas, processes, products or services that help them increase their efficiency, competitiveness and profitability. In turn, information systems become key tools that facilitate the collection, processing, analysis and distribution of data in an effective manner, which enhances strategic decisions in companies (Torres et al., 2022).

In the current context, companies face increasing complexity in business management due to rapid technological advancement, global expansion and intensified competition worldwide. Lack of accurate and timely information, inefficient processes and difficulty in adapting to new market realities are some of the challenges they face (Judge, 2019).

The increasing complexity of the business environment forces organizations to adapt quickly to change, make strategic decisions based on accurate information, and optimize their processes to improve efficiency and profitability. The challenges faced by companies include the lack of accurate and reliable information, difficulties in analyzing large volumes of data and ineffective internal communication, factors that can hinder effective strategic decision making (Chen, 2023).

Globalization has intensified market competition, forcing companies to seek new ways to differentiate themselves and offer higher-value products and services. Increasing competition imposes on companies the need to constantly innovate, create new products and services, optimize the quality of their processes and offer exceptional customer service.

How can the strategic implementation of information systems enhance innovation in business management and improve decision making? This research question aims to analyze the connection between the adoption of information systems and innovation in business management. It focuses on how these systems can provide accurate and timely data, support strategic decision making, optimize processes, improve efficiency and strengthen the competitiveness of organizations.

It is hypothesized that the strategic implementation of information systems such as ERP, CRM and BI can optimize efficiency, increase competitiveness and improve the profitability of companies, fostering innovation in business management and improving the decision-making process.

This hypothesis is based on the premise that these systems provide organizations with methods to efficiently collect, process, analyze, and disseminate information, which enables more informed decision making, minimizes risks, improves processes, and increases efficiency in decision making (Awulor et. al., 2022).

ERPs are information systems that consolidate the different management processes within a company, such as accounting, inventory, human resources, and supply chain. Adopting an ERP can assist companies in improving operational efficiency, reducing costs, improving information accuracy, and simplifying the decision-making process (Tuli, 2022).

CRMs are information systems designed for companies to effectively manage their customer relationships. The implementation of a CRM can help companies to increase customer satisfaction, increase

customer loyalty, optimize their marketing campaigns and increase efficiency in their sales processes (Kumar, 2021).

BI (Business Intelligence) systems allow companies to analyze large volumes of data to obtain valuable information about their performance. Implementing a BI system can help organizations identify market trends, optimize decision making, refine processes, and increase profitability (Moitas et al., 2023).

The strategic implementation of these systems can improve efficiency in companies by automating various processes, reducing errors, improving the accuracy of information and optimizing the allocation of resources; increase competitiveness as they allow companies to develop new products and services, thus improving the quality of their processes, offer better customer service and adapt quickly to market fluctuations; improve profitability through the help of information systems that allow companies to reduce costs, increase efficiency, improve customer satisfaction and increase sales (Fatieieva, 2020).

The strategic adoption of information systems is crucial to foster innovation in business management and improve decision making. These systems provide companies with tools to effectively collect, process, analyze and distribute information, which facilitates more informed decision-making, reduces risks, improves process optimization and increases the efficiency of the decision-making process.

Research Methodology: A Mixed Approach to Analyzing the Relationship between Innovation and Information Systems

According to the Methodological Process, to address the research question and validate the hypothesis posed, a mixed methodological approach combining qualitative and quantitative techniques was implemented. This approach allowed obtaining an in-depth understanding of the phenomenon studied, as well as analyzing numerical data to corroborate the conclusions (Nair et al., 2020).

In terms of qualitative techniques, an exhaustive literature review of relevant studies on innovation in business management, information systems implementation and strategic decision making was carried out. Academic articles, books, research reports and technical papers from reliable sources such as Sciencedirect, Scopus and Google Scholar were consulted. This review made it possible to identify the main theories, models and practices related to the research topic, as well as current trends in the industry (Ferasso et. al., 2020).

In the expert interviews, semi-structured interviews were conducted with experts in business management and information technology. The experts selected were professionals with extensive experience in the implementation of information systems in different business sectors. The interviews were conducted individually, with a predefined script that included open-ended questions on the relationship between innovation, information systems and decision making (Sousa & Rocha 2020).

In terms of quantitative techniques, company data analysis was used to collect information from companies that have successfully implemented information systems, using efficiency, competitiveness and profitability indicators. Financial, productivity, customer satisfaction and innovation data from public sources, company reports and case studies were analyzed (Khazaei, 2020).

In the statistical analysis, the data collected were analyzed using descriptive and inferential statistical techniques. Measures of central tendency, dispersion and correlation were calculated, as well as hypothesis tests to determine the significance of the relationships between the variables studied.

The results of the research, obtained through the analysis of qualitative and quantitative information, yielded evidence that supports the hypothesis proposed. It was found that the strategic implementation of information systems can generate significant benefits for companies, improving efficiency, competitiveness and profitability (Isaev, et. al., 2021).

As for the qualitative results, according to the importance of information, the experts interviewed agreed on the importance of accurate and timely information for strategic decision making. They emphasized that information systems allow companies to access relevant information about their business, their customers, their competitors and the market in general, which facilitates more informed and accurate decision-making (Santoso, et. al., 2022).

For process optimization, here the experts also pointed out that information systems can help companies optimize their processes, automating tasks, reducing errors, improving efficiency and freeing up time for employees to concentrate on higher-value tasks.

Here the experts emphasized that information systems can drive innovation in companies, facilitating the development of new products and services, improving the quality of processes and offering better customer service.

In terms of quantitative results, we mention efficiency, where the analysis of data from companies that have successfully implemented information systems showed a significant increase in process efficiency, cost reduction and productivity improvement. Likewise, competitiveness, a positive correlation was found between the implementation of information systems and the improvement of the competitiveness of the companies, these have implemented information systems managing to increase their market share, improve customer satisfaction and increase their income. We will also mention profitability whose analysis of financial data showed a significant increase in the profitability of companies that have implemented information systems. An increase in revenue, a reduction in costs and an improvement in profit margin were observed (Tanrısever, et. al., 2020).

The research results confirm the hypothesis and demonstrate that the strategic implementation of information systems can generate significant benefits for companies. The integration of information systems can improve the efficiency, competitiveness and profitability

of companies, driving innovation in business management and improving decision making (Bhima, et. al., 2023).

Navigating Digital Transformation: A Map of Opportunities and Challenges for Business Management.

The implementation of information systems is a key factor in business digitalization, offering both opportunities and challenges that must be carefully addressed. This journey towards digitization is not without obstacles, but at the same time, it provides a platform for growth, innovation and competitiveness. One of the main challenges is resistance to change. When new systems are introduced, employees often feel insecure about the possibility of losing their jobs or the need to acquire new skills (Dengler & Gundert, 2021).

This type of resistance can hinder progress, but can be overcome through effective communication that clearly explains the benefits of the systems and offers adequate training, providing constant accompaniment throughout the adaptation process (Banerjee & Lowalekar, 2021).

Another major challenge is limited resources, as many companies face difficulties when trying to invest in the necessary infrastructure, such as hardware, software and training. However, there are viable solutions to mitigate this problem, such as the gradual implementation of systems or the adoption of open source software, which can be more affordable without compromising quality.

On the other hand, it is important to protect information, as these systems handle sensitive data such as financial and commercial information. Companies must implement robust security measures, such as encryption and authentication, to protect against cyber threats and ensure the confidentiality of their data (Zaharco, 2023).

Also, integrating new systems with existing ones can be a complicated process, requiring detailed compatibility analyses, careful planning for data transfer and, once again, adequate training

to ensure that staff are prepared to work with the new systems. Despite these challenges, the opportunities offered by digitization are undeniable. Information systems automate processes, which brings with it an optimization in the efficiency of operations, a reduction in errors and a more efficient use of resources. This translates into lower costs and higher productivity, which has a direct impact on business competitiveness (Simchenko, et. al., 2023).

In addition, these systems open the door to innovation. The ability to sift through vast amounts of data enables companies to identify trends and market opportunities, which in turn gives them the ability to create products and new services that more accurately meet customer demands. In the context of global expansion, information systems also simplify the management of international operations, enabling companies to adapt to local regulations and improve their communication with international customers and suppliers.

An additional benefit is the ability to personalize the customer experience. Information systems provide companies with accurate and timely data that enable them to tailor their products and services to their customers' preferences, thereby improving satisfaction and fostering long-term loyalty. To make the most of these opportunities, it is essential for companies to have a solid strategic planning that clearly defines objectives, required resources and execution times. This strategy will ensure a structured and effective implementation of systems, minimizing major disruptions to day-to-day activities (Dai, et. al., 2022).

Change management is another crucial factor for success. Companies need to strive to transparently communicate the benefits of the new systems to their employees, providing appropriate training and ensuring continuous support throughout the transition process. In addition, information security must be treated as an unwavering priority, since preserving customer confidence and preventing avoidable risks is critical to data protection. Finally, effective integration of new systems with existing ones will ensure a smooth

transition and allow companies to continue to operate seamlessly, maximizing the benefits offered by technology (Fraboni, 2023).

In summary, although the implementation of information systems presents significant challenges, the opportunities it offers for innovation, efficiency and competitiveness far outweigh the difficulties. Organizations that face and overcome these challenges are in a better position to excel in an increasingly digital and competitive environment.

Conclusions

The study carried out has clearly demonstrated that a strategic implementation of information systems is essential to drive innovation in business management. Accurate and up-to-date information, coupled with high operational efficiency and a strong competitive edge, is key to success in today's fast-moving business environment, marked by rapid technological change, globalization and international competition. Organizations that effectively integrate information systems into their management processes will be better prepared to capitalize on technological opportunities and achieve sustainable growth.

The research has highlighted the main advantages that technological innovation offers to companies, allowing expansion into new markets, creating new products and services, increasing optimization in the execution of operational processes and finally improving customer experience. However, it has also identified the challenges involved in implementing these systems, such as lack of resources, as well as resistance to change, protection of information and compatibility with existing systems.

To overcome these challenges and capitalize on the opportunities, companies must adopt a strategy that includes proper planning, change management, information protection and effective integration with existing systems. Strategic planning enables the definition of clear objectives, resources, timelines and responsibilities,

ensuring efficient and successful implementation. Change management is crucial to ensure acceptance and adoption of the new systems by employees, through transparent communication, adequate training and an accompanying approach during the transition process. Information protection is crucial to safeguard the company from cyber attacks, data theft and other threats. It is crucial to adopt robust security measures, such as encrypting data, authenticating users, protecting against malware and performing regular backups.

That is why integration with existing systems requires a thorough compatibility analysis, efficient data transfer planning and adequate staff training to ensure a smooth and effective transition.

Finally, research has shown that the strategic implementation of information systems is essential to drive innovation in business management. Companies that choose this path must be ready to face the challenges and capitalize on the opportunities offered by technology in order to achieve sustainable growth and enduring success in today's competitive business environment.

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Development of viable R&D&I ecosystems for the transfer of STI in distance and virtual video education institutions

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Introduction

The doctoral research project emphasizes how to analyze the determinants of the development of viable ecosystems of research, development and innovation (r&d+i) for the transfer of research results in Colombian higher education institutions with distance and virtual modality, an aspect that seeks to identify the synergies, entropies, neguentropies, rhizomes, that for an innovation transfer ecosystem according to Monesha, & Ganesh (2023), the starting point is micro networks as a scenario that gives control and sustainability to operations, it is for them that the best networking spaces cohere relationships between peers to seek an effective transfer of research results. Ganesh (2023), micro-networks as a scenario that gives control and sustainability to the operations, it is for them that the best networking spaces cohesive relationships between peers to seek a manifest development, these results show that a result is not so much without its certain niche or community of interest.

The research on viable i d+i ecosystems, recognizes this problem that from Romer's (1986) theory of economic growth, Increasing returns and long-run growth, can be related to the growth of university processes where it is expected that the results of basic, applied, experimental research (i), that directly or indirectly lead to

development (d) or that from product innovation, commercial innovation, organizational innovation, process innovation, or in the achievement of technological prototyping, commercial innovation, organizational innovation, process innovation, or in the achievement of technological prototyping definitions of the Oslo manual (1997) and the Frascati manual (2003) that allow relating the sector and its variants in expenses, investment and economic stakes that lead to proposed solutions of the context of the university reality binding with the territories of influence.

However, a crucial factor in the development of the transfer model is the growth of virtual education, seen as a catalyst what happened in the Covid 19 pandemic that generated new related gaps, according to the report of the Economic Commission for Latin America and the Caribbean (ECLAC) (2020), both ECLAC and the Regional Bureau of Education for Latin America and the Caribbean (OREALCOREALC) and the United Nations Educational, Scientific and Cultural Organization (UNESCO), it is related to how education and the pandemic generated a crisis environment, According to this information, face-to-face activities of educational institutions in more than 190 countries were suspended, but technological mediations were generated to mitigate the educational impact, according to UNESCO data in mid-May 2020, more than 1.2 billion students at all levels of education in the region were affected. By mid-May 2020, more than 1.2 billion students at all levels of education around the world had ceased to have face-to-face educational realities, which increased the number of requests for virtual programs to rebuild the global educational niche.

The Vision of the future to 2050 where education, science, development results linked to innovation and sustainability have an added value that allows according to UNESCO (2021) and that for Makoe, (2022) is established as the future of university education which is given in a rethinking of educational institutions and their teaching and learning modalities, that from the results associated with global perspectives and technological mega trends generate

mechanisms of competitiveness, the invitation to generate a common good that starts from a viable scenario of how to build knowledge and learning centers in network, using the surrounding technology, such realities as related by Acosta, Aguilar-Esteva, Carreño, Patiño, & Martinez, (2020), the change of the educational institutions and their teaching and learning modalities, the change of the educational institutions and their teaching and learning modalities, the change of the educational institutions and their teaching and learning modalities, the change of the educational institutions and their teaching and learning modalities. Martínez, (2020), the technological change associated with the development in a knowledge society, which allows relating new challenges, as related by Lanzarini, Hasperué, Villa ,Reyes ,Corvi, & Olivas (2019) starts from the use of datamining and how to take advantage of Big Data, allowing by generating hybrid and ubiquitous models to achieve the appropriate scope for the consolidation of capabilities in the territories.

It is based on the recognition of virtual university units that manage to dynamize the scientific advancement of hybrid models, a structure that applies with greater coverage and direct data management. For Rizk, (2021) the use of global collaborative data sets that manage to establish direct trends of economic management, articulate the technological artifacts available by area to identify communities of interest, groups, professionals and researchers with a direct value on common information, for Rizk in 2050, there will be new dynamics and models that enhance higher education, their ways of researching, their styles of generating knowledge, but giving value to intangibles that will be tangible, the management and preservation of rights, the use of legaltech, fintech, multilingualism in remote areas, the new form of decision making, partnerships, for Downes, Brennan, Williams, & Dean, (2016) it is necessary to develop partnerships in research and project development and strengthens international collaborative research between institutions around the world, thinking in a globalized world, from the futuristic vision, where the first scenario is given from the Open Higher Education (virtual information, open source, Mooc, internationalization of research and curriculum, the

second scenario the networked learning centers enabled by technology, which start from a common development, the third scenario the ecologically sustainable higher education, which not only corresponds to what is investigated but how it is transferred, the last of them the scenario 4 where higher education driven by the development that participates in a helix that manages to link the state, business, university and community.

One aspect highlighted by Ariza (2020), the analysis of the axes of successful experiences in developing countries, these allow the articulation of the actors that make up the regional innovation ecosystem of Santander Colombia, which can be taken as an example to recognize the agro-industrial scenarios, the form of linking the company and the state, which articulated from the development plans, and strategic plans for science, technology and innovation (PECTI) of each department that establishes its mechanism for intervention and participation, This scientific and technological development, which anchored to the territorial clusters, achieve that they are consulted in the organs arranged in the artifact of innovation as the departmental council of science, technology and innovation (CODECTI) that account for how the improvement of the quality and coverage of higher education, public, private investment derived from the actions of r&d seeking the unification of efforts from the company.

According to Merino (2020), by modeling a functional analysis for the productive sectors and university interests, it is possible to generate alliances and agreements that allow joining efforts to create spaces for development, what was done in Madrid Spain can become a determinant from the pros and cons of implementing viable R&D&I ecosystems, that by recognizing the political, economic, social, technological, legal, environmental or ecological PESTLE factors make the dialogue to be recognized as an element of decision making, these relationships of the innovation ecosystem of the Community of Madrid, has made use of the platforms of leading publications in the world, which are based on scientific dissemination in databases such as Scopus and Web Of Science, and which, based

on the use of metrics such as the SCIMAGO ranking, achieve a regional sectorization by areas of knowledge and dissemination of countries that have a close relationship with the research results generated but which are focused on economic development, these global innovation indicators such as those presented in the GII, which are sources of information that make it possible to feed the ecosystem and show its dynamism, through the different relationships existing between the actors and scientific publications, which has made it possible to transform the data obtained from scientific publications.

However, as established by Vela, Pasquel, Rodríguez, Cerna, Bartra, & Vecco (2022), that a diagnosis should be made on how to improve the practice of R&D&I ecosystem development. Vecco (2022), which starts from a diagnosis that gives an account of how to improve the practice of i+d+i ecosystem development, relating as an example of the National University of San Martín, which achieves an added value from the management of research, technological development and innovation (I+D+i) in the UNSM, this shows remarkable progress in recent years, which allows a continuous evolution of management indicators and research results, as well as direct articulation with the productive sector, which establish the contextualized determinants for information management.

According to Coloma, Dueñas, Arratia, & Salfate, (2022) the application aspects of i+D+I indicators for Chile, identify how the educational research results that are part of the articulated efforts with the sectors account for the progress not only in educational quality, is to change the paradigm in the way research results are presented, seen from the curricular integrality, which are learning results in line with the training levels, which allow seeing the educational progress not only in school coverage close to one hundred percent and ensure the provision of the service for all its children and young people, which manages to establish an approach to the institutional profile, which indirectly impact on the best educational results in Latin America in standardized tests, for (Bos et al., 2016), although it is still far from the performances of other countries of the Organization for Economic

Cooperation and Development (OECD), the Chilean system establishes models of perception and direct thematic qualification this model attends to the year 2019, to 816.462 students, ranging from six months to six years of age, who in sequence

The so-called by Salviati (2022), the recognition of the university-based entrepreneurial ecosystem, a triad recognized as the university, the company and the state, which raises the question: What factors are key to generate a university entrepreneurial ecosystem? the elements that account for the process of entrepreneurship and its relationship with the bets of students where it is proposed to delve into the concept of university entrepreneurial ecosystem and identify the main factors that generate it, from an exploratory and qualitative study, in a review study in Scopus databases, ScienceDirect and EBSCO that establishes six key factors that generate a university entrepreneurial ecosystem, highlighting the strategic commitment and institutional entrepreneurial culture, the allocation of resources and training in entrepreneurship, always seeking to relate the social impact and vital extension for the case study that seeks the determinants of viable R&D&I ecosystems for the transfer of university results.

For Hernandez, Rivas, & Alba (2022), on the development of ecosystem models of R+D+I , which are developed but with a social political approach, which in Chile manifests with the results from science and technology, its associated value, the role of production and human development, which are directly proportional to the scientific production is there where companies and of the countries that have better inserted into the global market, as seen in the study of Sokolov-Mladenović, Cvetanović, & Mladenović, (2016), research and development have economic growth for periods of analysis that account for crucial areas to define the path of research, experimental development and innovation (R&D&I) are concepts that are usually analyzed separately, cross-contamination of information should be avoided, these terms have become conceptual benchmarks of technological change and economic growth because of their

relevance and comparability at the international level in all areas of knowledge.

Aspect that in Mexico, has been provided with a specialty character that when establishing its analytical sees how unfavorable results from research and experimental development, which refers to the technological and productive processes, the value of how countries, relate the value of universities and challenges, it is crucial the role of most international reports that usually measure research and experimental development (R & D, for its acronym in English), according to the standards established in the Frascati Manual (OECD, 2015), the scenarios establishes methodological moments that also in the Oslo Manual (OECD, 2005), the scenarios establishes methodological moments that also in the Oslo Manual (OECD, 2005), is crucial.D, for its acronym in English), according to the standards established in the Frascati Manual (OECD, 2015), the scenarios establish methodological moments that also in the Oslo Manual (OECD, 2005), enriched varieties of their transit moments are established, their relationship that from the generation of added value, according to Garcia (2018), the management of working on unsolvable problems, starting from how solutions based on software as a service for the implementation of educational technological ecosystems are integrated, it starts from knowledge management that emerges as a competitive advantage in such a way that entities dedicate part of their resources to develop their ability to share, the scenario of the determinants of technological ecosystems, considered as the evolution of traditional information systems, which relates the need to be able to establish new moments of development and organizational change.

Each scenario involves technological models that apply in research, achieving dynamic development always relating the elements of competitiveness, this that from political and educational models for knowledge management and learning deployed in heterogeneous contexts, in particular, the University of Salamanca, the research group GRIAL and the European project TRAILER (focused on

managing informal knowledge in institutions and companies), detected the use of a series of characteristics that a technological ecosystem must have, and an architectural pattern has been defined that allows laying the foundations of the ecosystem, providing solutions to some of the problems detected and ensuring the flexibility and adaptability of the components of the ecosystem in order to allow its evolution.

For Bermeo (2022), from the management and understanding of what is to transfer innovation and that takes as a basis the research results, without recognizing the market through system dynamics, the study relates as the contribution to the understanding of the process of transferring research results to the market using as a case study from the Faculty of Mines of the National University of Colombia and presenting, a characterization of the general problems of the University regarding the lack of formality of the transfer process, the identification of the actors involved and the necessary stages for its successful development, the initial methodology from a literature review through a bibliometric analysis and an analysis of the case study of the Faculty of Mines for the determination of the causal links and interactions of the process.

According to Meza-Bolaños, (2019) a model can be recognized to estimate the social impact of the use of learning ecosystems in universities, where from the economic and organizational efforts of social adaptation, which include the curriculum as the use of technologies and trends such as e-learning, b-learning, flipped learning, through strategies such as project-based learning, cooperative learning, the learning process is immersed in what is called a technological ecosystem in which methods, policies and teams of people coexist, all related through technological tools, each element of a technological component involves the associated value between the university, the company and the state. For Rogers (2003), this process is divided into five stages, which highlight the five perceptible characteristics of innovation. These stages begin with the search for information by the decision-making unit, which seeks to

reduce the level of uncertainty associated with the appearance of an innovation. Subsequently, the entity will generate a perception of the innovation itself, generating a decision to either adopt or reject the novel solution. After implementing the decision taken, it will be confirmed by comparing the results obtained with the perceptions developed in previous stages.

With respect to the innovation adoption process, Rogers (2003) suggests that some people or organizations are more open than others, reacting very differently and assuming different positions and attitudes towards it. Rogers (1995) proposed a classification of categories of innovation adopters based on innovativeness, which is the degree to which an individual or other adoption unit is relatively earlier in adopting new ideas than other members of a system. This classification, which follows a normal distribution, presents ideal types of adopters of innovations based on the results of empirical studies, which implies that it constitutes a basis on which a set of variations can be presented.

Development of the research

The research carried out in Quantitative Methodology (explanatory), where the instruments used are: Diagnostic Matrix of CTI Actors linked (MINCIENCIAS), Matrix of documentary review developed for the model (Systematic Review Matrix), direct interviews (structured), focus group. We sought to propose predictive models of the variables through a multivariate analysis, starting from principal components (determination of the model, analysis of correlation structure), we will work with Bartlett's sphericity test, Kaiser-Meyer Olkin's adequacy test and structural equations model. Propose predictive models of the variables through a multivariate analysis, starting from principal components (determination of the model, analysis of correlation structure) we will work with Bartlett's test of sphericity, Kaiser-Meyer Olkin's test of adequacy and structural equations model, structural equations model, we worked

with analytics supported from Power BI, Python, R Studios, Tableau.
Quantitative explanatory Non-experimental correlational.

Table 1.

Methodological deployment with indicator variables and magnitude, source: Researcher 2023

Analysis category	Variables or elements of measurement	Type (Quantitative or qualitative)	Methodology (explanatory)	Magnitude
CA1. Innovation, CA2. Competitiveness,	Organizational Capacity (C1.1. management support, C1.2. external advice, C1.3. work team, C1.4. space, C1.5. organizational structure, C1.6. legaltech), sources of funding (C2.1. 6. legaltech), sources of financing (C2.1. financing partnerships, C2. 2. equity financing, C2. 3. financing with public funds, C2. 4. financing management, C2. 5. relationship networks, C2. 6.successful transfers),	Quantitative explanatory Non-experimental correlational	Diagnostic Matrix STI Stakeholders linked to Documentary review matrix developed for the model Direct interviews (structured), focus groups, focus groups, etc. Propose predictive models of the variables through a multivariate analysis, based on principal components (determination of the model, analysis of the correlation structure) using the Bartletty sphericity test, the Kaiser-Meyer Olkin adequacy test and the structural equation model.	Recognition of the R&D&I capabilities and determinants of each targeted university (specific determinants by category of transfer of results)
	IP management (C3. 1.			

CA3.Technology transfer, CA4. Knowledge management	knowledge management, C3.2. incentives for innovation, C3. 3. Innovation management model, C3.4. IP policy, C3.5. Valuation of intangible assets, C3.5. Technology watch), protection of intangible assets (C4.1. protection strategy, C4. 2. technology negotiation strategy, C4. 3. methodologies for identification, C4. 4. bioprospecting processes, C4. 5. transfer process) organizational capacity (25 variables) identification, preparation and protection of intangible assets (25 variables) sources of financing (25 variables) tools or instruments to promote intellectual property management (25 variables) total variables 100	Quantitative Descriptive correlational	Propose predictive models of the variables through a multivariate analysis, based on principal components (determination of the model, analysis of the correlation structure) using the Bartlett sphericity test, the Kaiser-Meyer Olkin adequacy test and the structural equation model.	Analysis of results to promote systematic ecosystems according to correlation (levels A (basic or standard), B (intermediate or interconnector), C (high or sustaining) according to scope).
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Identification of the existence of intellectual property management processes and organizational maturity to address innovation.	Quantitative	structural equation model	Structuring equation models applied to viable R&D&I ecosystems for the transfer of research results in universities. (application indexes, variability index, adaptation index)
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Source: Authors, 2023

3. Results

The first respective advance is given from the analysis of the systematic review based on the scientific production of a focused higher education institution, table 02 establishes the parameters for the selection of this focused information.

Table 2.

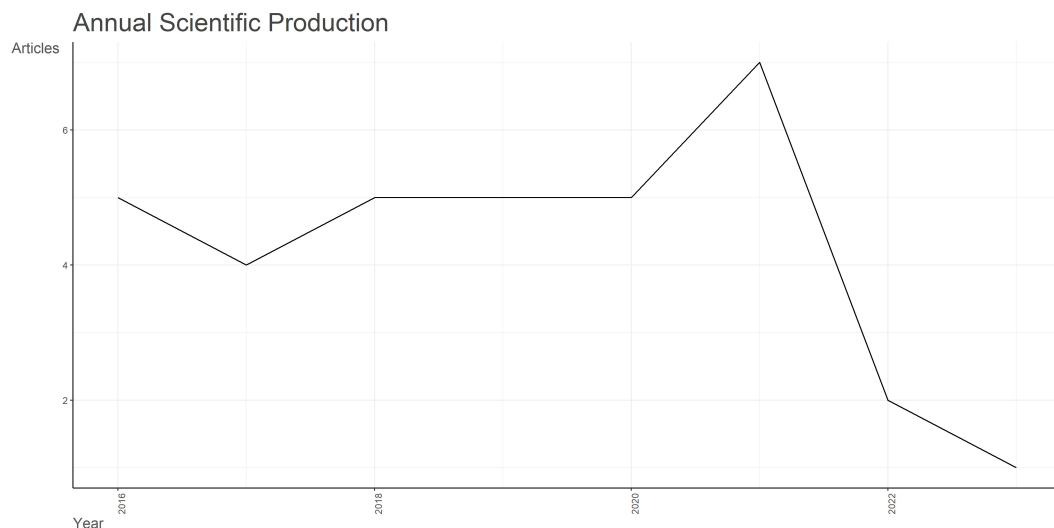
Systematic review selection mechanisms, source: Researcher 2023

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2016:2023
Sources (Journals, Books, etc)	12
Documents	34
Annual Growth Rate % Annual Growth Rate % Annual Growth Rate % Annual Growth Rate %	-20.54
Document Average Age	3.97
Average citations per doc	1.853
References	1
DOCUMENT CONTENTS	
Keywords Plus (ID)	367
Author's Keywords (DE)	149
AUTHORS	
Authors	91

Authors of single-authored docs	1
AUTHORS COLLABORATION	
Single-authored docs	1
Co-Authors per Doc	3.53
International co-authorships %.	20.59
DOCUMENT TYPES	
article	6
conference paper	28

Source: Authors, 2023

Graph 1. Annual scientific production source: Scopus 2023 - Language r biblioshyni.



Source: Authors, 2023

Something important to highlight is how university institutions link elements to achieve the best results according to their potentialities, this shows a respective analysis per year in high impact databases Scopus and Wos, logically starting from a respective analysis from intermediate databases that show a mediated process with relative construction of increase of publications in new knowledge.

Table 3.

Systematic review production ratio, source: Scopus 2023 - Language r biblioshyni.

Year	Articles
2016	5
2017	4
2018	5
2019	5
2020	5
2021	7
2022	2
2023	1

Source: Authors, 2023

For the study carried out, it is relevant to account for a growth that is adapted from the viewpoint of an institutional political framework anchored to strategic bets that involve a change of mentality in the way knowledge is transferred based on innovative mechanisms of dichotomous bets between investment and its development bet.

Table 4.

Systematic review percentile impact factors, source: Scopus 2023 - Lenguaje r biblioshyni.

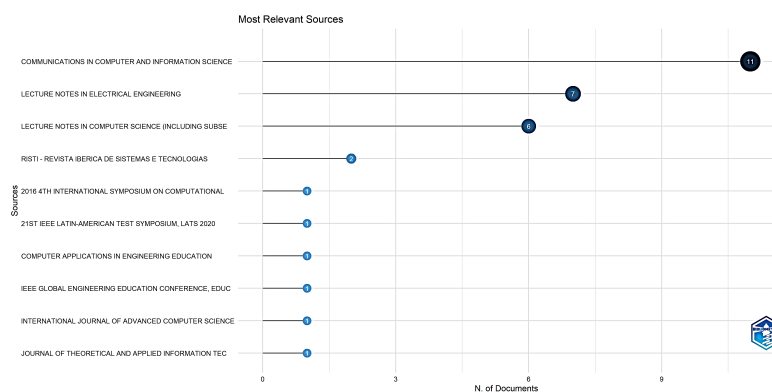
Year	MeanTCperArt	N	MeanTCperYear	CitableYears
2016	6	5.00	0.75	8
2017	0.25	4.00	0.04	7
2018	4	5.00	0.67	6
2019	1.6	5.00	0.32	5
2020	0.4	5.00	0.10	4
2021	0.14	7.00	0.05	3
2022	0	2.00	0.00	2
2023	1	1.00	1.00	1

Source: Authors, 2023

Recognizing the impact of publications and their impact factor relates to how to achieve the best practices of searching for journals that achieve the best distribution of contents and forms of knowledge performance.

Graph 2.

Resources and journal most relevant to the results of the target institution source:Scopus 2023 - Lenguaje r biblioshyni.

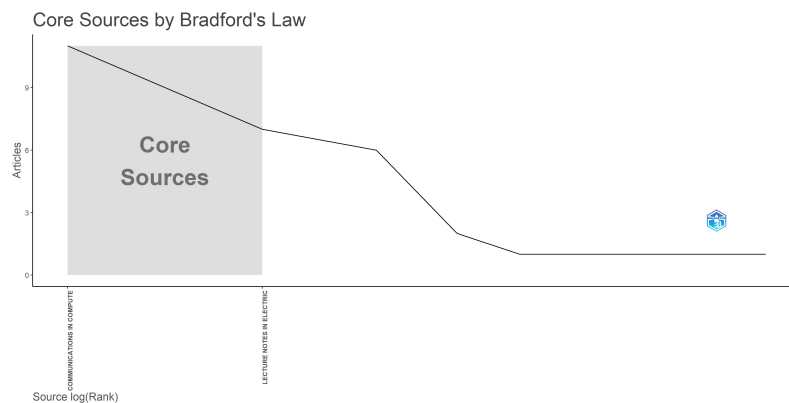


Source: Authors, 2023

If the application of Bardford's Law is recognized, the correlation between growth is in two ways, this as a mechanism of appropriation should relate new routes of associated work that involve more work mechanism.

Graph 3.

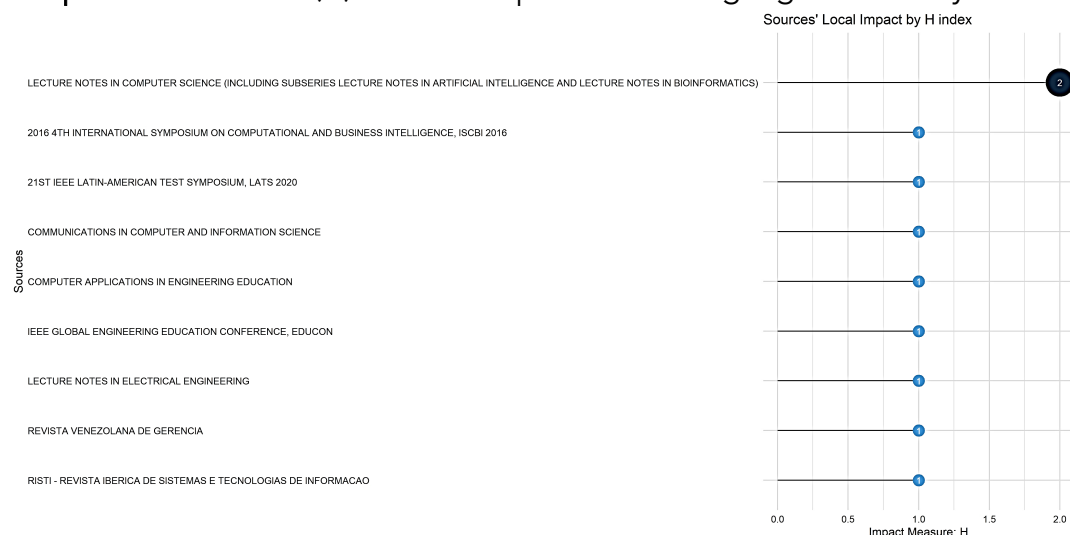
Bradford's Law spatial location source:Scopus 2023 - Language r biblioshyni.



Source: Authors, 2023

The linkage from the production level with the H index as a space for articulation involves that at the moment of incorporating a capstone model that shows which are those institutional bets to strengthen the results to be transferred, the administrative precedents are involved graph 05. that establish links of positive experiences in them.

Graph 4. Hirsch Index (H) source:Scopus 2023 - Language r biblioshyni



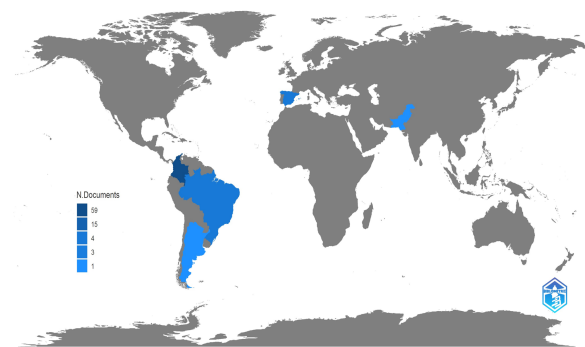
Source: Authors, 2023

La vinculación desde el nivel de producción con el índice H como espacio de articulación

Recognizing the installed capacity where indicators such as the trajectory and sustainability of the production of new knowledge are recognized also establishes new ways of exercising leadership in consolidated geospatial groups for R&D&I management.

Graph 5. Authors and level of production contribution over time
source:Scopus 2023 - Language r biblioshyni

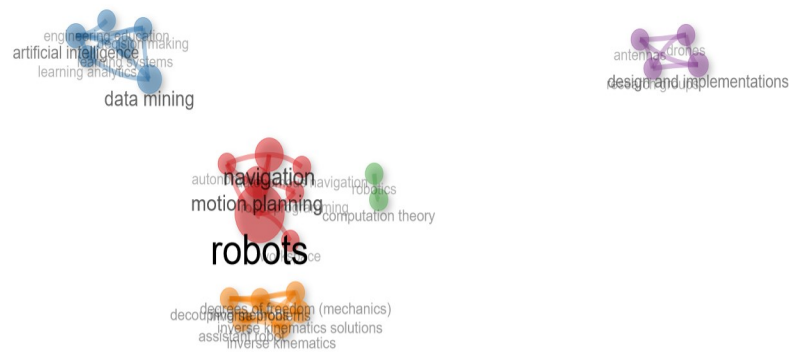
Country Scientific Production



Source: Authors, 2023

An important element of viable R&D&I ecosystems is to identify not only with whom the company cooperates and collaborates, see Graph 05, in research developments, but also where the recurrent production is located in order to recognize the impact that can generate applications by key sectors, as well as countries where there is already a precedent of publications.

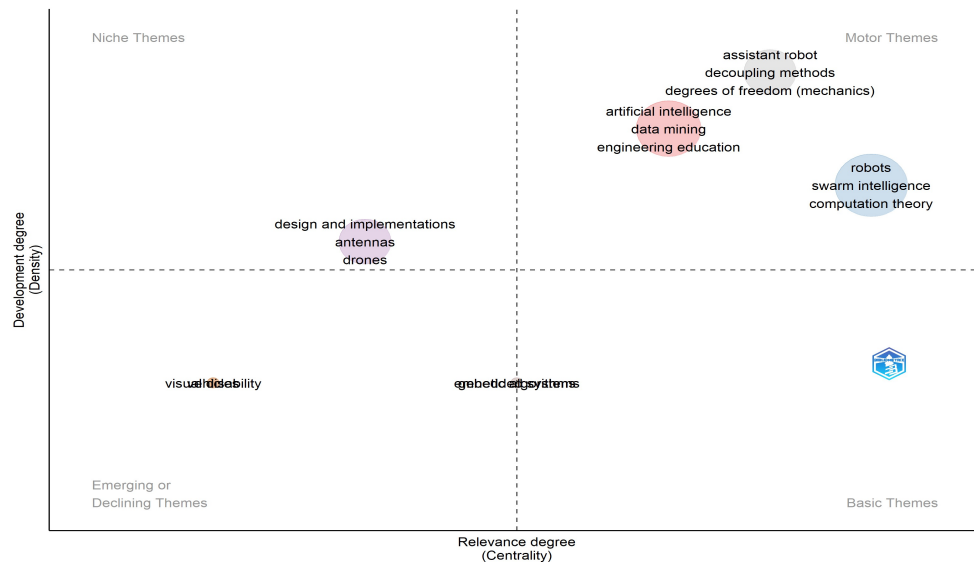
Graph 6. Conceptual networks of the generated production source:
Scopus 2023 - Lenguaje r biblioshyni.



Source: Authors, 2023

When a viable R&D&I ecosystem for transfer identifies that its achievements are established from specific topics, this involves the recognition of Science, Technology and Innovation (STI) actors, because through its knowledge networks, graphs 6 and 7 show how the case study emphasizes design and implementation processes logically starting from the LRTs and their timing.

Graph 7. Coupling processes by levels of development and applied topics source: Scopus 2023 - Lenguaje r biblioshyni.

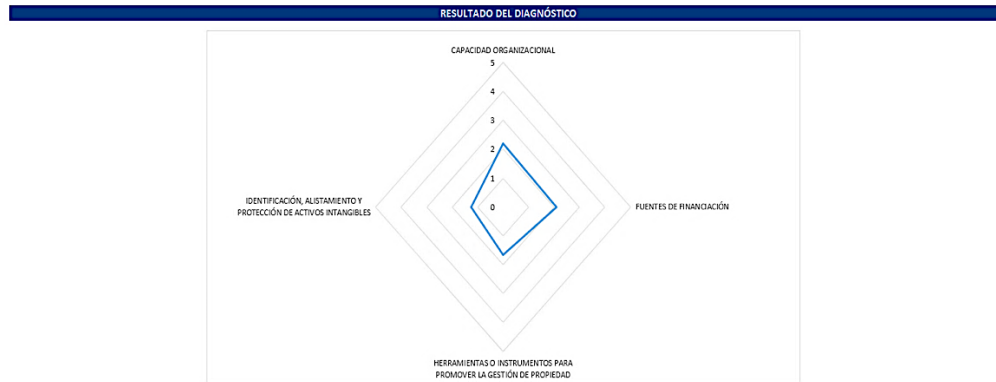


Source: Authors, 2023

The analysis of which is the sector, application niche will allow a viable ecosystem to determine the collaboration spaces, central themes, aspects and trends that account for the generation of new R&D&I projects.

It is crucial to determine that a significant contribution is given from the recognition of the capabilities and determinants in R&D&I of each focused university (specific determinants by category of results transfer), this allows that through the didactic transposition a look at the applied development is given.

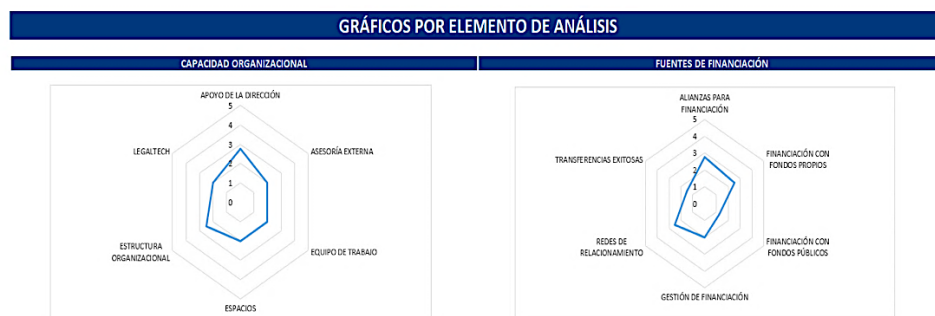
Graph 8. Result of the recognition of actors 4 components, source:Scopus 2023 - Language r biblioshyni.



Source: Authors, 2023

It is important to highlight that there is a direct relationship as shown in graph 15. The organizational capacity that accounts for necessary elements such as policies, guidelines, recognition that achieve in the generation of external data search that should be considered as transit elements, not having internal support sometimes limits the transcendence aspects of a model for the transfer of r&d+i results, but it is also complemented in the model of identification of intangible assets such as instruments that guarantee the protection of intellectual property.

Graph 9. Organizational capacity analysis, source:Scopus 2023 - Language r biblioshyni.



Source: Authors, 2023

Which are generated model of structuring equations applied to viable R&D&I ecosystems for the transfer of research results in universities,

model type A, model type B, model type C, considering times, context and spaces of research maturity levels or level of research maturity MRL associated with the TRL technology maturity levels or Technology Readiness Levels (TRL). (application index, variability index, adaptation index). When suggesting the use of capstone as a tool that catalyzes the process of intellectual property management applied to each institution on which the work is granted where a strategic plan is presented for the consolidation of viable R&D&I ecosystems for the transfer of results, the starting point is to identify knowledge management as not only a curricular action but also as an integrating element of the 4 helix, university, company, state and community, which is recognized in its IP policy, where it is transferred from global elements but with a local approach, but that from the identification, negotiation strategy provides routes that are considerable in the aspects of participation of research results. As well as the identification of international allies for the generation of international internships with a secondment look of researchers, where the recognition of partners associated to development will be sought.

By recognizing a viable ecosystem of Social Impact, it is possible to establish the effects of the existence of the social impact on the development of viable ecosystems for the transfer of STI in universities, such as its role from the university social responsibility without ignoring the impacts from the political framework, as well as the political impact: Where by establishing the effects of the existence of political, legal factors in the development of viable Ecosystems for the transfer of CTI In the Universities and their transfer (legaltech, Fintech) that manage to associate an Economic impact : to establish the economic effects in the development of viable Ecosystems for the transfer of CTI in the Universities and their future projection from the prediction of indicators that present articulation in tangible results.

Graph 10. Result of the recognition of actors 4 components, source: Scopus 2023 - Lenguaje r biblioshyni.



Source: Authors, 2023

The research starts from the recognition of the research results that manage to account for the learning outcomes where the R&D&I activities are articulated, this correlated with the products resulting from the research development as a contribution to the graduate profile where it is sought that from senior management positions (CEO, CFO, General Director, President), This allows leading and executing business intelligence and analytical programs oriented to business and organizational transformation, which as an orientation provides a support for the research bet, representing viable R&D&I ecosystems from the application of the capstone through Business Consulting, which starts from complex problems related to the organizations where research has its main emphasis. A contribution to the field of knowledge of innovation and technology in the search and identification of innovation management tools in the social and business environment, in the topics of innovation and competitiveness, business innovation and in the organizations, as strategic axes this articulates directly and indirectly in the declared CTI actors where each university Institution has a gear ready for its potential value, of change and of association to competitiveness from the results to be transferred.

It is recognized that viable ecosystems are directly associated with SDG 4; Quality education, research, research and development, seeking to promote developments from the basis of R&D&I results that, when consolidating viable ecosystems, link the triad university,

business and state, with actors such as students, teachers, researchers, institutions, centers, institutes, universities and communities.

What research contributes to science (according to the state of the art). In the strict sense of compliance, the dimension of the project establishes as a first approach the recognition of the capacities and determinants in R&D&I of each focused university, this as an example to achieve repercussion in HEIs of equal or similar condition (specific determinants by category of transfer of results), then the analyzed elements are recognized to promote systematic ecosystems according to correlation (levels A (basic or standard), B (intermediate or interconnecting), C (high or sustaining according to scope), which will allow the modeling of structuring equations such as the modeling of the structural equations as a result of the results of the project, B (intermediate or interconnector), C (high or sustaining) according to scope), which will allow the modeling of structuring equations such as the confirmation model of viable R&D&I ecosystems for the transfer of research results in universities, and the application indexes, variability index, and adaptation index are proposed.

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A pedagogical proposal for training the police intervention system as a contribution to coexistence and citizen security applications from the audiovisual perspective

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Introduction

According to Mazerolle, Eggins, Cherney, Hine, Higginson, & Belton, (2020) in the study entitled . Police programmes that seek to increase community connectedness for reducing violent extremism behaviour, attitudes and beliefs, relates how the police can play a role in countering violent extremism by disrupting terrorist plots and working with communities to identify individuals at risk of radicalization. Police programs to counter violent extremism can include a range of approaches and partnerships. One approach is to improve community connectedness by working to address social isolation, belonging, economic opportunity, and norms and values that may lead individuals to support or endorse violent extremist causes and groups. The National Police has as its constitutional mission the maintenance of the necessary conditions for the exercise of public rights and freedoms, and to ensure that the inhabitants of Colombia live

together in peace, from this perspective the police training centers must ensure that the human talent of the institution possesses the competencies from its three components: knowing (knowledge), being (attitudes, principles and values) and knowing how to do (skills and abilities), being these competencies necessary for them to ensure compliance with the legal mandate.

To enter into the logic of dialogue begins with a change as seen by Li, (2021), from China's New World Order: Changes in the Non-Intervention Policy relates the value of the police function requires the application of existing regulations regarding the conduct of citizens in a given social context in order to ensure the conditions of security and citizen coexistence, it is important to inquire about the actions of some police officers where there is evidence of an inappropriate use of force as a mechanism to guarantee rights, This situation focuses attention on the education and training of police officers in order to identify teaching procedures in the application of the legitimate use of force from a perspective of respect for human rights, but with a rationale of agreement and coupling.

It is necessary to consider that the concept must first be approached from a holistic and systematic approach recognizing the context in which it is developed for Sanborn, (2022 in the work on A cognitive psychology of mass communication, it is established that by recognizing a communication that strengthens the value associated between peers and how each stratum provides its rules, for this reason it was intended to inquire about the teaching-learning process of the police intervention system, as part of the training, in order to have a comprehensive understanding of the phenomenon in an institutional and normative context, which allows to glimpse the impact of this construction in the professional practice of future police officers. For this purpose, different theoretical references were used to show how learning is constructed and evaluated within a police training space and to advance in the knowledge of the influence of pedagogy and didactics towards the construction of a model that favors the learning of the use of force in an adequate manner.

It should be noted that each of the problematic nodes to be addressed must be combined, in the understanding that it is required to have a systemic view of the police training process, which ensures a contextualized knowledge not only from the programmatic content, but from the teaching practices that strengthen the reflective learning of students allowing them to make decisions adjusted to the regulatory framework that supports the police function, Grewal, (2016) in the research from *The socio-political practice of human rights: Between the universal and the particular*, is to understand the dynamics of police training around the proper use of force allows to establish intervention strategies at the institutional level that generate an evaluation from the practice of the police intervention system, This guarantees the proper use of force by police officers and respect for human rights in order to establish a more appropriate social link between the citizen and the police, since authority is not only built from the legitimization given by the state, but from the perception of the establishment of a social link where asymmetrical relationships are built to give meaning to police work and lead to obedience to authority.

According to Armao, (2016) it should be ratified from *Inside war: Understanding the evolution of organized violence in the global era*, which makes part of the optics the research aims to account for an educational mechanism that allows to efficiently evaluate the competence of officers in terms of learning the proper use of force, through the training of the police intervention system, where it is necessary the implementation of an educational strategy that allows the student throughout their education and training, to know and develop capabilities, based on their emotional intelligence, thus contributing to the strengthening of their police competencies, enhancing knowledge from their psychological and cognitive part, thus improving the service offered to the citizen by the institution, positively impacting our external customer, which for the case study is the community, which through the improvement in service, will improve the negative perception it currently has towards the institution.

For Zartman & Vukovi, (2023) to re-establish the processes the Rethinking Conflict Resolution and Management, where the established knowledge and practice of conflict resolution and management is reviewed, brings together complementary perspectives to consider what new approaches to conflict should be invented after the collapse of the World Order. Thus, the project emphasizes the central purpose of updating the police intervention system, through the reorientation of the pedagogical practices of training and coaching for police professionalization, in search of improving coexistence and citizen security from the police activity and service. Taking the methodological contextual elements that accompany this research, and highlighting the social, institutional, ethical and personal dimension of police intervention as a guarantor of the fulfillment of human rights, it is necessary, for this section, to delve into the three theoretical pillars on which this intervention is based: 1. from social constructionism, 2. from the theory of social reliability and 3. from social bioethics.

Social constructivism as an approach, which has had a very significant progress for sociology and social psychology (Gosende, 2001), had a very prominent development within postmodern thought (Agudelo Bedoya & Estrada Arango, 2012), which was characterized by abandoning the dualistic stance between the world and the individual, redirecting the debate towards a sociolinguistic look (Magnabosco, 2014). Additionally, in the framework of the construction of this paradigm, the concept of "truth" enters a crisis since it is claimed that they are absolute, taking a distant position with positivism, but rescuing the foundation of observation as a source of knowledge (Gosende, 2001), which allows the opening to paths supported from the complexity, characterized by diversity, intersubjectivity and plurality (Barbosa, Motta and Resck, 2015).

Starting from this stage of evolution, in the continuous rescue of the value of the social as a scenario for the formulation of new interventions that contemplate the human being as a complex and integral category, the constructionist approach allows to give this

positioning to the multiplicity of being, surpassing reason, to enter other orbits of discussion, such as, for example, the emotional component, and how these conditions affect the interactional dynamics of being. Moreover, by recognizing the fundamental value of language in the dynamics of human interaction, complexity comes to the surface by its very nature.

This is why, for constructionists, information from a context, from a historical moment, from some characters (for example), are relevant for their analysis, moving away from metatheories and affirmative universalisms (Agudelo Bedoya and Estrada Arango, 2012), allowing the fabrication of new narratives and the understanding of experiences (Magnabosco, 2014).

Having as a background the role that social constructivism had in its beginnings as a new paradigm (Gosende, 2001), it is worth remembering what Magnabosco (2014) stated in this regard, when he enunciated that Social Constructionism is considered a movement that aims at the discussion of an ethics and a relational policy, existing in the family group and in other groups. Its ethical dimension emphasizes the importance of social relations as a space for the construction of the world (p. 225).

In other words, social constructionism, as a different and complementary way of understanding the social world, far from the hegemonic model of positivism, allows to create a dialogue between social knowledge to dimension the complexity of being and of the systems in which it is immersed. This critical and complex reading opens the horizon to write, the importance of differential values to analyze reality from observation, as a tool for social and scientific construction of knowledge. Moreover, this paradigm enters into debate with classical models regarding the explanation of some psychological categories, such as, for example, emotions. As stated by Gosende, 2001), "Social constructionism proposes an approach that criticizes the most traditional and hegemonic theories of emotion" (p. 113) (a theme that will be developed later).

This theory seeks to explain the different relationships that are built between citizens and authorities in the framework of public safety (Carreón, Hernández, Morales, García and Bustos, 2014). This theory states that trust towards authorities is built from community scenarios, but not in scenarios that do not involve direct contact, such as, for example, from the public policy framework, from citizen observatories, among others (Carreón Guillén and García Lirios, 2013). When these relationships are not appropriate, one of the visible consequences generated by social reliability in the dynamic relationships between the individual and the authorities has to do with the development of emotions, affections and negative feelings (Carreón Guillén and García Lirios, 2013). Similarly, when the context generates uncertainty, the value of the response initiative is enhanced to minimize the social, economic and ecological impact (García Lirios, 2014).

In this sense, using the term "social reliability" directs an argument towards a permanent construct and not of interrupted order, since it is supported by a set of beliefs and dispositions conducive to authority, without falling into authoritarianism (Martínez Andrade, García Lirios and Mejía Rubio, 2017). That is why Carreón Guillén and García Lirios (2013) stated that "social reliability is an affective process in which individuals place their trust in those who represent them and make public decisions for them" (p. 5) that is why in the reciprocal constructions that are generated between the individual and society, the value of the different institutions that promote these relationships is highlighted, one of them, is the National Police.

To talk about ethics is to enter into those cold, boring and even tense debates in the social dynamics that academia currently offers. However, this term goes beyond a master class or a subject. It involves a human, political, social and professional posture in the face of the changes that challenge human beings in the continuous transformations of contemporary society. There is no doubt that the changes that societies have undergone during this century have marked humanity, evidencing a dehumanization in social relations and

elevating them to categories of analysis that did not go through human rationality, such as, for example, the inclination towards individuality and not collectivity, the "addiction" to technology and not its own existence. To talk about these issues (among others) is to talk about ethics, about the social responsibilities that human beings have with themselves and with others. As stated by Pérez Tapias (2019) "the unfinished human existence is located between hominization through the evolution of the predecessor species of Homo sapiens and humanization as the what-doing of the species and its members" (p. 13). This humanization is the one that humanity itself demands in order to propose a way of life that involves this fundamental right in all its dimensions. That is when bioethics takes a leading role to enter into interdisciplinary dialogues to confront the existing humanity. As mentioned above, one of the challenges facing humanity today is individuality. As stated by Scatolini (2012), society today is no longer collective but individualistic, marked by the strong tendencies inherited from the enlightenment (use of reason). In the face of the exorbitant use of reason as a valid anchorage to know the world, the existence of other sources of knowledge was erased from the human radar, which, in spite of having been ignored, in recent times have been taking on a fundamental role to know the complexity of human beings and their relationship with the world. These new ways of approaching other human dimensions have made it possible to open scenarios of dialogue to confront the crises that the species is experiencing in its *modus vivendi*. As stated by González Valenzuela (2017) "construction of new forms of inter-human relationship, contrary to violence, sustained by compassion, altruism, respect, love, justice, freedom, peace" (p. 139).

The activity in question was carried out using information and communication technologies, therefore, once the day was recorded, the file was downloaded and a transcription was made of the different interventions made by the participants in the event from each role assumed (rapporteurs, moderator and thematic experts), after which the information collected was systematized. Based on the information collected, inferential reading is carried out to identify the terms that,

due to their meaning and relevance in the research process to be developed, allow establishing a route towards the definition of the police intervention system, and then proceed to systematize the information collected in order to define categories of analysis. Thus, some terms are listed and frequency and weight are determined in order to define categories of analysis, as shown in the following tables.

Table 1. Educational component

N°	PALABRAS	FRECUENCIA	PESO	(C*D)	CATEGORÍA	C. EMERGENTE
1	Instructor	18	2	36	C1	C1E2
2	Entrenamiento	111	2	222	C1	
3	Fuerza	2	1	2	C1	
4	Estandarizar	4	1	4	C1	C1E3
5	Prueba	4	1	4	C3	C3E2
6	Límites humanos	3	2	6	C3	C3E2
7	Procedimiento	4	1	4	C1	
8	Competencias	18	2	36	C2,C3	C2E3
9	Transformación	1	1	1	C2	
10	Actividad de policía	4	2	8	C1	
11	Aprendizaje	5	2	10	C2	E1,E2
12	Evaluación	4	2	8	C3	
13	Ejes temáticos	3	2	6	C2E3	
14	Profesionalización	4	2	8	C2	
15	Destrezas	4	1	4	C2	C2E1
16	Habilidades	4	1	4	C2	
17	Desafíos	4	1	4	C4	
18	Componente	22	1	22	C1	
19	Caracterizar	1	2	2	C1	C1E3
20	Proceso	20	1	20	C1	
21	Conceptos	4	2	8	C1	
22	Pertinencia	5	1	5	C3	
23	Estudiante	15	2	30	C1	C1E1
24	Formación	34	1	34	C4	C4E1
25	Técnicos	1	1	1	C4	
26	Memoria muscular	7	1	7	C2	C3E2
27	Escenarios de simulación	2	2	4		C3E2
28	Educativo	21	2	42	C4	
29	Ejercicio teórico práctico	1	1	1		C2E3
30	Capacidades	1	2	2	C3	

Source: Authors, 2023

Through the reading carried out, thirty terms are established from the educational component that, according to their relevance and relationship with the basic police tactical system, would allow the establishment of pedagogical routes in order to strengthen the police service. The four categories defined from the educational component are framed in the scope of training for the police intervention system, the approach of strategies for the development of competencies, the

establishment of an evaluation method for the system in question, coherent with the pedagogical model and approach used by the institution. From the technical component, 48 relevant terms are selected, which give rise to the definition of two categories called tactics and techniques, from which emerge three emerging categories called learning outcomes, intervention, trajectory and experience, key aspects for the improvement of the Police Intervention System.

The vision of the external sector is a fundamental element for the strengthening of police work, since it allows us to identify how some members of society observe us. For this component, an expert teacher from the Universidad Externado de Colombia and the ombudsman of the Municipality of Tuluá participated, who, from a holistic viewpoint, expressed some appreciations of students and citizens regarding the actions of the National Police in the different procedures. Based on the intervention of the participants, 44 words were selected as object of analysis for the present project.

The purpose of this research was to update the basic police tactical system through the reorientation of the pedagogical practices of education and training for police professionalization, in search of improvement in coexistence and citizen security from the police activity and service, to reach the update we proceeded to develop the specific objectives which create focus groups in which participated personnel who have extensive experience in the basic tactical system which have contributed to the strengthening of police intervention.

From the results obtained in this research, it can be deduced that there should be an update to the Basic tactical system, taking into account each of the words provided in the focus group, by the professional personnel experienced in the subject.

The significant contribution of the focus group is centered on the curricular impact of a contextualized training not only from the theoretical and practical point of view, but also as a pedagogical process according to the needs of the institution that guarantees the competence of police officers and results in a better provision of police service.

In order to propose an orienting guide to the police intervention system, it is necessary to take into account the Institutional Educational Project of the National Police of Colombia, which is the document that contains the fundamental guidelines of the conception of police education, as well as the educational principles of the institutional pedagogical model, as well as the lines of action and the police pedagogical approach based on competencies, among the most important aspects.

For the development guide in each teaching, there is a synthesis of the most important aspects of the PEI-National Police "Knowledge Empowerment and Police Training".

1. Conception of police education: the three pillars on which training is based are proposed: empowerment of knowledge, humanistic approach and comprehensive training. These are articulated with the principles of quality, relevance, projective development, participation and coverage, and in this way, advance towards the deepening and permanent knowledge of police science.
2. Knowledge enhancement and comprehensive training: with the purpose of deepening concepts and policy guidelines regarding the police education process, such as knowledge enhancement for performance, comprehensive training of police men and women and the humanistic approach to education.
3. Police education in the university context: taking into account that the high quality of the educational institutions depends in part on the approach of policies and functions for the effective fulfillment of their mission, the educational policies that allow directing and guiding the academic management are identified; academic policies of research, social projection, welfare, self-evaluation and administrative policies are formulated.
4. Police pedagogical approach based on competencies: the institution's human management model and its application to the educational context is taken up again, through its development

and the arguments that recognize the need to articulate the educational world with the requirements of the police service.

5. Academic management: it describes the concept of academic management, its purposes and development and the articulation of the educational process with other police units.
6. Administrative management: this refers to the application of the integral management model to the educational field, based on process management, quality management and applications for academic management.

Taking into account the context in which an organization of proposals is urgently required to raise from education a means of teaching for police preparation from the preparation as a police officer, training must be taken into account (Vorweg 1983, quoted in Hernández, 2009); Training is understood as a method of influence with psychological and practical goals, where group processes, social relations, play a fundamental role; it focuses on the optimization of behavior seeking compatibility between social demands and individual possibilities of execution, its objective is the improvement of the regulation of the activity in relation to the structure of the demand (Vorweg, 1987b, quoted in Hernández, 2009).

Apart from the fact that the learning that takes place in the socio-psychological training has an experiential character, due to the direct and experiential acquisition of knowledge and skills, which guarantees its effectiveness (Calvino, 2013) in the changes of attitudes and individual and group behaviors, in the personal, social, family and work environments (Zaldívar, 2008). The training allows the individual a more efficient psychosocial functioning, focuses its attention on the potential of the subject, on his ability to face and master the problematic aspects with his environment, which are based on his interpersonal relationships and the deficit of personal resources to respond to the various demands presented to him; it provides the necessary tools to the subject to interact in his environment and solve personal or group problems. The definition is relevant for the contribution to the objective of the project that is being advanced in

the psychological-behavioral training for the use of force in the national police of Colombia.

To strengthen this training it is important to orient it from psychology, it is important to relate in this theory that the communicative competence plays a fundamental role in the training process and its training is given through training, socio-psychological (Hernández, 2009) which has as a condition the encounter groups, which are the methodological bases of group methods, where the influence of the group is decisive in the processes of change.

Likewise, Castilian and Fernandez (2003) consider that communicative competence is sensitive to be molded, formed and developed through pedagogical mediation, in the two basic environments of the personality: the motivational-affective and the cognitive-instrumental.

For this reason, the author brings to reference the definition of training exposed by (Vorweg 1983, cited in Hernández, 2009) where he considers it as the method of influence with psychological and practical goals, in which group processes, social relations, play a fundamental role because it focuses on the optimization of behavior seeking compatibility between social demands and individual possibilities of execution and its purpose is the improvement of the regulation of the activity in relation to the disposition.

Thus, the learning that takes place in the socio-psychological training has an experiential representation, by the direct and experiential acquisition of knowledge and skills, which guarantees its effectiveness (Calvino, 2013) in the changes of attitudes and individual and group behaviors, in the personal, social, family and work spheres (Zaldívar, 2008). The training allows the person a more efficient psychosocial work, placing its attention on the potential of the individual, on his ability to face and master the problematic aspects with his environment, which are based on his interpersonal relationships and the lack of personal aspects to respond to the multiple demands that are presented; turning this into the necessary tools so that the person can act in his environment, solve both personal and group problems. To propose education in police intervention it is necessary to take into

account the behavioral training, which requires retaining its four main elements, which are: instructions, modeling, Role-play and feedback as expressed by Colombo (2019) who also explains its procedure as follows:

- a. Instructions: Instructions should be presented in a way that is clear to the learner and should be given by some teacher who has some degree of credibility; these can be balanced with modeling each time they are given.
- b. Modeling. Modeling can be done live when the person performs the behavior in front of others. It can also be symbolic. It can be presented in video, audio, movies or even cartoons; always taking into account the population to which the teaching will be directed.
- c. The Role-play: The Role-play element is a critical moment of the whole procedure because: it allows the instructor to corroborate in a practical way that what is being taught is actually learned; providing an opportunity to reinforce the rehearsals of the trainees in a total or partial way; it also allows correcting the mistakes that may occur immediately. Avoiding possible failures in the learning process.
- d. Feedback: It is a lapse in which the trainee receives the return of the instructor and they recommend that it be effected immediately to the rolé-play; generally it is done verbally, although it can also be in writing. The whole procedure is variable, the important thing is to know how to adapt it to the training needs of the addressees.

The realization of this study is so important because the situation of the country shows that it is urgently needed to make a proposal for police intervention from education, we know that there are various behaviors in the citizenship, the police must know how to intervene and how to carry out their function of authority leaving a good police image.

Conclusions

It is necessary to generate teaching-learning strategies in the field of police intervention techniques and methodologies that will strengthen institutional capacities for peace building in Colombia. Likewise, it is necessary to generate clear guidelines and parameters to develop police intervention in a conflict scenario, thus achieving a real and positive impact on the institution, since it is proposed to resize the role of the National Police, so that it responds to the transformation of the community and the mutations of criminality. The objective of this project is to define the techniques and tactics for police intervention in conflict scenarios in order to give it a new focus, specify the new participation of the uniformed, propose processes and procedures and new strategies and tactics, and resize resources.

Considering the structural changes in the dynamics of the country, the institution cannot be indifferent to them. On the contrary, it is essential to develop processes of analysis and perspective of macro trends and possible scenarios, in order to generate in advance the dynamics, techniques and methodologies that strengthen the development of police activity from the function and with the foundation of police power. A look at our regional and international environment should be made in order to evidence, analyze and evaluate the processes that have been developed and are being developed in other latitudes in terms of Police, so that there is a clear doctrinal framework that allows projecting a vision adjusted to the Colombian society and that is nourished by the lessons learned by institutional peers in the world. It is necessary to generate teaching-learning strategies in the field of police intervention techniques and methodologies to strengthen institutional capacities for the construction of peace in Colombia. Likewise, it is necessary to generate clear guidelines and parameters to develop police intervention in a conflict scenario, thus achieving a real and positive impact on the institution, since it is proposed to resize the role of the National Police, so that it responds to the transformation of the community and the mutations of criminality. Training is a component

of the police education system that seeks to prepare police officers for police work. It is essential that training program counselors demonstrate experience and skills in the development of the police function.

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