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Integrating Museum Education in Early Childhood Teacher Training: A Comparative Analysis of a Slovenian and a Spanish University

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Abstract

This study examines the perceptions of Early Childhood Education undergraduate students from a Spanish and a Slovenian university regarding museums as active educational spaces. Adopting a quantitative, descriptive, and non-experimental approach, data were collected on students' views of the educational value of museums and their impact on Early Childhood learning and development. The findings reveal an overall positive perception in both institutions, though students from the Slovenian university attribute a greater role to museums in cognitive development and knowledge retention, while Spanish students emphasise creativity, innovation, and interdisciplinary learning. The study highlights the need to strengthen collaboration between schools and museums, integrate museum education training into university curricula, and promote museums as essential pedagogical resources for fostering holistic and experiential learning in Early Childhood Education.

Keywords: Comparative Analysis; Museum Education; Early Childhood Education Degree, Preservice Teacher Education; Slovenia and Spain.

[Es] La educación museística en la formación de docentes de Educación Infantil: Análisis comparativo entre una universidad eslovena y una española

Resumen

Este estudio analiza las percepciones de los estudiantes del Grado en Educación Infantil de una universidad española y una eslovena sobre los museos como espacios educativos activos. A través de un enfoque cuantitativo, descriptivo y no experimental, se recopilaron datos sobre la valoración que los estudiantes hacen del papel educativo de los museos y su impacto en el aprendizaje y desarrollo en la Educación Infantil. Los resultados revelan una percepción positiva generalizada en ambas instituciones, aunque los estudiantes de la universidad eslovena atribuyen a los museos un mayor papel en el desarrollo cognitivo y la retención del conocimiento, mientras que los estudiantes españoles destacan su contribución a la creatividad, la innovación y el aprendizaje interdisciplinario. El estudio subraya la necesidad de fortalecer la colaboración entre escuelas y museos, integrar la formación en educación museística en los planes de estudio universitarios y promover los museos como recursos pedagógicos esenciales para fomentar un aprendizaje holístico y experiencial en la Educación Infantil.

Palabras clave: Análisis comparativo; Educación en museos; Grado en Educación Infantil; Formación inicial docente; Eslovenia y España.

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1. Introducción

The International Council of Museums (ICOM, 2024) defines museums as permanent, non-profit institutions dedicated to researching, conserving, interpreting, and exhibiting tangible and intangible heritage. They operate with ethics, professionalism, and community engagement, promoting accessibility, diversity, and sustainability. Beyond preservation, museums play a vital educational role, adapting to community needs and fostering lifelong learning. Since the mid-20th century, they have strengthened their educational function, employing innovative strategies to engage both formal and informal learners (MacDonald, 2006; Hooper-Greenhill, 2000).

Within this context, the concept of Museum Education (ME) emerges, aiming to enhance historical and spatial awareness, preserve cultural heritage by connecting past, present, and future, and promote diversity through a participatory approach (Tezcan Akmeahmet and Ödekan, 2006). Museums not only transmit knowledge but also structure educational efforts around three key areas: cultural heritage, fostering respect for diversity; art, stimulating aesthetic sensitivity, critical thinking, and creativity; and science, encouraging experimentation and interactive learning (Parejo et al., 2021).

Museums have become key spaces in Early Childhood and Primary Education, promoting active and experiential learning. These environments enable children to explore historical, artistic, and cultural heritage through experimentation and inquiry (Molina Puche, 2013). This interaction fosters meaningful learning, enhancing skills such as observation, association, and critical thinking, while instilling values like responsibility and environmental awareness (Izquierdo et al., 2014; Parejo et al., 2021).

Research such as that conducted by Ponce-Delgado et al. (2024) positions Early Childhood Education (ECE) as one of the most suitable contexts for implementing strategies that foster the development of the aforementioned skills. In this regard, museums are conceived as spaces which, by integrating formal and informal education and promoting methodologies such as Project-Based Learning or workshops, enhance creativity and facilitate knowledge acquisition while incorporating sensory and emotional dimensions that enrich the educational experience. In this sense, Museums serve as dynamic spaces, balancing structured and intuitive learning, merging the symbolic and tangible to offer holistic educational experiences in an interdisciplinary and digital world (Rodríguez et al., 2023). Consequently, Cuenca López and Domínguez (2003) identify museums as spaces conducive to key competencies development, including learning to learn, learning to do, and learning to be.

Despite the benefits of ME for pupils' holistic development, several studies highlight barriers that hinder its integration into the early stages of education. Cuenca and Domínguez (2000) note that many teachers maintain a traditional view that associates museums with subjects such as history, science, or art, and with higher educational levels, which obstructs their presence in ECE. In line with this, recent research shows that undergraduates in ECE tend to reproduce this more conservative perspective (Moreno-Vera et al., 2022). According to Wu (2024), this perspective also may be related to the widespread belief that children aged 3 to 6 mainly require sensory, playful, and exploratory experiences. Although this idea is valid, the problem lies in the fact that many prospective teachers do not perceive the museum as a space capable of meeting those needs, thereby limiting its potential to foster pupils' cognitive, creative, socio-affective, and sensory development (Arbués and Naval, 2014).

In this context, the literature on museum pedagogy emphasises that these limitations cannot be addressed solely through school practice but require strengthening initial teacher education and promoting closer collaboration between museums, schools, and universities. Only when teachers are trained as active mediators can they connect museum content with educational experiences, maximising the impact of learning (Huerta, 2010, 2011). Thus, the integration of ME into university curricula emerges as an essential requirement for overcoming traditional perceptions and consolidating its potential in ECE. However, although some universities develop projects within national R&D frameworks, studies such as Castejón (2021) indicate that ME is mainly addressed in optional courses with low credit value, focusing on school visits and exhibitions rather than on comprehensive pedagogical integration (Gómez Redondo, 2020; Coca Jiménez and Marín Cepeda, 2023).

In addition to the above, existing research underscores that the formal integration of ME within the education system remains limited. Gómez Redondo (2020) notes that most school-museum relations are restricted to guided visits or isolated workshops, without genuine curricular inclusion. Similarly, Fontal (2003), Cuenca (2003), De los Reyes (2016) and Gómez-Frías et al. (2022) highlight the difficulties teachers face in harnessing the pedagogical potential of museums, largely due to insufficient training and a lack of specialised knowledge. Furthermore, Ponce-Delgado et al. (2024) further emphasise that responsibility does not rest exclusively with teachers: although many museums have established educational departments, a persistent gap remains between school curricula, museum programmes, and the specific needs of early childhood. Consequently, museums occupy a relatively prominent role in Secondary Education, a reduced presence in Primary Education, and are scarcely considered in ECE (Cuenca and Domínguez, 2000). This trend has also shaped research in ME, which has predominantly focused on higher education while neglecting the design of strategies adapted to the early years (Moreno-Vera et al., 2022).

Equally concerning are the limited perceptions of heritage education among prospective teachers. Studies conducted in universities such as Córdoba, Murcia, and Alicante reveal that traditional, conservationist understandings of heritage persist, restricting both conceptualisation and pedagogical application (Moreno-Vera et al., 2022). Coca Jiménez and Marín Cepeda (2023) found that most undergraduate Primary Education students had never visited a nearby museum, demonstrating a very limited prior engagement; however, following participation in structured projects, both their understanding and motivation increased significantly. Similar findings are reported by Sánchez Macías et al. (2022), who show that direct engagement with museums enhances students' recognition of their cultural and educational value and strengthens their capacity to apply such experiences in classroom

contexts. Nonetheless, Colman Ramírez (2023) and Gómez-Frías et al. (2022) caution that overall teacher commitment to museums remains low, manifested in infrequent visits, limited interest, and scarce use of methodologies associated with ME.

Research examining prospective teachers' perceptions of cultural and natural heritage further confirms that student teachers—such as those in universities in Córdoba, Murcia, and Alicante in Spain—often hold restricted views shaped by traditional conservationist narratives. These narrow perspectives constrain both their comprehension of heritage and its potential pedagogical applications (Moreno-Vera et al., 2022). Such findings reinforce the need for a broader, more integrated conception of heritage education.

In this regard, the initial training of future teachers emerges as a decisive factor in transforming these dynamics. As Huerta (2010) argues, university education must equip teachers to move from a passive stance to one of active mediation, integrating ME into the school curriculum and reconceptualising museums as active learning environments. Only through targeted training that provides authentic experiences, and practical didactic tools will prospective teachers be able to incorporate museums effectively into educational planning and consolidate their role as living learning spaces within ECE. In line with this, the academic literature (Aguirre Arriaga, 2013; Castejón Ibáñez, 2021; Sánchez Macías et al., 2022; Gómez Redondo, 2020) consistently underscores the importance of raising awareness and fostering training in museum pedagogy. Strengthening partnerships between museums and schools is therefore essential to expanding access to resources and methodologies, reinforcing the museum's role as a complementary and meaningful site of learning.

This demand aligns with broader educational reforms driven by the European Higher Education Area (EHEA), established after the Sorbonne (1998) and Bologna (1999) declarations. These initiatives seek to harmonise educational policies across Europe, fostering interdisciplinary collaboration and cultural engagement. Additionally, UNESCO's Sustainable Development Goals (Agenda 2030, target 11.4) highlight the necessity of strengthening ME at the university level, reinforcing cooperation between academic, cultural, and artistic institutions (Coca Jiménez and Marín Cepeda, 2023). However, museum integration into university education remains limited. In response, Uppin et al. (2023) advocate for incorporating extracurricular learning environments, hands-on activities in non-university educational spaces, and professional networking to bridge university teaching and museums. These measures would equip future educators to design richer learning experiences, consolidating museums as essential pedagogical resources.

Against this backdrop, this study examines ME in Early Childhood, focusing on student perceptions at a Spanish and a Slovenian university. The research aims to identify which institution provides more comprehensive training on museums' educational role, particularly in fostering holistic child development.

2. Context of the research

2.1. Context of Early Childhood Education in Spain and in Slovenia

ECE in Spain and Slovenia is divided into two stages: 0-3 years and 3-6 years. Both countries adopt a holistic approach that emphasises physical, emotional, social, and cognitive development. ME is seen as a tool to foster positive self-image and citizenship values, promoting active learning through enquiry, experimentation, and interaction with the environment. Flexible curricula in both systems allow teachers to design cross-curricular activities that integrate diverse areas of learning.

However, there are significant differences in the regulatory frameworks and the integration of ME. In Spain, ECE is governed by Royal Decree 95/2022, with adaptations by Autonomous Communities, such as Madrid's Decree 26/2022. The curriculum is divided into three areas: Growth in Harmony, Discovery and Exploration of the Environment, and Communication and Representation of Reality. ME is included in the artistic domain under the latter area, focusing on techniques like collage, human figure representation, and visits to cultural spaces like museums and galleries. This approach primarily emphasises artistic development.

In Slovenia, the Kindergarten Curriculum, approved in 1999, provides a more unified and interdisciplinary approach. ME is integrated across three areas: Movement, Art, and Social Studies. Activities include visits to museums, galleries, and theatres, as well as exploration of local landscapes

and archaeological sites. Additionally, the curriculum highlights the role of adults as mediators, facilitating connections between children and their cultural and historical environments through talks and exhibitions.

The term *museum* appears only once in Spain's curriculum, exclusively within the artistic domain. In contrast, Slovenia's curriculum mentions museums across objectives, activities, and adult roles, reflecting a broader focus on art and cultural heritage. This integration aligns with the dynamic and interdisciplinary pedagogical approaches highlighted by MacDonald (2006) and Hooper-Greenhill (2000), who emphasise museums as spaces that foster critical thinking, cultural awareness, and experiential learning.

According to Parejo et al. (2021) classification, Slovenia's curriculum demonstrates a more comprehensive integration of ME, fostering a well-rounded educational approach. In comparison, Spain's narrower focus limits the potential for museums to contribute to holistic child development within ECE.

2.2. Context of university education in Spain and Slovenia: Bachelor's degree in early childhood education and its Integration with ME for Teaching and Learning

Regarding teacher training, both countries provide initial education through universities, following their respective legal frameworks. In Spain, the bachelor's degree in ECE is structured according to regulations such as Royal Decree 822/2021, Order ECI/3854/2007, and Royal Decree 1058/2015. The degree spans four years (240 ECTS). In Slovenia, teacher training consists of a three-year bachelor's degree (180 ECTS) followed by a two-year master's programme (120 ECTS), with a strong focus on improving educational quality and advancing research in theory and methodology (Štemberger, 2020). Both systems qualify graduates to work in ECE.

Based on the review of teacher training legislation in both countries, various approaches were identified regarding how both official and university curricula address ME. In the Spanish context, the official regulatory framework for teacher education does not contain explicit references to the term 'museum' or to 'ME'. Nonetheless, the legislation encompasses a range of subject areas which, through implicit and flexible interpretation, enable universities to incorporate museum-related concepts within their training programmes. These areas include the learning of *Natural Sciences*, *Social Sciences*, *Mathematics*, *Music*, *Plastic and Corporal Expression*. Regarding the curriculum of the university under examination, explicit references to ME are similarly absent. However, the analysis indicates that pedagogical engagement with museums may be fostered through specific subjects such as *Plastic Expression and Its Didactics*, *Music Education and Its Didactics*, *Learning of Social and Natural Sciences*, *Psychomotor Development*, *Body Expression and Its Didactics*, among others.

In Slovenia, although a unified national curriculum for Early Childhood Teacher Education is not in place, the curriculum of the university under study demonstrates both explicit and implicit integration of ME across several academic subjects. Explicitly, the third-year course *Visual Art Activities in Museums and Galleries* addresses museum pedagogy through historical, theoretical, and practical components, including the design and evaluation of educational activities within museum contexts. Implicitly, subjects such as *Didactics of Introduction to the Social Environment* and *Pedagogical Research in Art Didactics* incorporate museums as educational resources by fostering competences related to cultural and national identity, environmental sensitivity, and the connection between pedagogical research and local cultural events.

Comparatively, Spain adopts a more specific and artistically focused approach, whereas Slovenia presents a broader, interdisciplinary vision that embeds museum education within artistic, social, and environmental learning. This distinction aligns with the perspectives of MacDonald (2006) and Hooper-Greenhill (2000), who underscore the pedagogical potential of museums as dynamic and cross-disciplinary educational spaces.

2.3. Approaches to ME in Spain and Slovenia

Academic literature highlights that museums undertake diverse educational functions, which are shaped by their national contexts. This is evident in the extent to which they are incorporated into

curricular frameworks and teacher education, influencing both pedagogical practices and the development of educational strategies within these institutions.

In the case of Spain, the study by Ponce-Delgado et al. (2022) adopts a transcultural perspective in analysing how Spanish museums—together with experiences in Cuba, Italy, and Portugal—design innovative strategies aimed at stimulating children's creative potential. Creativity is not conceived here as a finished product, but rather as a cultural process through which children re-signify symbols, generate ideas, and construct new meanings.

The research identifies three key domains that shape these practices: the cultural (social conceptions of creativity), the institutional (management and strategic planning within museums), and the practical (concrete forms of pedagogical mediation in museum contexts). Within this framework, Spanish museums foster environments that encourage fluency—the capacity to generate multiple ideas—, flexibility—the ability to reinterpret content and situations—, and future projection—a vision of the long-term creative implications. In this way, museums emerge as active settings of informal learning, where creativity is not only enhanced through the museum experience itself but also through its transformative and meaningful dimension, both symbolically and culturally.

In Slovenia, Govekar-Okoliš (2018, 2022) presents a paradigmatic example in the Slovenian School Museum in Ljubljana, which, since its foundation in 1898, has evolved from being a space for complementary teacher training into a key institution for the preservation, exhibition, and dissemination of school heritage. Its initiatives include permanent and temporary exhibitions, thematic workshops—such as calligraphy, handicrafts, or historical re-enactments—, and, most notably, historical school lessons, in which visitors can experience first-hand what classrooms were like in different periods.

These activities enable student teachers to approach the history of schooling and to understand the evolution of teaching and learning processes, reinforcing the perception of the museum as a privileged space for transmitting knowledge, preserving educational memory, and connecting with the historical dimension of education. Nevertheless, this approach tends to consolidate a perception of the museum that is primarily linked to cognitive and academic development, leading future teachers to value it mainly as a cultural and formative resource. This, in turn, conditions the way in which they conceive their contribution to the integral development of children in later stages of their professional careers.

3. Research context and objectives

The relationship between future teachers and ME has been extensively explored by researchers such as Aguirre Arriaga (2013), Gómez Redondo (2020), Sánchez Macías et al. (2022), and Coca Jiménez and Marín Cepeda (2023), among others. These studies underscore the importance of integrating museums as fundamental educational spaces in teacher training, highlighting their role in fostering children's engagement with the arts, cultural heritage, and social history. Additionally, they emphasise the necessity of equipping future educators with the skills to design meaningful museum-based learning experiences that not only enhance heritage appreciation but also contribute to active learning and the holistic development of students.

Building upon this framework, the primary objective of this study is *to conduct a comparative analysis of the perceptions of ECE undergraduate students at a Spanish and a Slovenian university regarding museums and ME as dynamic educational spaces*. The research examines the impact of ME on the teaching-learning process and on students' holistic development to determine which institution provides more robust training on the significance of museums in ECE. The specific objectives are:

- To assess students' perceptions of museums and ME as active educational spaces and their relevance in the teaching-learning process.
- To explore how students perceive the influence of ME on the holistic development of children, encompassing cognitive, affective, psychomotor, social, and cultural dimensions.
- To identify which of the two universities offers more comprehensive training on the educational significance of museums and their role in children's overall development.

4.-Methodology frameworks

4.1. Research Design and Ethical Considerations

This study adopted a descriptive, exploratory, and non-experimental empirical research design, aimed at examining students' perceptions of ME without manipulating any variables. The research was conducted in two universities with comparable characteristics in ECE training. Participation was entirely voluntary, and informed consent was obtained before data collection. Ethical principles such as confidentiality, anonymity, and the right to withdraw were strictly observed throughout the process.

4.2. Research sample

The sample was selected by convenience, considering the non-probability sampling techniques indicated by Otzen and Manterola (2017). The accessibility and proximity of the participants were the criteria used for the selection of the participants. The sample consisted of 48 Spanish students and 89 Slovenian students. Although non-random, the sample includes students from institutions with distinct pedagogical models, allowing for meaningful comparative analysis. This design does not aim at statistical representativeness but seeks to explore tendencies and patterns that may offer valuable insights into the integration of museum education in teacher training. Given the exploratory nature of the study, the use of a convenience sample is considered valid and appropriate for addressing the research objectives.

Table 1

Number (f) and structural percentage (f%) of participating students per country

Country	f	f%
Spain	48	35.04%
Slovenia	89	64.96%
Total	137	100%

Source: Own elaboration.

4.3. Instrument

The study used a survey prepared by Tas (2012) to find out the opinion of teacher candidates about museums and ME. Regarding the validity of the questionnaire, the Cronbach's Alpha reliability coefficient of the items was 0.82. The survey is divided into two sections. In the first section, 23 items related to museums and ME are integrated, making use of a four-score scale (Strongly agree, 4; Partially agree, 3; Disagree, 2; Strongly disagree, 1). On the other hand, the second section integrates two open-ended questions.

4.4. Questionnaire application and data analysis

Data were collected in May and June 2024 at the Faculties of Education in both participating universities. The questionnaire was administered individually and anonymously. Once collected, the data were analysed using SPSS software. Descriptive statistics and frequency distributions were applied, along with the Mann-Whitney U test to identify statistically significant differences between the two student groups. A p-value of less than 0.05 was considered significant, in line with standards established by Cramer and Howitt (2004).

5. Results

5.1. Description and interpretation of the results

5.1.1. Museums: Beyond Exhibition Spaces

This section explores Slovenian and Spanish students' perceptions of museums as active educational spaces and their value in the teaching and learning process.

Table 2

Slovenia: Students' results on the statement 'Museums are just places to exhibit works'

f/f %	Strongly disagree	Disagree	Partially agree	Strongly agree	Total
F	5	38	38	6	87
f %	5.70%	43.70%	43.70%	6.90%	100%

Most respondents are divided between 'Disagree' (43.70 %) and 'Partially agree' (43.70 %), indicating that, although they recognise that museums have wider functions, some consider the statement to be partially valid. Only 6.90% 'Strongly agree', while a small percentage (5.70 %) 'Strongly disagree'.

Table 3

Spain: Students' results on the statement 'Museums are just places to exhibit work'

<i>f/f %</i>	Strongly disagree	Disagree	Partially agree	Strongly agree	Total
<i>F</i>	8	14	12	14	48
<i>f %</i>	16.70%	29.15%	25.00%	29.15%	100%

Source: Own elaboration.

The results reflect a greater polarisation in students' opinions on the statement '*Museums are only places to exhibit works*'. 16.70% 'Strongly disagree', representing a significant proportion of those who categorically reject this idea. In addition, 29.15% 'Disagree', while another 25.00% 'Agree in part'. Finally, 29.15% 'Strongly Agree'.

5.1.2. ME: An Active Learning Space and Its Impact on the Teaching and Learning Process

This section analyses the students' perception of ME as an active learning environment, where their future students are the protagonists of their educational process. It examines how they conceive this space as an opportunity to offer practical experiences that enhance cognitive skills, critical thinking, creativity and imagination, as well as promoting observation and research. It also highlights their ability to foster knowledge retention, strengthen historical and cultural awareness, and complement traditional methods, contributing significantly to lifelong learning.

Table 4

Slovenia: Students' results of the category 'ME as an active educational space and its value in the teaching and learning process'

Statements	<i>f/f %</i>	Strongly disagree	Disagree	Partially agree	Strongly agree	Total
ME is a process where the student is active	<i>f</i>	1	5	53	28	87
	<i>f %</i>	1.15%	5.75%	60.92%	32.18%	100%
ME teaches students different ways to improve their knowledge	<i>f</i>	2	5	58	22	87
	<i>f %</i>	2.30%	5.75%	66.66%	25.29%	100%
ME provides students the opportunity to compare their knowledge.	<i>f</i>	2	7	65	13	87
	<i>f %</i>	2.30%	8.05%	74.71%	14.94%	100%
ME enables students to gain thinking skills in addition to knowledge	<i>f</i>	1	6	43	37	87
	<i>f %</i>	1.15%	6.90%	49.42%	42.53%	100%
ME unravels the effect the classes, conferences and books couldn't	<i>f</i>	1	11	45	30	87
	<i>f %</i>	1.15%	12.64%	51.72%	34.49%	100%
ME ensures	<i>f</i>	2	2	58	25	87

permanent retention in students	<i>f</i> %	2.30%	2.30%	66.67%	28.73%	100%
ME develops students' creativity and imagination	<i>f</i>	2	2	38	45	87
	<i>f</i> %	2.30%	2.30%	43.68%	51.72%	100%
ME improves observation and investigation-based learning	<i>f</i>	3	1	43	40	87
	<i>f</i> %	3.45%	1.15%	49.42%	45.98%	100%
ME contributes to individuals' life-long education process	<i>f</i>	1	5	51	30	87
	<i>f</i> %	1.15%	5.75%	58.62%	34.48%	100%

Source: Own elaboration.

A significant majority of students (60.92%) partially agree, while 32.18% fully agree that *ME actively engages students*, with minimal disagreement (6.90%). Similarly, *ME is perceived as a valuable tool for improving knowledge acquisition*, with 66.66% of students partially agreeing and 25.29% strongly agreeing with the statement that it teaches different ways to enhance learning, while only 8.05% disagreed. Additionally, museums are widely *acknowledged as spaces that enable students to compare their knowledge*, as reflected by 74.71% of respondents partially agreeing and 14.94% strongly agreeing. However, 10.35% of students expressed some level of disagreement, indicating minor variations in perceptions. Beyond knowledge acquisition, the findings highlight the role of ME in developing critical thinking skills and addressing aspects not covered by traditional educational methods. Nearly half of the respondents (49.42%) partially agreed, and 42.53% fully agreed that *museums contribute to the development of thinking skills*, with only 8.05% disagreeing. Furthermore, 51.72% of students partially agreed, and 34.49% strongly agreed that *museums provide educational benefits that classes, lectures, and books cannot*, while 13.79% disagreed. The *impact of ME on long-term knowledge retention* was also positively rated, with 66.67% of respondents partially agreeing and 28.73% strongly agreeing, suggesting that students view museums as effective in reinforcing learning. Only 4.60% expressed disagreement, indicating minimal opposition to this statement.

The role of ME in fostering creativity, observation, and lifelong learning was also widely endorsed. The *development of creativity and imagination* was highly rated, with 51.72% of students strongly agreeing and 43.68% partially agreeing, while only 4.60% disagreed. Similarly, 45.98% of respondents strongly agreed, and 45.98% partially agreed that *museums enhance observational and inquiry-based learning*, with only 4.60% disagreeing. Finally, *ME was recognised as a key element in lifelong learning*, with 58.62% agreeing and 34.48% strongly agreeing that museums contribute to ongoing education beyond formal schooling, reinforcing their perceived value as an enduring educational resource.

Table 5

Spain: Students' results of the category 'ME as an active educational space and its value in the teaching and learning process'

Statements	<i>f/f</i> %	Strongly disagree	Disagree	Partially agree	Strongly agree	Total
ME is a process where the student is active	<i>f</i>	3	2	19	24	48
	<i>f</i> %	6.25%	4.17%	39.58%	50.00%	100%
ME teaches students the ways to improve their knowledge	<i>f</i>	2	1	26	19	48
	<i>f</i> %	4.17%	2.08%	54.17%	39.58%	100%
ME provides students	<i>f</i>	2	2	25	19	48

the opportunity to compare their knowledge	<i>f</i> %	4.17%	4.17%	52.08%	39.58%	100%
ME enables students to gain thinking skills in addition to knowledge	<i>f</i>	3	2	15	28	48
	<i>f</i> %	6.25%	4.17%	31.25%	58.33%	100%
ME unravels the effect the classes, conferences and books couldn't	<i>f</i>	2	5	27	14	48
	<i>f</i> %	4.17%	10.42%	56.25%	29.16%	100%
ME ensures permanent retention in students	<i>f</i>	3	7	22	16	48
	<i>f</i> %	6.25%	14.58%	45.84%	33.33%	100%
ME develops students' creativity and imagination	<i>f</i>	1	0	13	34	48
	<i>f</i> %	2.08%	0.00%	27.08%	70.84%	100%
ME improves observation and investigation-based learning	<i>f</i>	2	2	17	27	48
	<i>f</i> %	4.17%	4.17%	35.42%	56.24%	100%
ME contributes to individuals' life-long education process	<i>f</i>	1	2	24	21	48
	<i>f</i> %	2.08%	4.17%	50.00%	43.75%	100%

Source: Own elaboration.

Half of the respondents (50.00%) strongly agreed that *ME is a process where students are active*, with 39.58% partially agreeing, and minimal disagreement (6.25% strongly disagreeing and 4.17% disagreeing). Similarly, the statement that *ME teaches students ways to improve their knowledge* received broad agreement, with 54.17% partially agreeing and 39.58% strongly agreeing, while only 6.25% strongly disagreed.

The role of *ME in providing students opportunities to compare their knowledge* also garnered high agreement, with 52.08% partially agreeing and 39.58% strongly agreeing, though a small percentage (8.34%) expressed disagreement. Additionally, 58.33% of respondents strongly agreed that *ME enables students to gain thinking skills alongside knowledge acquisition*, while 31.25% partially agreed. Minimal disagreement was recorded (6.25% strongly disagreeing and 4.17% disagreeing), further reinforcing the perception of ME as a tool for intellectual development. Beyond cognitive benefits, students acknowledged the unique impact of ME in ways that traditional educational methods cannot replicate. The statement that *ME unravels effects that classes, conferences, and books cannot* was supported by 56.25% of students partially agreeing and 29.16% strongly agreeing, reinforcing its perceived unique educational value. However, 10.42% disagreed and 4.17% strongly disagreed, indicating some variation in opinion.

The statement that *ME ensures permanent retention in students* received 45.84% partial agreement and 33.33% strong agreement but also showed the highest levels of disagreement (14.58% disagreeing and 6.25% strongly disagreeing). *Creativity and imagination* emerged as the most highly endorsed aspects, with 70.84% strongly agreeing and 27.08% partially agreeing, while only 2.08% strongly disagreed. Similarly, *observation and investigation-based learning* received strong endorsement, with 56.24% strongly agreeing and 35.42% partially agreeing, and only 4.17% strongly disagreeing. Finally, the *lifelong learning impact of ME* was widely recognized, with 43.75% strongly agreeing and 50% partially agreeing, with minimal disagreement (4.17% disagreeing and 2.08% strongly disagreeing).

5.1.3. Holistic Development Through ME

This section examines the perception of students in each country regarding how ME contributes to the holistic development of their future pupils, encompassing the cognitive, affective, psychomotor, social, and cultural dimensions.

Table 6

Slovenia: Students' results of the category 'Holistic Development Through ME'

Statements	<i>f/f %</i>	Strongly disagree	Disagree	Partially agree	Strongly agree	Total
ME contributes to students' cognitive development	<i>f</i>	3	1	46	37	87
	<i>f %</i>	3.45%	1.15%	52.87%	42.53%	100%
ME contributes to students' affective development	<i>f</i>	3	5	53	26	87
	<i>f %</i>	3.45%	5.75%	60.91%	29.89%	100%
ME contributes to students' psychomotor development	<i>f</i>	1	18	53	15	87
	<i>f %</i>	1.15%	20.69%	60.92%	17.24%	100%
ME enables students' social and cultural development	<i>f</i>	3	2	31	51	87
	<i>f %</i>	3.45%	2.30%	35.63%	58.62%	100%

Source: Own elaboration.

The survey results indicate strong agreement on the role of ME in student development. *Cognitive growth* was widely acknowledged, with 52.87% partially agreeing and 42.53% strongly agreeing, while only 4.60% expressed disagreement. Similarly, ME was seen as *contributing to affective development*, as 60.91% of Slovenian students partially agreed and 29.89% strongly agreed, with only 9.20% disagreeing. In terms of *psychomotor development*, 60.91% partially agreed, and 17.24% strongly agreed that museums facilitate this type of growth, although this area had the highest disagreement (21.84%), mostly at the partial disagreement level (20.69%). Finally, *museums' role in social and cultural development* received strong support, with 58.62% strongly agreeing and 35.63% partially agreeing, while only 5.57% expressed any disagreement, reinforcing the perception of museums as essential for holistic student growth.

Table 7

Spain: Students' results of the category 'Holistic Development Through ME'

Statements	<i>f/f %</i>	Strongly disagree	Disagree	Partially agree	Strongly agree	Total
ME contributes to students' cognitive development.	<i>f</i>	1	2	22	23	48
	<i>f %</i>	2.08%	4.17%	45.83%	47.92%	100%
ME contributes to students' affective development.	<i>f</i>	3	1	24	20	48
	<i>f %</i>	6.25%	2.08%	50.00%	41.67%	100%
ME contributes to students' psychomotor development.	<i>f</i>	4	4	19	21	48
	<i>f %</i>	8.33%	8.33%	39.58%	43.76%	100%
ME enables students' social and cultural development.	<i>f</i>	3	0	14	31	48
	<i>f %</i>	6.25%	0.00%	29.17%	64.58%	100%

Source: Own elaboration.

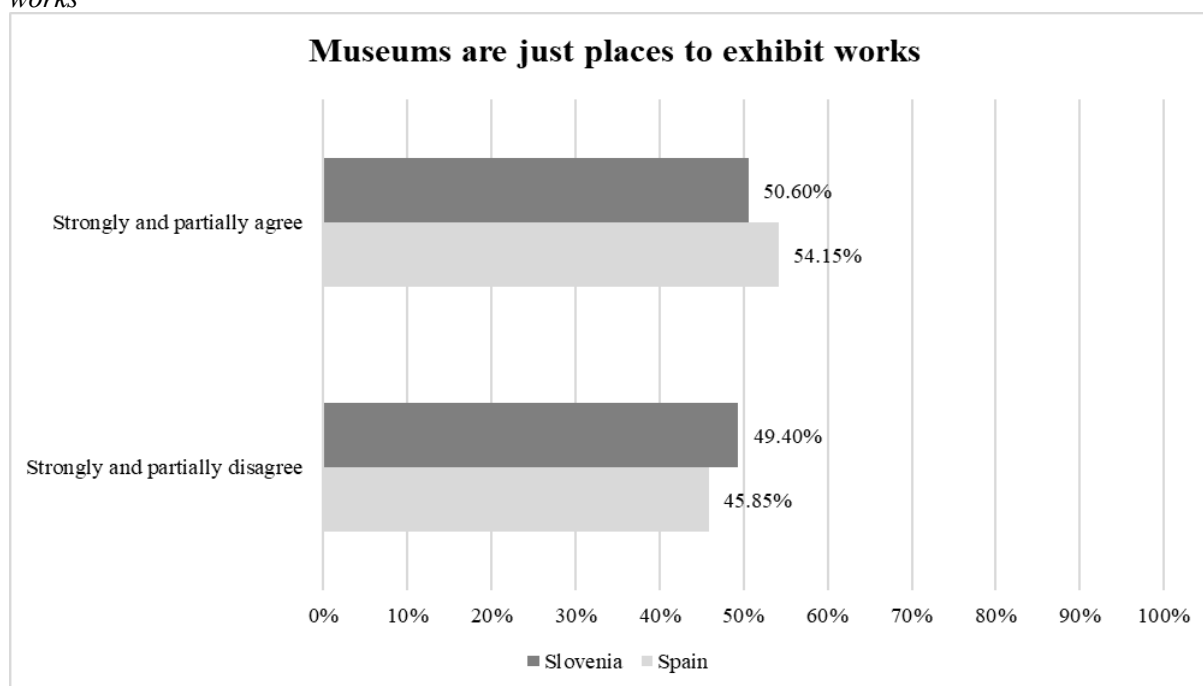
The results indicate strong agreement on the role of ME in various aspects of student development. For *cognitive development*, 45.83% of participants 'Partially agree' and 47.92% 'Strongly agree,' with only 6.25% expressing disagreement. Similarly, 50.00% 'Partially agree' and 41.67% 'Strongly agree' that museums *contribute to affective development*, while only 8.33% disagreed. In terms of *psychomotor development*, 39.58% 'Partially agree' and 43.76% 'Strongly agree' that museums facilitate this growth, though 16.66% expressed some level of disagreement. Finally, for *social and cultural development*, 29.17% 'Partially agree' and 64.58% 'Strongly agree' that ME supports this dimension, while only 6.25% 'Strongly disagree,' with no partial disagreement recorded.

6. Comparative Analysis of Results

Figure 1 compares the students' results regarding the dimension '*Museums: Beyond Exhibition Spaces*'. The results indicate a nearly equal division of opinions in both countries regarding the role of museums. In Slovenia, 50.60% of respondents agree that *museums serve solely as exhibition spaces*, while in Spain, this perception is slightly more prevalent at 54.15%. Conversely, the proportion of those who disagree (49.40% in Slovenia and 35.85% in Spain) closely mirrors the percentage of those who agree, highlighting a polarisation in public opinion on the educational purpose of museums. The Mann-Whitney U-test ($P=0.360$) confirms that no significant differences exist between the responses of students from both countries.

Figure 1.

Comparison of students' perceptions regarding the first dimension on the statement 'Museums are just places to exhibit works'



Source: Own elaboration.

In the second dimension, '*ME: An Active Learning Space and Its Impact on the Teaching and Learning Process*', Figure 2 provides a comparative overview of students' perceptions. It illustrates how future teachers from Spain and Slovenia assessed the educational role of museums in fostering active learning, strengthening observation and research-based skills, promoting creativity and imagination, supporting knowledge retention, and complementing traditional teaching methods.

Slovenian students demonstrated a slightly higher level of agreement (93.10%) than Spanish students (89.58%) regarding the statement that *'ME is a process where the student is active'* while disagreement was higher in Spain (10.42%) than in Slovenia (6.90%).

However, no significant differences were found ($P=0.360$). Similarly, both countries reported high agreement on the statement that *'ME teaches students ways to improve their knowledge'* (91.95% in Slovenia and 93.75% in Spain), with lower disagreement in Spain (6.25%) than in Slovenia (8.05%), again with no significant differences ($P=0.109$). Conversely, Spanish students showed slightly higher agreement (91.66%) than Slovenian students (89.65%) in the belief that *'ME provides students the opportunity to compare their knowledge'* while disagreement was higher in Slovenia (10.35%) than in Spain (8.34%).

Slovenian students demonstrated a slightly higher level of agreement (93.10%) than Spanish students (89.58%) regarding the statement that *'ME is a process where the student is active'* while disagreement was higher in Spain (10.42%) than in Slovenia (6.90%). However, no significant differences were found ($P=0.360$). Similarly, both countries reported high agreement on the statement that *'ME teaches students ways to improve their knowledge'* (91.95% in Slovenia and 93.75% in Spain), with lower disagreement in Spain (6.25%) than in Slovenia (8.05%), again with no significant differences ($P=0.109$).

Conversely, Spanish students showed slightly higher agreement (91.66%) than Slovenian students (89.65%) in the belief that *'ME provides students the opportunity to compare their knowledge'* while disagreement was higher in Slovenia (10.35%) than in Spain (8.34%). The Mann-Whitney U-test revealed significant differences ($P=0.007$), attributed to the distribution of responses: Spanish students' responses were more concentrated in 'Partially agree' (52.08%) and 'Strongly agree' (39.58%), reflecting a uniform perception. In Slovenia, although most also selected 'Partially agree' (74.71%) and 'Strongly agree' (14.94%), a higher proportion in 'Strongly disagree' (10.30%) suggests greater dispersion in perceptions. This may indicate markedly different views between students in the two countries on how museums facilitate knowledge comparison.

Similarly, the statement *'ME enables students to gain thinking skills in addition to knowledge'* saw a higher agreement level in Slovenia (91.95%) than in Spain (89.58%), though disagreement was slightly greater in Spain (10.42%) than in Slovenia (8.05%), with no significant differences ($P=0.173$). For the statement *'ME unravels the effect that classes, conferences, and books couldn't'*, responses were similar, with agreement levels of 86.21% in Slovenia and 85.41% in Spain, and slightly higher disagreement in Spain (14.59%) than in Slovenia (13.79%), with no significant differences ($P=0.559$). In contrast, the statement *'ME ensures permanent retention in students'* showed that 95.40% of Slovenian students agreed, compared to 79.17% in Spain. Disagreement was also notably higher in Spain (20.83%) than in Slovenia (4.60%), though these differences were not statistically significant ($P=0.444$).

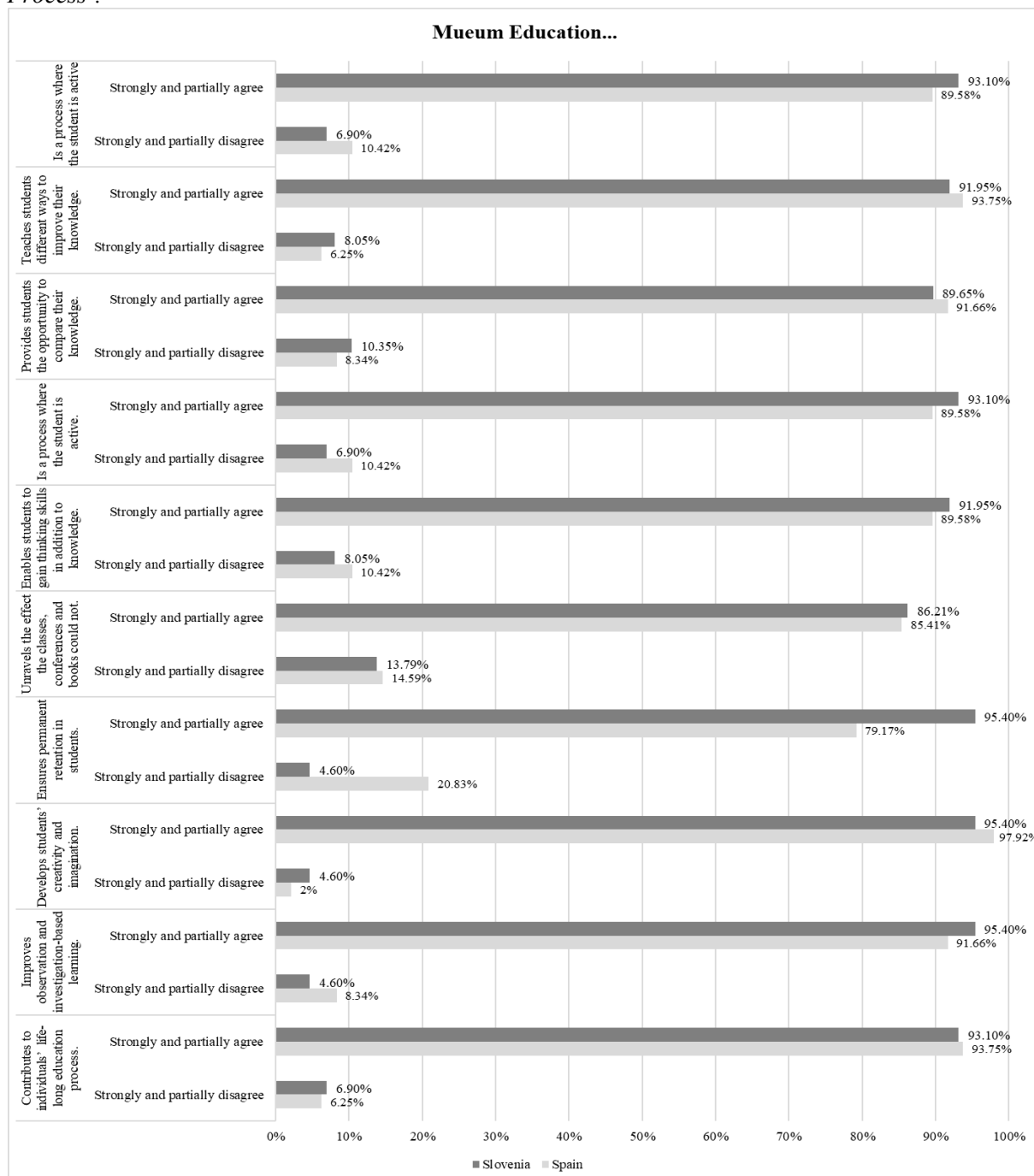
Regarding *'ME develops students' creativity and imagination'* Spanish students showed a slightly higher agreement (97.92%) than Slovenian students (95.40%), with minimal disagreement in both (2% in Spain, 4.60% in Slovenia). The Mann-Whitney U-test ($P=0.031$) revealed significant differences, as Spanish students predominantly selected 'Strongly agree' (70.84%), whereas Slovenian students showed greater dispersion, with 51.72% in 'Strongly agree' and 43.68% in 'Partially agree.' This suggests that Spanish students perceive this aspect of ME more positively and uniformly, whereas Slovenian students' perceptions, though still positive, are more moderate.

For the statement *'ME improves observation and investigation-based learning'* high agreement was recorded in both Slovenia (95.40%) and Spain (91.66%), though disagreement was greater among Spanish students (8.34%) than Slovenian students (4.60%), with no significant differences ($P=0.396$). Finally, regarding the statement *'ME contributes to*

individuals' lifelong education process,' both Slovenia and Spain showed very high agreement levels (93.10% and 93.75%, respectively), with minimal disagreement (6.90% in Slovenia and 6.25% in Spain), with no significant differences found ($P=0.320$).

Figure 2.

Comparison of students' perceptions regarding the second dimension: 'ME: An Active Learning Space and Its Impact on the Teaching and Learning Process'.



Note: Overall, both groups expressed consistently high levels of agreement across the items. However, significant differences emerged in specific aspects: creativity and imagination and the opportunity to compare knowledge. In both cases, Spanish students showed stronger and more uniform agreement, particularly emphasising the role of ME in fostering creativity and in enabling students to compare their knowledge.

Slovenian students, while still positive overall, displayed more dispersed responses, suggesting more diverse perceptions of these aspects.

Finally, Figure 3 illustrates the findings of the ‘*Holistic Development Through ME*’ dimension, which explores students’ perceptions of museums’ contributions to holistic development across psychomotor, affective, cognitive, social, and cultural domains.

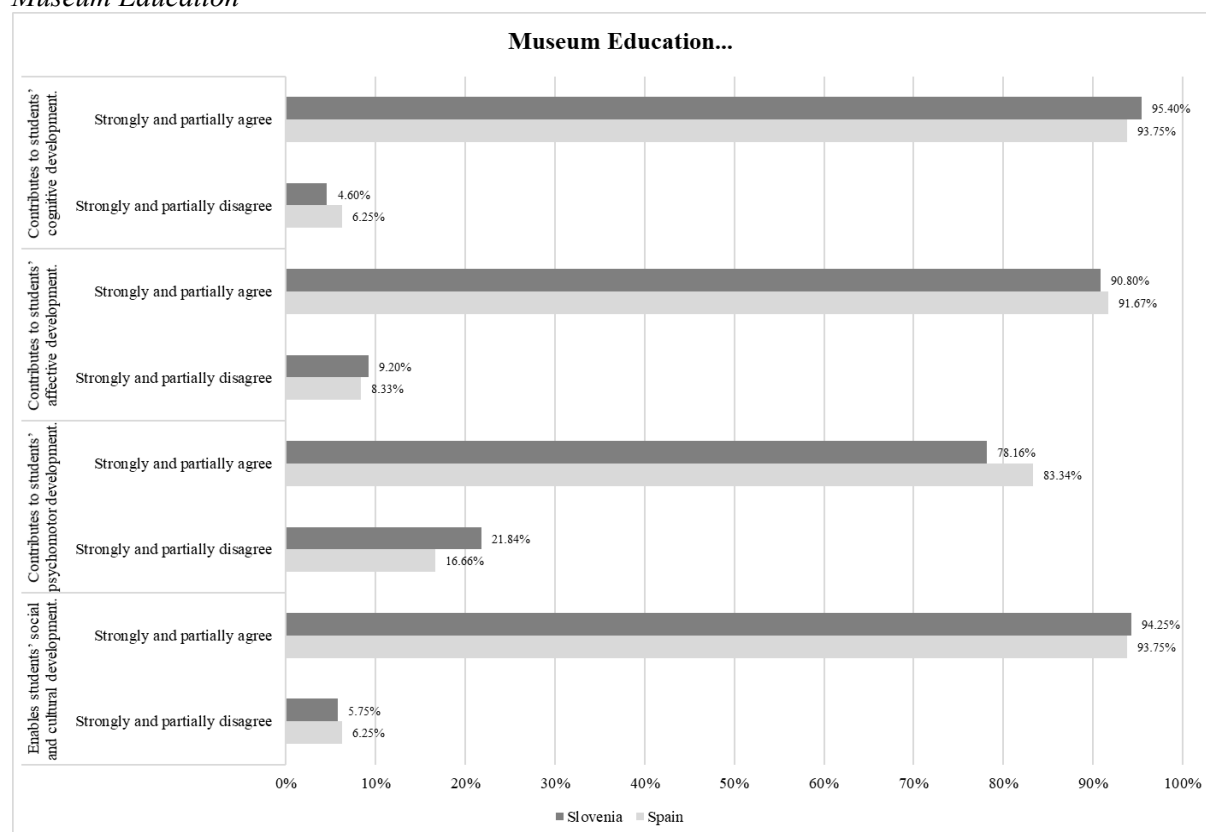
The statement ‘*Contributes to students’ cognitive development*’ reveals high levels of agreement in both countries. In Slovenia, 95.40% of students agreed, with only 4.60% disagreeing, while in Spain, 93.75% agreed and 6.25% disagreed. No significant differences were found ($p=0.642$).

Similarly, the statement ‘*Contributes to students’ affective development*’ shows near-identical agreement levels. In Slovenia, 90.80% of students agreed, while 9.20% disagreed; in Spain, 91.67% agreed, with 8.33% disagreeing. No significant differences were found ($p=0.231$).

For the statement ‘*Contributes to students’ psychomotor development*’, agreement levels are lower compared to other dimensions. In Slovenia, 78.16% agreed, but 21.84% disagreed. In Spain, agreement was higher (83.34%), though disagreement remained notable (16.66%). The Mann-Whitney U-test identified significant differences between Slovenia and Spain ($p=0.014$). In Slovenia, greater response dispersion was observed (78.16% agreement, 21.84% disagreement), reflecting less uniformity in students’ perceptions of museums’ impact. Conversely, in Spain, although disagreement was 16.66%, 83.34% agreed, with 42.70% selecting ‘Strongly agree’, compared to 17.24% in Slovenia, indicating a more consistent and positive perception in Spain.

Figure 3.

Comparison of students’ perceptions regarding the third dimension: ‘Holistic Development Through Museum Education’



Note: Overall, both groups expressed very high levels of agreement across all areas. Nevertheless, significant differences were observed in the psychomotor dimension, where Spanish students placed greater emphasis. The following section offers a detailed description of the results for each statement within this dimension.

The statement '*Enables students' social and cultural development*' received overwhelmingly high agreement in both countries. In Slovenia, 94.25% agreed, with only 5.75% disagreeing, while in Spain, 93.75% agreed and 6.25% disagreed. No significant differences were found ($p=0.558$).

7. Conclusions and Discussions

This study analysed and compared how students from a Spanish and a Slovenian university perceive ME as an active learning space, focusing on its impact on the teaching-learning process and the holistic development of students. Additionally, the research aimed to identify which university provides more solid training on the educational value of museums, a key aspect in preparing future educators.

In the first dimension, *Perception of museums as educational spaces*, a clear divergence was observed between students from both countries concerning whether museums are merely exhibition venues. This polarisation reflects a limited conceptualisation of the museum as a pedagogical resource, likely attributable to its uneven integration within formal curricula. As Cuenca López and Domínguez (2000) argue, such a reductive view may hinder the recognition of museums as interdisciplinary environments capable of contributing to the comprehensive development of the individual.

In the second dimension, *ME: An Active Learning Space and Its Impact on the Teaching and Learning Process*, Slovenian students stood out in aspects related to the enhancement of observation and research-based learning, knowledge retention, the acquisition of thinking skills in addition to knowledge, and in conceiving ME as a process in which the learner adopts an active role. Spanish students, by contrast, excelled in perceptions linked to the development of creativity and imagination, the opportunity to compare their knowledge, and the recognition that ME teaches different ways of improving learning. Overall, similar evaluations were found in items concerning the contribution of ME to lifelong education and its capacity to reveal effects that classes, lectures, or books alone could not achieve.

Regarding the third dimension, *Holistic Development Through ME*, the results indicate that Slovenian students assign greater importance to the cognitive dimension, whereas Spanish students attach more value to the psychomotor dimension. Nevertheless, both groups reported very similar perceptions in relation to social, cultural, and affective development. The findings show that although in both universities' statements concerning the educational value of museums received high levels of agreement, only those linked to concrete learning or developmental experiences—such as creativity, knowledge comparison, or psychomotor development—reflected significant differences. In this regard, Spanish students placed greater emphasis on these dimensions, showing a more uniform and elevated perception, while Slovenians tended to value more highly the cognitive and knowledge-retention aspects. This suggests that divergences emerge, particularly when positioning the museum within specific educational practices.

These differences may be explained by the curricular frameworks and pedagogical traditions of each country. In Slovenia, both the ECE Curriculum and university programmes explicitly incorporate museums into areas such as movement, art, and social sciences, thereby consolidating a structured view of the museum as a space for knowledge acquisition and cultural preservation (MacDonald, 2006; Govekar-Okoliš, 2018). This approach is reinforced in teacher education, where an academic and interdisciplinary focus prevails, privileging cognitive learning (Štemberger, 2020). In Spain, by contrast, museums appear more implicitly and flexibly, mainly linked to the artistic domain, and are thus associated with creativity, experimentation, and personal exploration rather than with the systematic transmission of knowledge (Silverman, 2010; Ponce-Delgado et al., 2024).

Student perceptions reflect these orientations. Spanish prospective teachers primarily conceive of museums as spaces for creative stimulation, in line with curricular frameworks that situate museum education within the arts (Ponce-Delgado, 2022). This view is reinforced by Spain's pedagogical tradition, strongly marked by competence-based and experiential methodologies, as well as by university projects that promote manipulation, reflection, and experimentation (Coca Jiménez and Marín Cepeda, 2023; Rodríguez et al., 2023). In Slovenia, by contrast, experiences such as those developed at the School Museum of Ljubljana exemplify a more academic and historical approach, where activities such as themed workshops and historical lessons consolidate the perception of the museum as a cognitive and cultural transmission resource (Govekar-Okoliš, 2018, 2022).

University subjects also appear to mediate these perceptions. In Spain, courses such as *Didactics of Plastic and Creative Education*, *Body Expression and its Didactics*, and *Psychomotor Development* position the museum as a space for creativity, innovation, and movement. In Slovenia, on the other hand, courses such as *Visual Art Activities in Museums and Galleries* place greater emphasis on academic and structured learning. These direct experiences with museums partly explain the differential orientation of both groups, and open avenues for research into the impact of such practices on the professional competences of future teachers.

Taken together, the findings suggest that the Spanish context positions the museum as a creative and expressive catalyst, whereas the Slovenian context emphasises its academic and cognitive reinforcement. These differences, albeit nuanced, demonstrate that the curricular and cultural frameworks of each country may condition how prospective teachers conceive the educational role of the museum in specific areas. This points to the need to review initial teacher education to integrate both perspectives into a more holistic view of child development.

As Parejo, Ruiz-Requies, and Velasco-Covarrubias (2021) argue, only systematic integration can consolidate the museum as a comprehensive pedagogical resource capable of balancing the cognitive with the creative. In this vein, Huerta (2010) underscores that future teachers must be prepared as active mediators between classroom and museum, while Castejón Ibáñez (2021) insists that art and museums should not occupy a peripheral place in curricula but should instead be incorporated into core or compulsory subjects. Complementary initiatives such as UVaMusEA (Coca Jiménez and Marín Cepeda, 2023) demonstrate the potential of linking museums to specific university subjects, while proposals such as those of Uppin et al. (2023) highlight the importance of uniting theory and practice through non-university learning environments. However, in light of the findings of this study, it becomes evident that such systematic integration must not only address these contributions but also guarantee an interdisciplinary and holistic approach that recognises the museum as a living learning space capable of articulating cognitive, creative, emotional, physical, and social dimensions in teacher training.

The relevance of such integration is reinforced by the fact that these students will become ECE teachers, a stage where creativity, bodily expression, and socio-affective development are as crucial as cognitive processes (Arbués and Naval, 2014). Without this preparation, there remains a risk of reductionist views (Moreno-Vera et al., 2022), which would limit the pedagogical potential of the museum. In line with Wu (2024), it is also essential that museums adapt spaces for early childhood (0–3 years), where the youngest children can manipulate, explore, and experiment according to their sensory, cognitive, and emotional realities (Gómez Redondo, 2020; Fontal, 2003).

Coordination between universities and museums thus emerges as an indispensable condition for creating educational experiences tailored to each stage of development and for recognising ECE as a valid interlocutor in the design of museum initiatives. This demand aligns with the educational reforms promoted by the European Higher Education Area (EHEA) and with UNESCO's Sustainable Development Goals (Agenda 2030, target 11.4), which emphasise the importance of strengthening museum education within the university sphere and consolidating museums as essential pedagogical resources through cooperation among academic, cultural, and artistic institutions.

In light of all the foregoing and, considering the results and the preceding analysis, it is possible to address the central objective of this research, namely, to determine which university provides a stronger foundation for understanding the educational value of museums, a key aspect in the preparation of future teachers.

The findings suggest that while the Slovenian university offers a more structured and academic approach to the educational value of museums, the Spanish university contributes a more experiential and creative perspective. Neither can be considered in isolation as the stronger model; rather, true strength lies in a hybrid approach that combines the best of both contexts. Only in this way will museums cease to be perceived as mere exhibition spaces and instead be consolidated as living learning environments contributing to the holistic development of pupils in ECE.

Building on these comparative insights, it becomes apparent that the relevance of this study does not lie in drawing generalisable conclusions, but rather in illuminating how prospective teachers' perceptions mirror broader curricular traditions. At the same time, these findings open possibilities for moving towards more integrative training proposals. In this sense, the study highlights both the challenges of systematically incorporating museum education into university curricula and its considerable potential for enriching the initial training of ECE teachers.

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Conflict of Interest

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Author Contributions

LN, ACU, and MMG: Research design; Data collection; Methodological section and data analysis; Discussions; Conclusions; Theoretical framework development. **MMG and VH:** Bibliographic references; Review of coherence and cohesion across the sections.



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