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IMMERSIVE LEARNING ENVIRONMENT MODEL: Narratives as a Strategy for the Development of Intercultural Competences in Digital Environments

ZAILY DEL PILAR GARCÍA GUTIÉRREZ[1]
zgarcia@uniminuto.edu
MARYURI AGUDELO FRANCO [1]
maryuri.agudelo@uniminuto.edu
INGRID PATRICIA FONSECA FRANCO [1]
ingrid.fonseca@uniminuto.edu
WILLIAM LEONARDO PERDOMO VANEGAS [1]
wperdomo32@gmail.com
[1]Corporación Universitaria Minuto de Dios - UNIMINUTO, Colombia

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ABSTRACT

This article presents the results of the first phase of the research project "Model and Laboratory for Inclusive and Intercultural Teaching Based on Universal Design for Learning and Immersive Environments". The study evaluated the effectiveness of narratives as a strategy to design inclusive learning experiences, enhance student learning, and foster interculturality in digital environments. Data were collected from university students using a validated questionnaire and analysed with a mixed-methods approach. The results highlight narratives, supported by social media, as key tools for personalizing learning, overcoming accessibility barriers, and connecting content to students' sociocultural contexts, promoting equity in the Model design.

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1. Introduction

Contemporary education faces significant challenges in implementing inclusive and intercultural experiences. According to UNESCO (2020) and Madrid Peña et al. (2024), education must address the challenge of adapting to students' cultural and cognitive diversity in a globalised world where inclusion and interculturality are fundamental for quality education. Among the causes of this shortfall is the persistence of learning methodologies based on the passive transmission of information (Maqueira Caraballo et al., 2023). These methodologies not only limit opportunities for inclusion and interculturality but are also characterised by a lack of awareness and, consequently, underutilisation of emerging teaching strategies, many of which are enhanced by technological tools (Guanotuña Balladares et al., 2023).

This gives rise to an interest in developing a Teaching Laboratory model that not only promotes inclusive education but also strengthens intercultural competence. This vision entails designing meaningful and contextualised educational experiences based on leveraging emerging teaching strategies and the resulting technology to create accessible and enriching learning environments. This educational need is addressed through the research project titled "Model and Laboratory for Inclusive and Intercultural Teaching Based on Universal Design for Learning and Immersive Environments." Accordingly, the purpose of this article is to present the findings of the first phase of this research, which demonstrate the effectiveness of using narratives as cross-cutting elements in structuring learning experiences for the development of the Teaching Laboratory model. According to the UNESCO Global Education Report 2024, engaging all stakeholders in the educational system is essential to implement strategies that promote inclusive and equitable learning (UNESCO, 2024).

Adopting innovative pedagogical approaches, such as narratives—an emerging teaching strategy—is crucial, as they are positioned among innovative pedagogical tools for creating more dynamic and inclusive learning experiences (Leite Méndez & Rivas Flores, 2023). Narratives enable the presentation of content in an interconnected manner across multiple platforms and formats, facilitating students' immersion in interactive stories tailored to their interests and sociocultural contexts (Jenkins, 2006). By leveraging the convergence of digital media, such as videos, images, texts, and immersive environments, narratives allow for greater personalisation of learning, fostering student autonomy and engagement with their educational process (Scolari, 2018).

The model of an Inclusive and Intercultural Teaching Laboratory, based on Universal Design for Learning (UDL), finds in narratives a key opportunity to strengthen inclusive and intercultural education. By incorporating visual, auditory, and interactive elements, narratives facilitate the understanding of complex concepts, providing learning opportunities tailored to students' diverse information-processing methods (Amenabarro Iraola et al., 2024). This approach helps overcome accessibility barriers, offering contextualised learning experiences that respond to students' individual needs and promote educational equity (Galkiené & Monkevičienė, 2021).

In this context, a question arises regarding how narratives can contribute to designing inclusive and intercultural experiences for the development of a Teaching Laboratory model to enhance student learning. To address this question, the following sections outline the main categories: inclusive education and its relationship with Universal Design for Learning, intercultural competences, immersive learning environments, and narratives in the educational context, which were used to tackle the issue and explore potential solutions.

1.1. Universal Design for Learning (UDL) and Inclusive Education

Universal Design for Learning (UDL) is a pedagogical approach that provides students with equal opportunities to learn, addressing diversity and individual differences. It is based on the flexibility and adaptation of teaching methods, materials, and the educational environment to meet the needs of each student, regardless of their abilities or learning styles (Cortés et al., 2021).

UDL proposes multiple means of representation, expression, and engagement to facilitate access to educational content and allow students to demonstrate their knowledge in diverse ways. The use of multimodal representations, such as graphics, videos, and audio, enhances understanding and knowledge acquisition (Espinoza Pesántez, 2023). Inclusive education refers to the practice of educating all students, regardless of their abilities or disabilities, within a shared learning environment. This philosophy is grounded in the belief that everyone should have access to quality education that respects

and values their differences, promoting equal opportunities and full participation in the educational community (Cansino, 2017).

In this regard, Booth and Ainscow (2011) assert that an inclusive culture involves a set of values and beliefs within an institution that fosters the full participation of all students, recognising diversity as a strength rather than an obstacle, and creating an educational environment where everyone feels valued and respected. Inclusive practices not only aim to adapt the curriculum to the needs of all students but also to implement flexible pedagogical methodologies that promote equitable participation (Echeita, 2008).

1.2. Intercultural Competences

Intercultural competence refers to the ability to interact effectively and respectfully with individuals from diverse cultures. In an increasingly globalised world, this competence is essential for fostering mutual understanding, cooperation, and peaceful coexistence (Miranda et al., 2024). In this regard, higher education plays a significant role in implementing programmes and policies to promote this skill among students.

These competences are vital for facilitating effective and respectful communication among individuals from different cultures. In an educational setting, their development is crucial for enabling teachers and students to engage positively in a culturally diverse environment. Intercultural skills include the ability to adapt to various cultural contexts and resolve conflicts effectively. In educational practice, this translates into promoting intercultural dialogue and implementing strategies to manage diversity in the classroom (Deardorff, 2020). It is posited that intercultural knowledge entails a deep understanding of the values, customs, and ways of life of different cultures.

1.3. Immersive Learning Environments

Immersive environments are effective for experiential and reflective teaching, as they promote meaningful learning alongside the development of social and academic skills. These environments have an impact on key areas such as inclusion, learning, teaching, and accessibility (Llera, 2011). In this regard, a technology-mediated environment must consider students' needs and provide sensory experiences that engage multiple senses, offering educational experiences through digital activities (Molloy & Farrell, 2024).

From this perspective, immersive learning represents a revolution in the educational field by integrating advanced technologies such as virtual reality (VR), augmented reality (AR), and interactive simulations to create more dynamic and effective learning environments. This approach enables students not only to learn theoretically but also to interact with content practically, fostering deeper understanding and improved retention of information (Lescano-Veloz et al., 2024).

Immersive laboratories and emerging technologies are transforming higher education by providing more practical, interactive, and accessible learning experiences. These innovations allow students to engage with content in a deeper and more meaningful way. In Colombia, several higher education institutions have adopted these technologies to enhance the quality of education and promote innovation (Jaramillo, 2024).

1.4. Creating Narratives in Educational Contexts

The implementation of innovative processes in educational contexts is increasingly necessary to contribute to the development of competences through resources structured around pedagogical strategies focused on dynamic and interactive learning. In this regard, the interpretation and creation of narratives contribute to the development of learning processes, as they are structured through interactions between participants and between participants and knowledge (Pisabarro & Vivaracho, 2018).

In this context, within inclusive education, narratives emerge as a significant pedagogical strategy that promotes collective participation, mutual understanding, and respect for diversity. Narratives, understood as stories that convey experiences, knowledge, and values, are fundamental for creating learning environments in which all individuals, regardless of their abilities, cultural backgrounds, or specific needs, can be effectively integrated. One of the primary benefits of narratives in inclusive

education is their capacity to foster empathy and understanding. As Bruner (1990) notes, "stories are privileged forms of structuring human experience" (p. 84).

2. Methodology

This article presents the first phase of a broader research project, focusing specifically on characterising the student population to identify their inclination towards narratives as a didactic strategy that contributes to designing inclusive and intercultural experiences. A mixed-methods design was employed, grounded in action research (Kemmis & McTaggart, 2013) and human-centred design (IDEO, 2015), with an exploratory quantitative component. Action research provided a systematic approach to the students' processes of interpretation and creation. According to Carr and Kemmis (1988), this method enables a form of self-reflective inquiry conducted by participants in social situations to enhance the rationality and justice of: a) their own social or educational practices, b) their understanding of these practices, and c) the situations and institutions in which these practices occur. The study involved a population of 221 first-semester university students, selected through non-probabilistic sampling based on the representativeness criteria outlined by Creswell and Poth (2018).

The initial phase of the research began with an analysis of the context and the characterisation of the population, for which a structured questionnaire was implemented. This tool enabled the development of solutions that effectively address real needs, ensuring the accessibility and usability of the proposed model. The instrument not only facilitated the identification of profiles and competences but also allowed exploration of the population's interests in relation to narratives, providing critical information to initiate the reconstruction of meaningful experiences.

The subsequent phase focused on planning, during which a work schedule was structured in relation to activities, the narrative creation process, and the respective learning objectives for each session. Similarly, the process of structuring the teaching laboratory model was initiated. The action and implementation phase concentrated on creating narratives as a didactic strategy, focusing on gathering the community's prior knowledge and linking it to the creation processes. Finally, the evaluation and reflection phase aimed to share the narratives created based on the students' experiences to enhance the use of the laboratory. Consequently, the implementation of action research contributed to the transformation of social and educational practices while fostering a deeper understanding of these practices. It also consistently integrated research and training processes through narratives.

2.1. Instrument

The research instrument is a structured questionnaire integrating sociodemographic and characterisation aspects, designed to assess students' perceptions. According to Richards (2023), understanding student profiles is fundamental for implementing effective and sustainable educational innovations. The questionnaire covers five dimensions: inclusive and intercultural education (3 items), intercultural competences (1 item), Universal Design for Learning (3 items), immersive environments (13 items), and narratives and languages (3 items). The measurement employed a six-level Likert scale, ranging from "I don't know/I'm not familiar" (0) to "Completely agree" (5), following the guidelines of García-Peñalvo and Corell (2022) for assessing competences in educational settings. Additionally, it incorporates operational definitions for specialised concepts such as Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) to ensure participants' understanding and accurate responses.

Table 1. Student Questionnaire

Dimension	Sub-dimension	Name Indicator	Authors
Inclusive and intercultural education	**Inclusive and intercultural education policies**	Normative Framework	Bárcenas (2021); MEN (2021)
		Quality processes	MEN (2017)
		Institutional evaluation of inclusive practices	MEN (2021)
	Inclusive culture	Inclusive values	Ainscow, Booth, & Dyson (2006)
		Sense of community	MEN (2021)
	Inclusive practices	Attention to diversity	Arnaiz (2012)

		Methodological strategies/pedagogical and curricular adaptation	Alcoba (2012)
		Collaborative interdisciplinary work	Elichiry, (2018)
Intercultural competences	**Intercultural attitudes and beliefs (Self)**	Intercultural sensitivity	Deardorff (2020)
	Intercultural knowledge (Knowing)	Understanding Cultural Diversity	Ibáñez et al., (2012)
	Intercultural Skills (Doing)	Promotion of Intercultural Dialogue and Conflict Resolution	Deardorff (2020)
Universal Design for Learning ULD	**Multiple Ways of Representing Knowledge**	Multimodal Information Representation	Espinoza (2023)
	Multiple Forms of Student Expression and Action	Multimodal Expression of Student Learning	Espada et al., (2019)
	Multiple Forms of Engagement or Motivation	Engagement and Motivation Strategies	Mayes (2020)
Immersive environments	**Digital Competences**	Teaching and Learning Guidance and support in learning Collaborative learning Self-regulated learning	Párraga et al, (2022)
	Conceptual approach	Understanding immersive environments Virtual Reality (VR) and Augmented Reality (AR)	Cheney & Terry (2018)
	Access to technology	Availability of technological resources in EI Ease of use of immersive technologies	Pimentel et al., (2023) UNESCO (2024).
	Positioning vis-à-vis technology (usability)	Augmented reality (AR): Virtual Reality (VR) Metaverse (MV): Conceptualisation of the type of narratives Categorisation of the most well-known and relevant narratives for the development of competences.	Cheney & Terry (2018) Pimentel et al., (2023) Ortega-Rodriguez (2022)
Narratives and Languages	**Narrative competences**		Bruner (1990) Nelson (2010)

Source: Own creation 2025

2.2. Reliability

Following the design of the instrument, a two-phase validation process was conducted. First, content validation was carried out through expert judgement in the fields of inclusive education, educational technology, and research methodology. According to Urrutia-Egaña et al. (2014), validating instruments for measuring competences in educational settings requires a systematic process to ensure both the relevance and appropriateness of each item. The experts evaluated each component using Aiken's V coefficient, achieving a concordance index above 0.80, indicating satisfactory content validity. Second, a pilot test was conducted with a sample of 182 students to assess the instrument's reliability (Rodríguez-Macayo et al., 2020). This process enabled refinement of the item wording and verification of the clarity of instructions and measurement scales. To establish the instrument's reliability, Cronbach's Alpha coefficient was applied. The results, obtained using the SPSS software, are presented below.

Table 2. Reliability statistics

Cronbach's alpha	Cronbach's alpha based on standardised items	N of items
0,948	0,950	20

Source: Own creation 2025

Additionally, an exploratory factor analysis was conducted to validate the dimensional structure of the instruments, confirming the grouping of items into the four proposed dimensions: inclusive and intercultural education, intercultural competences, Universal Design for Learning, and immersive environments. The model fit indices (CFI > 0.90, RMSEA < 0.08) confirmed the construct validity of both instruments.

3. Results and Discussion

The data analysis involved variable coding, database cleaning, and the application of descriptive statistics, with an emphasis on frequencies and percentage distributions. This process enabled the adjustment of strategies and key aspects for the construction of narratives in the design of the laboratory, taking into account the needs and characteristics of the studied population.

3.1. Inclusive and Intercultural Education Dimension

Table 3. Percentage Frequencies Inclusive and Intercultural Education of Students

Indicator	NC	TD	D	N	A	TA
The institution ensures that all students, regardless of their differences, can participate and learn equally, and is constantly working to improve in this regard.	4.5	3.2	0.9	13.6	46.6	31.2
In the institution, classes promote respect for diversity and all students have equal opportunities to participate and progress.	1.4	2.7	1.8	12.7	43.9	37.6
The institution respects the differences between students and adapts teaching so that everyone can learn better.	1.4	3.6	2.3	15.8	43.9	33.0
Average	2.4	3.2	1.7	14.0	44.8	33.9

Source: Own elaboration 2025

NC= Don't know, TD= Strongly disagree, D= Disagree, N= Neutral, A= Agree, TA= Strongly agree.

Table 3 presents the results for the Dimension: Inclusive and Intercultural Education, structured into three subdimensions. In the subdimension of Inclusive and Intercultural Education Policies, which includes indicators such as regulatory framework, quality processes, and institutional evaluation of inclusive practices, it is observed that the majority of respondents perceive institutional efforts in this area. Specifically, 46.6% agree and 31.2% strongly agree that the institution ensures equitable participation and learning. However, a small percentage of respondents are unaware of the regulatory framework, quality processes, and institutional evaluation, suggesting a need to strengthen the dissemination and awareness of these policies.

The indicator of inclusive culture assesses whether classes within the institution promote respect for diversity and provide all students with equal opportunities to participate and progress. The results show that 43.9% of respondents agree with this statement, and 37.6% strongly agree. However, 12.7% adopt a neutral stance. This indicates that most respondents perceive that classes promote inclusive values. In this regard, Canales et al. (2018) highlight the need to create spaces for integration within educational institutions.

The indicator concerning the institution's respect for student differences and adaptation of teaching shows that 43.9% of respondents agree, and 33.0% strongly agree. Nevertheless, 15.8% maintain a neutral position, while disagreement percentages are lower: 1.4% indicated "I don't know/I'm not familiar," 3.6% expressed strong disagreement, and 2.3% disagreement. These data reflect that, while most respondents perceive that the institution fosters and adapts its practices to diversity, a small group holds less favourable perceptions or lacks awareness in this regard.

Overall, the results indicate that 78.7% of respondents positively perceive inclusive and intercultural practices, while 14% maintain a neutral stance. Although the general perception is favourable, opportunities for improvement persist in raising awareness and understanding of these practices. In

this context, the role of educators is crucial in ensuring the holistic development of students and fostering spaces for respect, collaboration, and participation (Flores Barrera et al., 2017).

3.2. Intercultural Competences Dimension

Table 4. Percentage frequencies of intercultural competences in students

Indicator	NC	TD	D	N	A	TA
In the institution, learn about different cultures and how to work respectfully with peers from diverse backgrounds.	1.8	2.3	3.2	19.5	39.8	33.5

Source: Own elaboration 2025.

NC= Don't know, TD= Strongly disagree, D= Disagree, N= Neutral, A= Agree, TA= Strongly agree.

In Table 4, the indicator concerning intercultural learning and respectful collaboration with peers from diverse backgrounds shows that 39.8% of respondents agree and 33.5% strongly agree. However, 19.5% adopt a neutral position. These results indicate that the majority of participants perceive a favourable environment within the institution for learning about and respecting different cultures. Nevertheless, a significant percentage (19.5%) holds a neutral stance, which could be interpreted as an opportunity to strengthen strategies that promote intercultural sensitivity and address the lack of awareness on this matter.

3.3. Universal Learning Design Dimension ULD

Table 5. Percentage frequencies of Universal Design for Learning UDL

Indicator	NC	TD	D	N	A	TA
In their classes, teachers use different technological means (analogue and digital) to teach.	0.9	1.4	2.3	12.7	44.8	38.0
In their classes the teacher allows them to demonstrate their knowledge and skills through various methods, such as written exams, oral presentations, projects, videos, etc. and also use technologies to accompany this demonstration.	0.5	1.4	0.5	12.2	46.6	38.9
In your classes the activities presented by the teacher are motivating and interesting, so that you feel invited to participate actively.	0.9	2.3	4.1	18.1	44.3	30.3
Average	0.8	1.7	2.3	14.3	45.2	35.7

Source: Own elaboration 2025

NC= Don't know, TD= Strongly disagree, D= Disagree, N= Neutral, A= Agree, TA= Strongly agree.

In Table 5, the indicator concerning teachers' use of various technological media for teaching (analogue and digital, such as texts, graphics, audio, and videos) shows that 44.8% of respondents agree and 38.0% strongly agree with this statement. However, 12.7% adopt a neutral stance. These results indicate that the vast majority perceive that teachers employ multimodal representations to facilitate learning, although a small proportion of participants are not fully convinced or unaware of these practices.

The indicator regarding classes that allow students to demonstrate their knowledge and skills through various methods, such as written exams, oral presentations, projects, videos, and the use of supporting technologies, reveals that 46.6% of respondents agree and 38.9% strongly agree. A total of 12.2% of respondents maintain a neutral position. These data suggest that teachers generally provide multiple avenues for students to demonstrate their learning, fostering an inclusive environment. However, a smaller percentage (neutral and disagreement) indicates that further efforts could be made to consolidate these practices.

The indicator concerning the perception of motivating and interesting class activities shows that 44.3% of respondents agree and 30.3% strongly agree, while 18.1% adopt a neutral stance. Although the majority find the activities engaging, the levels of neutrality and disagreement suggest opportunities to enhance their design and make them more relevant. Overall, the results average 45.2% of respondents agreeing and 35.7% strongly agreeing with the evaluated Universal Design for Learning (UDL) principles. A total of 14.3% maintain a neutral position, while disagreement levels are low (2.3% on average).

3.4. Immersive Environments Dimension

Table 6. Percentage frequencies Immersive environments

Indicator	NC	TD	D	N	A	TA
Uses digital devices and resources effectively to improve outcomes in their learning process.	0.5	1.4	2.3	11.8	44.3	39.8
Uses digital tools to improve their interaction, both individually and collectively, with their peers in and out of class.	1.4	.9	1.8	10.9	46.2	38.9
Uses digital technologies to foster and enhance collaboration with peers.	0.9	1.4	1.4	12.2	45.7	38.5
You feel empowered to use digital technologies as part of collaborative tasks, thus improving communication, cooperation and co-creation of knowledge.	0.9	0.9	1.8	11.8	47.1	37.6
Uses digital technologies to support their learning, such as planning, monitoring and reflecting on their own learning, providing evidence of progress, sharing ideas and formulating creative solutions.	0.9	0.9	1.4	13.1	45.2	38.5
The institution integrates concepts or elements related to immersive technologies (i.e. extended realities such as: *Virtual Reality **Augmented Reality or ***Mixed Reality in the educational context.	5.4	5.4	4.5	19.5	43.4	21.7
Believes that the use of augmented reality, virtual reality makes learning more interesting and engaging.	2.3	2.3	1.4	19.5	41.2	33.5
Have sufficient access to immersive technologies during their classes and academic activities.	1.8	2.7	5.9	23.1	38.5	28.1
Has the capacity and access to technology and connectivity to take advantage of immersive learning environments.	1.8	1.4	2.3	18.1	48.9	27.6
The immersive technologies available in the institution are easy to use, which facilitates their integration into learning processes.	3.2	1.8	1.8	22.6	45.7	24.9
They find Augmented Reality easy to use in their learning activities and would like to see it used more often in their classes.	4.1	1.4	3.2	22.2	43.0	26.2
They find using Virtual Reality easy for their learning and would like it to be used more often in their classes.	3.2	1.8	2.3	20.8	43.9	28.1
Perceives the Metaverse as an accessible and easy-to-use tool to enrich their learning in the classroom.	5.0	2.3	1.8	23.5	41.2	26.2
Average	2.4	1.9	2.4	17.6	44.2	31.5

Source: Own elaboration 2025

NC= Don't know/ Don't know, TD= Strongly disagree, D= Disagree, N= Neutral, A= Agree, TA= Strongly agree.

In Table 6, in the sub-dimension of digital competences, the indicator on the use of digital devices and resources that enhance learning outcomes shows that 44.3% of respondents agree and 39.8% strongly agree, with 11.8% in a neutral position. These data reflect a positive perception of the effective use of digital tools, although there is scope to strengthen their widespread adoption. In this regard, Mollo-Torrico et al. (2023) argue that this approach contributes to quality education by supporting learning processes, feedback, and effective communication.

The indicator on the use of digital tools to improve interaction, both individually and collectively, with peers in and out of class shows that 46.2% of participants agree and 38.9% strongly agree, while 10.9% are neutral, indicating a favourable perception of the use of digital tools for interaction.

The indicators on collaborative learning assess whether digital technologies are used to foster and enhance collaboration with peers. The results indicate that 45.7% agree and 38.5% strongly agree, while 12.2% remain neutral. Additionally, regarding whether students feel empowered to use digital technologies as part of collaborative tasks, thus improving communication, cooperation, and co-creation of knowledge, the results show that 47.1% agree and 37.6% strongly agree, with 11.8% remaining neutral.

Both indicators demonstrate a positive perception of the use of and training in digital technologies for collaborative learning, with over 80% of participants positioning themselves between agree and strongly agree. However, approximately 12% remain neutral, indicating opportunities to further promote and utilise digital tools for collaboration. Disagreement levels are negligible.

The indicator on self-regulated learning, which examines the use of digital technologies to support learning processes such as planning, monitoring, and reflecting on learning, providing evidence of

progress, sharing ideas, and formulating creative solutions, shows that 45.2% of participants agree and 38.5% strongly agree, while 13.1% remain neutral. This indicates a positive perception but highlights areas for improvement in the autonomous use of digital tools.

In the sub-dimension of conceptual understanding of immersive environments, the results reflect that 43.4% agree and 21.7% strongly agree, while 19.5% are neutral. This suggests that a significant portion of respondents are not familiar with concepts related to immersive technologies such as Virtual Reality (VR), Augmented Reality (AR), or Mixed Reality (MR).

For the Virtual Reality (VR) and Augmented Reality (AR) indicator, 41.2% agree and 33.5% strongly agree, but 19.5% neutrality indicates scope for further use of these technologies. The sub-dimension of access to technology, in its indicator on technological resources in the institution, shows that 38.5% of participants agree and 28.1% strongly agree, while 23.1% are neutral, suggesting a need to improve the availability of immersive technology resources for students.

The indicator on the ease of use of immersive technologies shows that 45.7% agree and 24.9% strongly agree. However, 22.6% of neutral respondents suggest that simplifying the usability of these technologies and improving their integration into educational processes may be necessary.

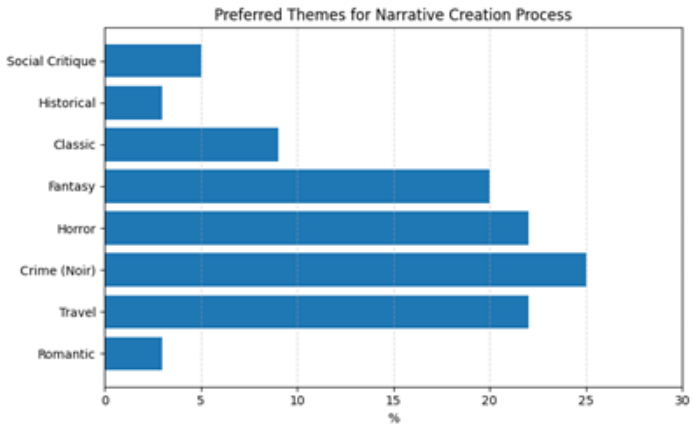
At a global level, the results average 44.2% of respondents agreeing and 31.5% strongly agreeing with the indicators assessed. The 17.6% neutral responses indicate a notable portion of participants who are not fully convinced or have not observed these practices in action. In this regard, Lescano et al. (2024) argue that a revolution is currently underway in education, where advanced technologies such as virtual reality (VR), augmented reality (AR), and interactive simulations are being integrated to create more dynamic and effective learning environments. This enables students to learn theoretically while interacting practically, fostering deeper understanding and improved retention of information.

According to Matovu et al. (2023), students participating in these immersive environments exhibit high levels of motivation and demonstrate improved perceptions, behaviours, and attitudes. Bonali et al. (2021) affirm that students who have engaged in these immersive experiences describe them as innovative tools, express willingness to participate again, and report satisfaction. These experiences also enhance skill acquisition and learning outcomes (Craig & Kay, 2023).

3.5. Narratives and Language

The results of the characterisation process revealed significant preferences regarding narrative genres and learning modalities, which subsequently guided the design of immersive educational experiences. As Richards (2023) notes, identifying narrative preferences in educational settings enables the design of more effective and personalised learning experiences. Based on this identification, structured workshops were implemented with groups of 30 students, generating ten narratives distributed across three main genres: horror, noir, and fantasy, each designed to develop specific skills such as critical thinking, problem-solving, and creativity. This systematic distribution of narratives according to genres, modalities, and skills aligns with what Pimentel et al. (2023) identify as key elements for designing meaningful immersive educational environments, facilitating effective integration between students' preferences and learning objectives (see Figure 1).

Figure 1. Preferred themes for the narrative creation process



Source: Own elaboration 2025.

Thus, the instrument used in this study consists of a series of structured workshops based on collaborative work, aimed at creating a set of narratives. These narratives were developed based on the experiences of the student group, as evidenced in Table 7.

Table 7. Distribution of the narratives

Narrative	Thematic	Ability
Dark Creatures	Horror	Ways of thinking
Experiences of a killer	Noir genre	Ways of living in the world
Body language	Noir genre	Ways of thinking
Spectral Figures	Horror	Ways of thinking
Cyclical Death	Noir genre	Ways of Living in the World
Fantastic Crimes	Noir	Creativity
Rain on the wet	Fantastic	Ways of thinking
A doctor on duty	Fantastic	Ways of living in the world
Busy place	Fantastic	Creativity
Bobbleheads	Black genre	Creativity

Source: Own elaboration 2025

Regarding narratives, the study's results are directly linked to students' experiences in social media environments, which facilitated the creation of narratives. Consequently, the implemented activities were developed based on three skills: "Ways of Thinking," "Ways of Living," and "Creativity," which are framed within intercultural competences. These can be defined as the "skills, knowledge, and attitudes necessary to successfully address the challenges of this era, inviting us to reformulate our main learning aspirations and make them more relevant for this new age" (Fundación Omar Dengo, 2014, p. 11).

As a result, the implemented activities were divided into three groups according to the skills and learning objectives. The first three activities focused on processes related to "Ways of Thinking." Specifically, these involved identifying phrases and words that serve as thematic keys (Sandia & Montilva, 2020). At this level, students engaged with content found on social media from a personal and subjective perspective, rather than through the textual evaluation expected of an analytical reader (Eco, 1993; Jurado, 1997).

The second group of activities centred on "Ways of Living," requiring greater cooperation and participation from students, who inferred what was not explicitly stated in the experiences (Parodi, 2005). In the final sessions, the focus was on "Creativity," encouraging students' productivity, which led to the construction of a series of new narratives (Sandia & Montilva, 2020). This phase promoted active learning as a cornerstone of intercultural competences, engaging students in tasks that held meaning and value for them (Parodi, 2005).

Students employed ways of thinking, approaches to living in the world through problem-solving, and tools and methods for collaborative work. Consequently, learning based on narrative creation was more effective due to the collaborative construction of deductions and conclusions with others. Thus, "learning with and from others, doing things together or engaging in conversation with them, becomes an essential characteristic for bringing students closer to mastering 21st-century competences" (Fundación Omar Dengo, 2014, p. 20). Narratives foster connections, enhance empathy, creativity, and critical thinking, and promote social, communicative, and emotional skills. These active methodologies encourage meaningful learning and enriching strategies that stimulate engagement, imagination, and connection with the environment (Rivera et al., 2024).

Another relevant aspect is the role of social media in disseminating narratives. These platforms have proven to be powerful tools for distributing educational content, as they enable interaction among students from diverse cultural contexts, fostering the development of intercultural competences through the exchange of experiences and collaborative knowledge construction. Social media provide spaces where students can share their perspectives, reflect on their experiences, and build a broader and more enriching understanding of cultural diversity (Quintero, 2024).

4. Conclusions

The findings of this phase provided more precise guidance for the design of the Teaching Laboratory, demonstrating the effectiveness of narratives as cross-cutting strategies in the construction of inclusive and intercultural educational settings. Narratives not only serve a communicative function but also act as a pivotal axis in creating inclusive learning experiences, with the potential to strengthen intercultural competences. These findings provided an empirical foundation for the development and optimisation of the model in future phases of the project.

The methodological design implemented in this first phase of the study enabled the consolidation of a robust model for constructing an Inclusive and Intercultural Teaching Laboratory, integrating a mixed-methods approach based on action research and human-centred design. The application of a validated questionnaire through piloting, with high reliability and the use of exploratory factor analysis, ensured the rigour of the research process. Specifically, the exploratory factor analysis confirmed the validity and consistency of the questionnaire used, demonstrating that the evaluated dimensions—inclusive and intercultural education, intercultural competences, Universal Design for Learning (UDL), immersive environments, and narratives—are indispensable principles for designing effective teaching strategies.

The analysis and discussion of the collected data revealed that narratives successfully spark students' intrinsic motivation, thereby fostering their participation in the learning process. Additionally, they facilitate the construction of contextualised knowledge tailored to students' sociocultural realities. In particular, the integration of visual, auditory, and interactive resources within narratives enhances the understanding of complex content and promotes autonomous and meaningful learning. Transmedia formats, being highly synchronisable with digital environments, including social media, amplify the capacity of narratives to overcome accessibility barriers, fostering personalised learning and enabling more dynamic and enriching interactions. In this regard, social media emerged as a key channel for disseminating narratives and facilitating interaction among students from diverse contexts, promoting collaboration and the development of intercultural competences. Consequently, the use of digital platforms expanded the scope of learning, creating spaces for co-creation and collective knowledge construction.

Likewise, the results show that a large majority of surveyed students recognised the positive impact of inclusive practices in their institutions, although challenges persist in raising awareness and effectively implementing inclusive policies. Regarding the implementation of narratives, the workshops and activities conducted demonstrated that the combination of textual, visual, and interactive elements enhances students' motivation and engagement with learning. The categorisation of narratives based on cognitive and social skills highlighted their role in strengthening intercultural competences, facilitating spaces for dialogue and reflection on diversity.

Finally, it is affirmed that narratives, as a central strategy in the Teaching Laboratory, are established as an effective tool for transforming teaching-learning processes in diverse contexts. Their integration into the model not only strengthens inclusive and intercultural education but also fosters dynamic and equitable learning communities aligned with the demands of the 21st century. The findings from this first phase enable the adjustment of strategies and the design of more effective learning experiences, ensuring the relevance and adaptability of the model to the needs of the populations involved.

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