Journal of Management and Business Education

JMBE

www.journaljmbe.com ISSN: 2605-1044 Published by Academia Europea de Dirección y Economía de la Empresa.

Multicultural learning environment and academic engagement of foreign doctoral students

Entorno de aprendizaje multicultural y compromiso académico de los estudiantes de doctorado extranjeros

Anielson Barbosa da Silva*
https://orcid.org/0000-0002-6549-9733
Universidad Federal de Paraíba (Brasil)

Cléssia Fernandes de Brito Santiago
https://orcid.org/0000-0001-8091-6147
Universidad Estadual de Paraíba (Brasil)

Lourdes Canós-Darós
https://orcid.org/0000-0002-9609-2880
Universitat Politècnica de València (Spain)

Vicenta Eloina Garcia-Fèlix
https://orcid.org/0000-0002-0244-6044
Universitat Politècnica de València (Spain)

Fernando Castelló-Sirvent
https://orcid.org/0000-0002-2088-0039
Universitat Politècnica de València (Spain)

Silva, A.B.; Santiago, C.F.B.; Canós-Darós, L.; Garcia-Fèlix, V. E. & Castelló-Sirvent, F. (2026). Multicultural learning environment and academic engagement of foreign doctoral students. *Journal of Management and Business Education*, *9*(2), 369-395. https://doi.org/10.35564/jmbe.2026.0020
*Corresponding author: abs@academico.ufpb.br
Language: English
Received: 30 Jun 2025 / Accepted: 28 Dec 2025

Funding. The authors thank Consejo Nacional de Desarrollo Científico y Tecnológico (CNPQ) de Brasil (Proceso - 421460/2023-7). This work was partially supported by PIME/23-24/390 of the Universitat Politècnica de València (Spain).

Ethics Statement. The authors confirm that the research obtained informed consent from participants, explaining the treatment of the provided data.

Declaration of conflicting interests. The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

CRediT author statement. Anielson Barbosa da Silva: Conceptualization, Project Administration, Supervision, Methodology, Validation, Writing – Original draft, Writing – review and editing. Cléssia de Brito Fernandes Santiago: Conceptualization, Methodology, Investigation, Formal

analysis, Writing – Original draft preparation, Validation. Lourdes Canós-Darós: Supervision, Validation, Visualization, Writing – review and editing. Vicenta Eloina Garcia Fèlix: Validation, Visualization, Writing – review and editing. Fernando Castelló-Sirvent: Visualization, Writing – review and editing.

AI Statement. The use of artificial intelligence was limited to supporting the writing process. All decisions regarding the study design, data interpretation, and the conclusions remained the sole responsibility of the authors. In addition, Transkriptor was used exclusively for the transcription of interviews, while ChatGPT and Grammarly were used solely for grammatical and stylistic editing during the preparation of the English-language version of the manuscript..

ABSTRACT

This study analyzed the implications of a multicultural learning environment on the engagement of foreign students in doctoral programs. It is a qualitative study conducted with 14 foreign doctoral students from the Universitat Politècnica de València (UPV) in Spain. The results revealed that the learning environment had implications for students' emotional, cognitive, behavioral, and social engagement levels. Additionally, the study identified that UPV provides a multicultural learning environment that fosters the participation of foreign students. Engaged students are more motivated to learn, committed to their studies, meet deadlines, and feel more satisfied and confident in developing their doctoral thesis. Engagement enables a more self-directed and self-regulated learning process, promoting more active participation in the learning environment. Professors and tutors were perceived as key factors in student engagement across the four analyzed dimensions. On the other hand, language was identified as a barrier in the multicultural learning environment, as it hindered social interaction and relationships among students.

Keywords. Learning environment, multiculturalism, engagement, foreign students, doctoral programs.

RESUMEN

Este estudio analiza las implicaciones de un entorno multicultural de aprendizaje en el compromiso de los estudiantes extranjeros en programas de doctorado. Se trata de un estudio cualitativo, realizado con 14 estudiantes extranjeros de programas de doctorado de la Universitat Politècnica de València (UPV) en España. Los resultados revelaron que el ambiente de aprendizaje tuvo implicaciones en los niveles de compromiso emocional, cognitivo, conductual y social de los estudiantes, y permitieron identificar que la UPV cuenta con un entorno multicultural de aprendizaje que favorece la participación del estudiante extranjero. Los estudiantes comprometidos están más motivados para aprender y con sus estudios, cumplen con los plazos, y se sienten más satisfechos y seguros para desarrollar su tesis doctoral. El compromiso permite un proceso de formación más autodirigido y autorregulado, lo que favorece una participación más activa en el entorno de aprendizaje. Los profesores y tutores fueron percibidos como determinantes del compromiso de los estudiantes en las cuatro dimensiones analizadas. Por otro lado, el idioma fue identificado como una de las barreras del ambiente de aprendizaje multicultural al dificultar la interacción social y las relaciones entre los estudiantes.

Palabras clave. *Ambiente de aprendizaje, multiculturalidad, compromiso, estudiantes extranjeros, programas de doctorado.*

INTRODUCTION

Doctoral education takes place within a complex learning environment, as it demands high levels of cognitive and motivational effort and involves emotional experiences that may either facilitate or hinder the achievement of positive academic outcomes (Cayubit, 2022). Postgraduate education differs from other levels of education because, according to Saleem et al. (2022), it has specific characteristics, including program duration, final research requirements, assessment processes, teaching methodologies, time commitment, and other aspects. In this context, the learning process requires greater cognitive mastery, as well as autonomy, self-regulation, and engagement in academic activities, particularly those related to the development of the doctoral thesis.

The Spanish context highlights the growing relevance of this topic. According to data from the Spanish Service for the Internationalization of Education (Servicio Español para la Internacionalización de la Educación – SEPIE), the number of foreign students enrolled at Spanish universities has grown steadily, reaching more than 125,000 students in the 2022–2023 academic year. This figure represents a 40% increase compared with the previous decade. At the doctoral level, data from the Integrated University Information System of the Spanish Ministry of Science, Innovation and Universities (2024) indicate that foreign students account for 29% of doctoral enrolments. Most of these students come from Latin America and the Caribbean (51%), followed by students from the European Union (21.7%) and Asia and Oceania (16.7%). This increasing internationalization makes the analysis of engagement in multicultural environments a strategic priority for Spanish universities, which need to adapt their teaching methodologies and pedagogical approaches to maximize the potential of cultural diversity as a learning resource.

When students experience positive emotions, they tend to become more engaged, highlighting the role of emotion management in the educational process. A study conducted among higher education students and faculty members across 10 countries in 2022 found that 76% of students experienced difficulties maintaining their emotional well-being (Ministerio de Universidades, 2023). These difficulties may undermine emotional and behavioral engagement and affect cognitive and social engagement.

In this study, engagement is understood as a multidimensional construct (Wang et al., 2016; Reschly & Christenson, 2022). It is associated with a positive psychological state related to students' academic work (Meng & Jin, 2017) and requires active participation in academic and extracurricular activities, as well as the investment of energy, time, and effort in their studies (Reschly & Christenson, 2022).

When students pursue their education in another country, the learning environment takes on a multicultural dimension. They become immersed in a culture different from their own, characterized by values and beliefs that may require different behaviors and considerable effort to adapt to the new context. This situation may require greater social engagement due to the need for more active participation in interpersonal relationships. Multiculturalism may also influence students' emotions, thereby affecting their emotional engagement and cognitive processes when learning strategies and academic supervision practices differ from those experienced in their home countries. These conditions may influence students' motivation, participation, and behaviors associated with self-regulated learning, thus shaping their behavioral engagement.

To ensure the effectiveness of educational policies aimed at integrating foreign students into educational programs such as doctoral programs, universities need to recognize the multicultural nature of the learning environment and implement actions that foster interpersonal connections

(Opdenakker & Minnaert, 2011) among students, faculty members, and supervisors. Such connections may help foreign students feel more engaged and motivated.

These arguments motivated the following research question: How does the multicultural learning environment differentially affect each dimension of engagement among foreign doctoral students at the UPV? Accordingly, this article aims to analyze the implications of a multicultural learning environment for the engagement of foreign students enrolled in doctoral programs. The study was conducted at the Universitat Politècnica de València (UPV), Spain.

The main contribution of this study lies in addressing the scarcity of research on academic engagement in multicultural learning environments. Examining engagement from a multidimensional perspective in the context of postgraduate education involving foreign students represents an additional contribution and may broaden the understanding of this phenomenon. The following sections present the theoretical framework, methodology, research findings, and discussion, including the main conclusions, implications, and suggestions for future research.

LITERATURE REVIEW

Academic engagement

Barkley and Major (2020) emphasize that engagement refers to students' state of mind while learning and represents the relationship between cognitive and affective variables. The cognitive component concerns students' intellectual or psychological investment in learning activities and their efforts to understand, learn, and master knowledge. The affective component encompasses what students feel and think about their classes, as well as feelings that emerge outside the classroom, which are considered fundamental to academic motivation. Student engagement, therefore, involves more than merely participating in educational activities; it also requires a sense of commitment and the construction of meaning and purpose in learning (Trowler, 2010).

Engagement is associated with students' personal conditions or characteristics within the learning environment (Bernárdez-Gómez, Sá, & Silva, 2020). It involves effort, time management, interest, emotional states, and other relevant resources invested by both students and educational institutions to promote learning outcomes and meaningful student experiences (Trowler, 2010). Engagement is also a predictor of academic outcomes, learning, performance, achievement, and student retention throughout the educational process (Skinner & Raine, 2022).

The literature characterizes engagement as a dynamic, complex, and multifaceted construct (Trowler, 2010), reflecting its multidimensional nature, as students are expected to engage in the learning process at the behavioral, emotional, cognitive, and social levels. These dimensions encompass students' observable behaviors, emotional reactions, psychological investment, and intentional participation in academic activities (Silvola et al., 2021). The complexity of engagement suggests that students may be positively engaged in one or more dimensions while simultaneously displaying negative engagement in others (Groccia, 2018).

Behavioral engagement is associated with students' observable behaviors, such as participation and effort in academic activities, as well as persistence throughout the learning process. Emotional engagement involves students' emotional reactions to the learning environment and is related to their levels of interest, motivation, and enjoyment in their studies. Cognitive engagement refers to the degree of mental activity and effort students devote to understanding complex ideas, which may involve learning strategies (Silvola et al., 2021; Reschly & Christenson, 2022). Social engagement concerns the quality of social interactions among individuals in the learning

environment and involves developing connections and relationships with peers and faculty members (Wang et al., 2016).

Implications of multiculturalism for academic engagement

Students' interactions in multicultural educational environments provide meaningful opportunities for learning and development, as interpersonal relationships among peers foster intercultural frameworks, cultural self-awareness, and the development of competencies required to navigate differences (Reid & Garson, 2017).

In a multicultural learning environment, in addition to acquiring new knowledge at the cognitive level, students have the opportunity to engage in social experiences that foster learning and to discover and transcend differences through authentic intercultural interactions that involve both emotional and intellectual participation (De Vita, 2005). The multicultural perspective relates to social engagement within the learning environment, as it encompasses interpersonal connections among faculty members and students, as well as among peers in a specific context (Opdenakker & Minnaert, 2011). When foreign students exhibit low levels of social engagement, their adaptation may be affected, leading to negative emotional reactions and reducing their interest and motivation, thereby undermining overall emotional engagement. It may also reduce their participation and the effort they invest in academic activities, affecting behavioral engagement and potentially leading them to withdraw from the program. Another implication of multiculturalism for cognitive engagement concerns the use of learning strategies specific to the host context and differing from those commonly adopted in students' cultures of origin.

When participating in international programs, students may also encounter language-related barriers. They may lack confidence when communicating with other students (Reid & Garson, 2017) and may even avoid interacting with others or participating in class. Conversely, multicultural engagement may help students become more aware of equality, diversity, and justice both within and beyond the university, enabling them to work collectively and competently across diverse cultural contexts (Abduh et al., 2021). Cultural diversity within universities has transformed classrooms into multicultural spaces that, while posing challenges for teaching and learning, also enrich the educational experience. Interculturality can foster inclusive education that values differences and contributes to the development of empathetic individuals with a global outlook, prepared to live and work in diverse contexts (Murillo-Malagón et al., 2024).

METHOD

This study adopts a qualitative approach to understand the meanings underlying participants' subjective perceptions of their academic engagement in the learning process, considering their multicultural experiences at the UPV.

The research context comprises the doctoral programs offered by the Universitat Politècnica de València (UPV), Spain. The university offers 32 doctoral programs across several fields of knowledge, including Agri-Food and Biotechnology; Architecture; Arts; Sciences; Economics and Social Sciences; Civil Engineering; Industrial Engineering; and Information Technology.

In 2024, the UPV had 3.500 students enrolled in its doctoral programs, 39.0% of whom were foreign students experiencing a multicultural academic environment. The participants in this study were 14 foreign doctoral students. Pseudonyms were used to identify and preserve the anonymity of each research participant. Eight participants were in the final stages of thesis preparation (stages 3 and 4). Table 1 presents the participants' characteristics.

Table 1. Characteristics of the research participants

PSEUDONYM	COUNTRY OF ORIGIN	AGE	DOCTORAL PROGRAM	PROGRAM STAGE	TIME IN SPAIN
LOLITA	China	41	Business Administration and Management	Stage 3	5 years and 6 months
WILLIAM	Brazil	43	Business Administration and Management	Stage 3	3 months
GABRIEL	Jordan	33	Design, Manufacturing, and Management of Industrial Projects	Stage 2	8 months
SOFIA	Colombia	38	Business Administration and Management	Stage 4	4 years
SARAH	Cuba	32	Business Administration and Management	Stage 3	2 years
REBECCA	Colombia	31	Design, Manufacturing, and Management of Industrial Projects	Stage 4	6 years
JOHN	Colombia	47	Business Administration and Management	Stage 3	2 years
ALICE	Peru	41	Agricultural Technologies	Stage 3	3 years
EDDY	Uruguay	28	Architecture, Landscape, and Urban Planning	Stage 2	5 years
JACK	Iran	39	Design Engineering	Stage 2	2 years
ETHAN	Colombia	40	Telecommunications	Stage 1	1 year
MICAELA PÉREZ	Cuba	25	Design, Manufacturing, and Management of Industrial Projects	Stage 2	1 year and 6 months
SORAYA	Irán	34	Physics	Stage 3	2 years
JÚLIA	Ecuador	31	Telecommunications	Stage 1	2 years

Source: Own elaboration.

Because qualitative research seeks to achieve an in-depth understanding of a phenomenon, the sample size need not be as large as in quantitative research, since the purpose is neither to generalize findings to a population nor to confirm hypotheses (Creswell & Guetterman, 2024). There is no academic consensus regarding the optimal number of interviews required to ensure valid results. Creswell (2002) states that between 5 and 25 interviews can provide sufficiently rich information to strengthen the robustness of the findings, whereas Dworkin (2012) notes that many researchers recommend between 5 and 50 participants as an appropriate range. Nevertheless, there appears to be general agreement that data saturation is the key criterion for ensuring the adequacy of the qualitative information collected. Data saturation is reached when the researcher is no longer able to obtain new information relevant to the study (Mthuli et al., 2021).

Data were collected through semi-structured interviews. The interview protocol was developed to address the four dimensions of academic engagement: behavioral, cognitive, emotional, and social engagement. It also included reflective questions concerning the multicultural learning environment. Table 2 presents the interview protocol.

Table 2. Interview protocol

DIMENSIONS	QUESTIONS
AFFECTIVE/EMOTIONAL DIMENSION	How do you evaluate the learning environment in which you are immersed? Do you feel motivated in your doctoral program? What motivates you the most? Could you describe some of the emotions you have experienced during your educational journey? How can emotions facilitate your learning and development? How can emotions hinder your learning and development?
COGNITIVE DIMENSION	What learning strategies do you use to understand the concepts and/or content addressed in your doctoral program?
BEHAVIORAL DIMENSION	What academic and extracurricular activities do you participate in, or have you participated in, during your doctoral program? What is or was your level of commitment to these activities? Do you consider yourself an engaged student? Why? Could you share situations or experiences during the doctoral program in which you felt particularly engaged? Note: If you have not participated in any activities, why not?
SOCIAL DIMENSION	Describe some social experiences that have influenced your learning during the doctoral program. How do interpersonal relationships with your thesis supervisor influence your engagement? How do interpersonal relationships with faculty members in the doctoral program influence your engagement? How do interpersonal relationships with your fellow doctoral students influence your engagement?
MULTICULTURALISM	What was your first impression when you arrived at the UPV in terms of learning, culture, social interaction, and other aspects? Does the UPV facilitate your integration into the academic and social environment? How do you perceive this support? Do you feel more engaged at the UPV than you did at a university in your home country? Why? Please provide examples that illustrate this engagement. Are there cultural differences between Spain and your home country in terms of learning? What are they? Are there differences between Spain and your home country regarding the learning environment, including its physical, technological, emotional, social, and pedagogical dimensions? How do these differences influence your academic engagement?

Source: Own elaboration.

The interviews were conducted during two data collection periods, in February 2024 and November 2025, using two formats: five were conducted face-to-face, and nine were conducted online via Zoom. The sample comprised 14 foreign doctoral students enrolled at the UPV. Regarding the language used, four interviews were conducted in English and ten in Spanish.

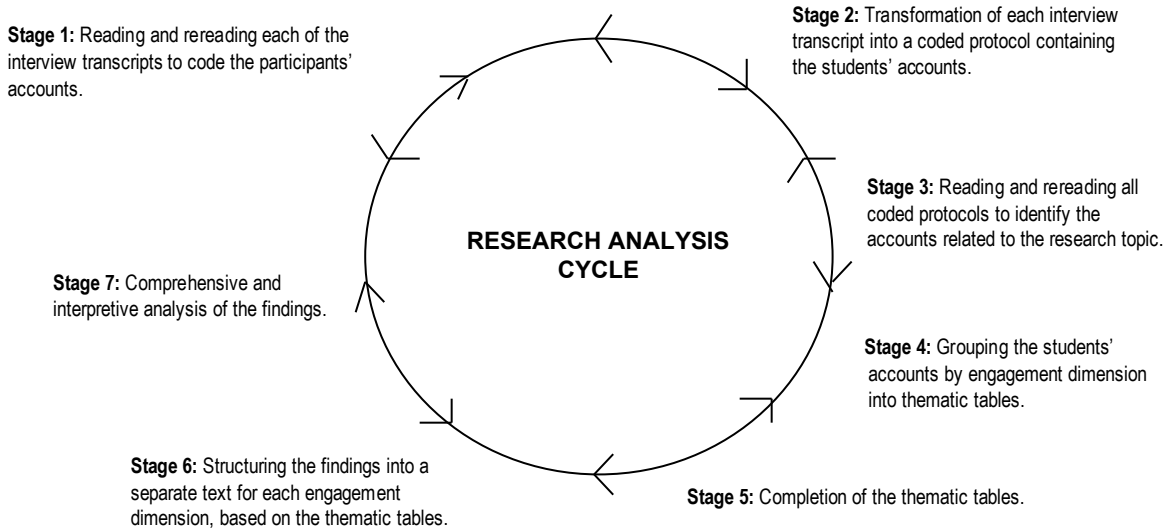
Although the number of participants may be considered small, it is justified by the study's qualitative and exploratory nature. The aim was not to generalize the findings, but rather to develop an in-depth understanding of the experiences of the selected participants. Convenience sampling was adopted because the study sought to interview foreign doctoral students who voluntarily agreed to participate and who conducted their academic activities across different departments and facilities at UPV. This academic environment is known for hosting foreign students in postgraduate programs, which ensured that the participants were effectively immersed in a multicultural learning environment.

The inclusion criteria were therefore accessibility and availability to participate in the study, current enrolment in a doctoral program, foreign origin, and participation in academic activities

within an on-campus learning environment. The interviews lasted an average of 40 minutes. They were recorded and stored as video and audio files, then transcribed using the Transkriptor tool. Regarding ethical consent, all participants expressly authorized the conduct and publication of the study, and their consent was duly recorded on audio.

Data were analyzed using Silva's (2005) comprehensive interpretive analysis procedures, following the stages presented in Figure 1.

Figure 1. Comprehensive interpretive analysis cycle



Source: Adapted from Silva (2005).

Data analysis began after the interviews had been transcribed. First, the transcripts were read and reread (Stage 1) to develop a protocol containing the coded students' accounts (Stage 2). The coded protocols were then reviewed to group the themes into thematic tables corresponding to the dimensions of academic engagement (Stages 3 and 4).

The thematic categories were defined based on the literature, particularly the studies on academic engagement conducted by Silvola et al. (2021), Reschly and Christenson (2022), and Wang et al. (2016). An additional thematic category, entitled Multicultural Learning Environment, was also identified. The subsequent stages involved completing the thematic tables and structuring the findings for each engagement dimension.

The analysis of the participants' accounts facilitated reflection on the meanings they constructed and shared during their academic mobility at the UPV. An interpretive analysis was subsequently conducted to identify the meanings associated with the phenomenon under investigation. The findings are presented in the following section.

RESULTS

Emotional dimension

Students' emotional engagement reflects their mental or psychological state during the learning process and encompasses feelings experienced both inside and outside the classroom as a result of their academic experiences (Barkley & Major, 2020). These feelings are fundamental to their motivation to study. Students' perceptions of the environment in which they are immersed while learning influence how they behave and think, as they develop an emotional connection with that environment (Graetz, 2006). When the learning environment is perceived positively, it tends to foster higher levels of emotional engagement.

At the UPV, the physical and institutional environment plays an important role in foreign students' emotional engagement. William (43, Brazil, Year 3) emphasized that he receives "a great deal of institutional support; they provide me with a place to study, a room with everything I need [...] to be immersed in the university environment". Gabriel (33, Jordan, Year 2) also reported having "easy access to study materials and learning resources, such as the library, the internet, and technological devices [...] it is a comfortable environment that is suitable for learning." Similarly, Soraya stated that "overall, the learning environment at the UPV is organized, structured, and highly supportive. The research environment is open and provides freedom to develop one's own doctoral work," although she acknowledged that "at times, it can be competitive and demanding, which generates a certain level of stress" (Soraya, 34, Iran, Year 3).

Emotionally engaged students demonstrate greater motivation and enjoyment of learning, as illustrated by Rebecca (31, Colombia, Year 4), who stated: "I feel very energetic and highly motivated to learn." One of the most frequently identified factors motivating doctoral research was interest in the topic, particularly when it elicited personal identification and intellectual enthusiasm. Rebecca summarized this idea by stating: "I feel motivated by my doctoral research topic; I like it very much, and I am personally passionate about it." Similarly, John (47, Colombia, Year 3) explained that "what motivates me is being able to begin developing certain topics, particularly my research topic." Ethan (40, Colombia, Year 1) reinforced this view by emphasizing that "what motivates me most is having found a supervisor who truly understands my research topic." Likewise, Soraya (34, Iran, Year 3) stated: "I am particularly motivated by the progress of my research project, the possibility of publishing articles, participating in research groups, and learning new methodologies."

In addition to contributing to scientific progress in their respective fields through topics that interest them, participants identified another fundamental source of motivation: the support they received from their doctoral supervisors throughout the program. As Lolita (41, China, Year 3) explained, "my supervisor always helps and encourages me a great deal, responds quickly to my questions [...] and makes me feel valued and inspired." Gabriel (33, Jordan, Year 2) stated that "receiving support and guidance from your supervisor is highly motivating." The findings indicate that the relationship with the supervisor influences students' motivation, emotional well-being, and sense of academic security. They also reveal the importance of faculty members acting as facilitators, advisers, and promoters of learning, as highlighted by Soraya (34, Iran, Year 3): "Interaction with my doctoral supervisor helps me feel that I am making progress and reduces my stress."

Within doctoral programs, students experience emotions that can either facilitate learning or become barriers to it (Merriam & Brockett, 2007). There is, therefore, a relationship between feeling and thinking that may be reflected in how students engage throughout their academic experience

(Groccia, 2018; Barkley & Major, 2020). Rebecca (31, Colombia, Year 4) stated that “perhaps a single emotion can make you move forward or leave you completely unable to act, and that depends greatly on how you manage that emotion.” Students’ educational journeys are marked by both positive and negative emotional experiences, which influence their behavior and emotional well-being. Several participants described this emotional fluctuation. Ethan (40, Colombia, Year 1) emphasized that “this emotional back-and-forth is very difficult.” Sarah (32, Cuba, Year 3) stated that “the doctoral program is a process filled with highs and lows.” Rebecca (31, Colombia, Year 4) reported feeling “happy and encouraged by the progress [...] but also experiencing a great deal of frustration and fear – a lot of fear.”

Within the educational context examined, it was also possible to identify emotional difficulties such as anxiety, fear, and depression. Júlia (31, Ecuador, Year 1) stated that “sometimes I have also experienced some anxiety and depression” and acknowledged that “it is fear that prevents me from moving forward a little more and discovering more things.” Similarly, William (43, Brazil, Year 3) explained that “an emotion that is not only mine, but is common among postgraduate students, is fear – the anxiety of not meeting one’s own expectations, as well as the expectations of supervisors and the program.” According to Gabriel (33, Jordan, Year 2), “anxiety and stress negatively affect my ability to concentrate and pay attention,” while Sofía (38, Colombia, Year 4) emphasized that frustration “limits my learning because it causes a lack of concentration.”

Another relevant aspect of emotional engagement identified in the study was the experience of the doctoral program as a solitary process. Some students reported feeling alone at different points in their academic trajectories, which directly affected their motivation. John (47, Colombia, Year 3) stated: “Overall, I feel well, but I am dissatisfied with the moments when I experience a sense of loneliness, although I believe that this is part of the doctoral education process.” Eddy (28, Uruguay, Year 2) noted that “the doctoral process is somewhat lonely,” while Rebecca (31, Colombia, Year 4) similarly stated that “pursuing a doctorate is a solitary process.” This perception was reinforced by Júlia (31, Ecuador, Year 1), who explained: “Emotionally, it has been difficult for me to be here, far away from my family, because I do not have any family here, so I am completely alone.” The findings suggest that students feel particularly isolated after completing their coursework, mainly because they then enter the thesis-writing stage, a more individual phase of their education with fewer opportunities for social interaction.

Conversely, doctoral education also provides positive experiences that make the process meaningful and transformative for students. Jack (39, Iran, Year 2) stated that he was “very happy and motivated, and I want to continue my studies by undertaking a postdoctoral fellowship here at the UPV.” Eddy (28, Uruguay, Year 2) described “a sense of confidence in the work I am developing during the doctoral program.”

The analysis conducted at the UPV indicates that emotional engagement is associated with students' subjective experiences in the learning environment. These include positive and negative emotional reactions related to their levels of academic engagement and motivation to learn in a culturally diverse context. Table 3 summarizes the findings concerning the emotional dimension.

Table 3. Summary of the findings for the emotional dimension

THEMES	FACTORS THAT ENHANCE ENGAGEMENT	IMPLICATIONS FOR DOCTORAL EDUCATION
LEARNING ENVIRONMENT	Adequate infrastructure, access to resources, and institutional support.	Strengthens students' sense of belonging, academic security, and motivation.
MOTIVATION AND RESEARCH INTEREST	Identification with the research topic, project progress, and scientific production.	Increases sustained engagement and persistence in research.
RELATIONSHIP WITH THE SUPERVISOR	Academic guidance, emotional support, and feedback.	Reduces stress and supports doctoral progress and well-being.
EMOTIONAL EXPERIENCES	Emotional self-regulation and recognition of the affective dimension.	Influences concentration, learning, and continuation in the doctoral program.
STRESS AND ANXIETY	Program demands and performance expectations.	May hinder learning and negatively affect emotional well-being.
DOCTORAL LONELINESS	Predominance of individual work and social isolation.	Negatively affects motivation and emotional engagement.
TRANSFORMATIVE EXPERIENCE	Recognition of achievements and self-confidence.	Reinforces the educational significance of the experience and future academic aspirations.

Source: Own elaboration.

Overall, the emotional dimension of engagement is shaped by contextual, relational, and subjective factors that influence students' motivation, well-being, and persistence in their studies. While institutional support, identification with the research topic, and the relationship with the supervisor strengthen emotional engagement, stress, anxiety, and loneliness may hinder learning, highlighting the central role of emotional engagement in the doctoral educational experience.

Cognitive dimension

The characterization of cognitive engagement is associated with the investment students make in understanding complex concepts and problems, as well as in developing problem-solving skills (Chhetri & Baniya, 2022). From this perspective, self-directed learning and adopting a strategic approach to studying foster critical thinking, self-awareness, and problem-solving. One participant reported that he regularly reviews "study materials, engages in reading, and applies concepts that help with problem-solving" (Gabriel, 33, Jordan, Year 2), demonstrating a conscious effort to understand and apply the knowledge acquired.

In practical terms, the cognitive engagement of students enrolled in doctoral programs has implications not only for their intellectual development but also for the quality and relevance of the academic contributions reflected in their theses. For example, Eddy (28, Uruguay, Year 2) reported using search tools to obtain information relevant to his thesis, including "database search platforms such as Web of Science and Scopus [...]I also take courses, particularly those related to my thesis topic." This pursuit of further training suggests cognitive engagement aimed at acquiring knowledge that adds value to the thesis.

Cognitive engagement in postgraduate education involves students' active participation in complex mental processes, such as critically analyzing the literature, producing scientific work, and continually seeking knowledge. As Ethan (40, Colombia, Year 1) explained, "I really enjoy reflecting on what I learn. I go home and begin reflecting and doing exercises [...]. I am always reading and learning new things." This experience goes beyond passive knowledge absorption and reflects an

active, reflective, and meaningful approach to learning. Jack (39, Iran, Year 2) reported reading "articles and recent research from all kinds of sources; I collaborate and participate in classes, use social relationships for networking [...], and pursue several different pathways to learning."

The doctoral program environment is also conducive to developing analytical and intellectual abilities, which require cognitive mastery and a level of mental activity reflected in students' ability to process their experiences cognitively (Groccia, 2018). Alice (41, Peru, Year 3) demonstrated openness to mutual learning and expressed beliefs concerning how she learns: "I ask my supervisor and colleagues questions [...] to try to understand the concept." Soraya (34, Iran, Year 3) emphasized the importance of academic interaction and active learning, stating that she uses "the reading and synthesis of scientific articles," "problem-solving," and "active participation in research group meetings" as strategies for understanding doctoral-level content.

Students described using multiple cognitive strategies to deepen their understanding and sustain their learning throughout the doctoral program. Soraya (34, Iran, Year 3) stated that her learning process includes "reading and synthesizing scientific articles," "using audiovisual resources and attending lectures," and "solving problems and running code to understand physics concepts." These practices demonstrate a high level of cognitive engagement characterized by self-regulation, continuous reflection, and the integration of theory and practice.

Another relevant aspect of cognitive engagement concerns the exchange of ideas and feedback among peers. Rebecca (31, Colombia, Year 4) highlighted the need to share her concerns and observations about her thesis with other students, thereby contributing to a deeper understanding of her research subject. Similarly, Micaela Pérez (25, Cuba, Year 2) explained that her learning process is supported by both reading and the practical application of knowledge, stating that "there are parts of the theory that I do not fully remember, so I look them up in the book, study them for a while, and eventually the idea emerges." She added that "when I apply it in the experiment, everything becomes completely clear." Júlia (31, Ecuador, Year 1), in turn, reported combining different resources to reinforce her learning, noting that she often "watches videos" and "asks our supervisors whether they have any bibliographic sources or other materials that we can use to reinforce the knowledge we already have." These accounts reinforce the idea that cognitive engagement is manifested through the active search for information, the strategic use of diverse resources, and reliance on faculty guidance to consolidate learning.

The way doctoral students acquire knowledge directly influences the depth of their mental engagement. Effective learning strategies can enhance cognitive engagement, making the process more meaningful and oriented toward solving complex problems. Consistent with Eddy's experience, Lolita (41, China, Year 3) reported using online search platforms to clarify her questions and other platforms to record her reflections on learning, stating: "I conduct online searches whenever I have a question, and I use note-taking applications such as OneNote and PDF Expert." From William's perspective (43, Brazil, Year 3), it is essential to establish "a study and research plan in order to maintain a schedule," while Rebecca (31, Colombia, Year 4) emphasized the importance of "organizing each day and deciding how to distribute what needs to be done." Gabriel (33, Jordan, Year 2) elaborated on this idea, stating that he usually writes "personal notes and summaries of the concepts" as part of his learning process.

Active learning strategies are approaches that involve students in constructing knowledge by encouraging participation, critical thinking, the practical application of what is being learned, and, above all, cognitive engagement in learning situations specific to the UPV environment. The findings reveal that cognitive engagement supports doctoral students in developing their theses and reflects a distinctive feature of the multicultural environment, as expressed through students'

interactions with peers and supervisors. Table 4 presents the central meanings that characterize cognitive engagement.

Table 4. Summary of the findings for the cognitive dimension

THEMES	FACTORS THAT ENHANCE ENGAGEMENT	ENGAGEMENT IMPLICATIONS FOR DOCTORAL EDUCATION
COGNITIVE INVESTMENT IN LEARNING	Conscious effort to understand concepts and solve problems.	Promotes deep learning and intellectual development.
SELF-DIRECTED AND STRATEGIC LEARNING	Study planning, self-regulation, and the intentional use of learning strategies.	Increases academic autonomy and learning efficiency.
USE OF SCIENTIFIC INFORMATION	Systematic database searches and continuous knowledge updating.	Improves the rigor and scientific quality of the thesis.
CRITICAL THINKING AND REFLECTION	Analysis, synthesis, and critical evaluation of the literature.	Enhances scientific production and knowledge construction.
INTEGRATION OF THEORY AND PRACTICE AND ACADEMIC INTERACTION	Practical application, exchanges with peers, and feedback from supervisors.	Consolidates understanding and supports research progress.

Source: Own elaboration.

In summary, the cognitive dimension of doctoral engagement is manifested through students' active involvement in processes of understanding, critical reflection, and problem-solving. Self-directed learning, the strategic use of scientific resources, and academic interaction directly influence the quality of learning and the consistent development of the doctoral thesis.

Behavioral dimension

Behavioral engagement is associated with students' active participation, observable actions, and behavioral indicators throughout the learning process (Lagrimas & Buenaventura, 2023). Within this dimension, students demonstrate active effort and concentration in their studies (Tas, 2016). William (43, Brazil, Year 3) stated that he feels "engaged because I do not like doing things halfway; whatever I do, I like to do it well." Micaela Pérez (25, Cuba, Year 2) expressed sustained dedication and a commitment to continuous progress, stating: "I am simply doing what I enjoy; I am happy here. I try to work hard, I try to make progress, and I try not to leave until tomorrow the things I can continue working on today [...] in the end, I do it because I enjoy it, not because I feel obliged." Ethan (40, Colombia, Year 1), in turn, stated: "I hardly ever leave the university. I even study on weekends." These accounts suggest that behaviorally engaged students seek to "fulfill their academic commitments in the best possible way" (John, 47, Colombia, Year 3) and that the university's physical environment encourages them to study and learn. This reflects a positive, optimistic approach characterized by constructive engagement in learning situations.

At the behavioral level, students seek satisfaction in fulfilling their role while recognizing that they are primarily responsible for their own learning and, consequently, adopt self-regulated and autonomous behaviors. Rebecca (31, Colombia, Year 4) described behavior characterized by active participation in doctoral activities: "I have participated in many activities [...]. I have been part of the organizing team for national and international events and conferences [...], and I am now coordinating several training activities for doctoral students." Other behaviors that characterize engagement were also mentioned by Sarah (32, Cuba, Year 3), who emphasized that she had "participated in debates, conferences, symposia, activities, and social gatherings involving doctoral

students from different programs." The active participation and effort demonstrated in institution-sponsored academic activities reveal that students assume a prominent role in their education. This was confirmed by John, who stated: "I find the activities organized by the university very interesting, and they have helped me with my doctoral education [...] by broadening my perspective and helping me better understand my own educational development" (John, 47, Colombia, Year 3).

Similarly, Micaela Pérez (25, Cuba, Year 2) demonstrated behavioral engagement by describing her involvement in research, teaching, and science communication activities. She stated, "I have realized that I really enjoy teaching; I love it. In addition to research, which is another important part of my life, I also love teaching." She also described her active participation in different academic settings, noting: "I have participated in science communication and have had my own publications [...] at academic communication conferences." She further mentioned her involvement in institutional and scientific events, stating: "I have participated in activities during European Researchers' Night" and "I have also participated as an organizer of other scientific events" (Micaela Pérez, 25, Cuba, Year 2). These actions reflect behavioral engagement that extends beyond the formal requirements of doctoral education, demonstrating initiative, institutional involvement, and a sense of academic belonging.

Behaviors associated with sustained involvement in the doctoral program and research group were also evident. Soraya (34, Iran, Year 3) identified "active participation in research group meetings" and "frequent consultations with the doctoral supervisor" as part of her academic routine. She also reported undertaking "weekly planning to organize the work and manage the academic workload." These actions reflect behavioral engagement grounded in organization, discipline, and consistency in carrying out academic activities.

William (43, Brazil, Year 3) described an experience during his doctoral studies in which he felt particularly engaged while undertaking a teaching-related activity and became aware of his own performance as an instructor: "I had to teach the same class to two different groups on the same day, one in the morning and another in the evening, and both experiences were incredible [...] I think it was the day during my doctorate when I felt at my best" (William, 43, Brazil, Year 3). John (47, Colombia, Year 3) stated that the moment when he felt most engaged during the doctoral program was when he presented his thesis research to other people, as this required him to become deeply involved in the preparation and perform to the best of his ability: "I felt more engaged when I had to present what I was studying in my thesis [...]. I had to prepare the presentation, make sure it was as clear as possible, and explain everything in the best possible way."

However, fulfilling the commitments associated with being a doctoral student and participating in academic activities requires effective planning, as students need to balance competing demands without compromising their performance in developing the thesis. This is evident in Rebecca's statement (31, Colombia, Year 4): "I have always tried to be very dedicated and highly engaged [...], but in terms of time, my thesis has actually been the activity to which I have devoted the least attention."

Another finding is that engaged students consistently complete their tasks, meet deadlines, and assume responsibility for their own learning. Such behaviors demonstrate commitment and self-discipline. Nevertheless, participants did not always perceive this process as easy, as they faced barriers such as language difficulties that could interfere with their engagement. Gabriel (33, Jordan, Year 2), for example, stated: "I did not participate in any programs, perhaps because I do not have a good command of Spanish." Another barrier to behavioral engagement in postgraduate

education concerns time availability, since many students also need to "devote time to work and family" (Sofia, 38, Colombia, Year 4). The effort invested by students and their concentration on learning activities enrich their educational development, but the doctoral journey may also generate feelings such as "I will not be able to do it" (Sarah, 32, Cuba, Year 3). Positive behavioral engagement is therefore closely related to students' psychological well-being. The following table presents the main findings concerning the behavioral dimension identified in the study of doctoral students.

Table 5. Summary of the findings for the behavioral dimension

THEMES	FACTORS THAT ENHANCE ENGAGEMENT	IMPLICATIONS FOR DOCTORAL EDUCATION
ACADEMIC EFFORT AND DEDICATION	Personal commitment, consistency, and concentration on tasks.	Supports goal attainment and continuous progress throughout the doctoral program.
ACTIVE INSTITUTIONAL PARTICIPATION	Involvement in events, conferences, teaching, and science communication activities.	Broadens academic development and strengthens doctoral identity.
AUTONOMY AND SELF-REGULATION	Work planning, discipline, and time management.	Promotes responsibility for one's own learning and supports thesis progress.
ACADEMIC INTERACTION	Participation in research groups, meetings, and public presentations.	Reinforces active learning, scientific communication, and academic confidence.
BARRIERS TO ENGAGEMENT	Activity overload and time and language constraints.	May affect dedication to the thesis and doctoral students' well-being.

Source: Own elaboration.

The behavioral dimension of doctoral engagement is evident in the observable actions of effort, participation, and self-regulation that students demonstrate throughout their educational journey. Active involvement in academic and institutional activities strengthens learning and doctoral identity, while the need to balance multiple demands highlights the importance of consciously managing time and well-being in order to sustain behavioral engagement.

Social dimension

Social engagement reflects the idea that student learning is a social process (Kedian & West-Burnham, 2017), shaped by experiences in collective activities (Wang et al., 2016). This social connection means "feeling part of a whole" (William, 43, Brazil, Year 3), since "the university is a shared environment where one can meet and interact with people from different countries" (John, 47, Colombia, Year 3), as is the case at the UPV. Eddy (28, Uruguay, Year 2) emphasized that "because it is a large university with such a wide diversity of subjects, there is always some event where you can socialize and meet people."

Throughout their academic education, students invest in building relationships, which, in the context of doctoral education, may occur through social events, as illustrated by the following account: "During the doctoral program, general meetings are held where we meet people, and relationships begin to develop from there. Every conversation provides new experiences and ideas" (Sarah, 32, Cuba, Year 3). Lolita (41, China, Year 3) also mentioned the opportunities provided by these meetings to learn from others: "I have met many students at the university, and I can learn a great deal from them. I am very enthusiastic about sharing activities and exchanging ideas, talking

about culture, and learning about their countries." These experiences enrich both individual and collective learning, since "even over a cup of coffee, you can raise questions, talk about your thesis, and discuss the program you are pursuing" (Rebecca, 31, Colombia, Year 4).

Micaela Pérez (25, Cuba, Year 2) highlighted the role of academic groups as essential spaces for social and academic integration. She explained that, upon arriving at the university, the research group was the first environment in which she felt welcomed: "From the moment I arrived in Valencia, I did not know absolutely anyone. The first people to open their doors to me were the members of my research group, and I felt at home from the very beginning." This type of experience demonstrates that social engagement not only supports learning but also provides emotional support and facilitates cultural integration in the context of international mobility.

Expanding on this perspective, Micaela Pérez (25, Cuba, Year 2) stated that "during the doctoral program, I believe the main influence comes from the research group, since these are the people with whom you interact every day." According to the participant, the group not only guides the development of doctoral work but also significantly influences the student's educational journey: "This group not only guides your work, but, in one way or another, all its members influence your development." In addition to direct academic interactions, she emphasized the importance of institutional support regarding the administrative aspects of doctoral education, noting that "it is also important to receive guidance on more administrative matters related to doctoral education, such as the requirements that must be fulfilled or how to register your contributions so that they are recognized in your doctoral student record" (Micaela Pérez, 25, Cuba, Year 2). In this regard, she emphasized that "the UPV's PIAE plays a highly valuable role, and its support has been extremely helpful to me during this stage." This finding demonstrates that social engagement is also built through access to institutional support networks that facilitate the integration and retention of foreign students in the program.

The social learning environment of a doctoral program is characterized by the relationships established among students through interactions with people from other countries, as well as by the multidisciplinary nature of the research fields. As Sarah (32, Cuba, Year 3) stated, "the multinational and multidimensional contact generated by the university in everyday life supports both learning and research." Similarly, Eddy (28, Uruguay, Year 2) explained that "because it is such a large campus, with a wide diversity of programs and a multidisciplinary environment, you can interact with people from very different professions and still identify common ground in your research." John (47, Colombia, Year 3) emphasized that "it is an environment that provides access to interdisciplinary knowledge." Within the postgraduate environment, students have opportunities to interact with researchers from different fields of study in interdisciplinary and multidisciplinary settings, contributing to knowledge generation through the exchange of ideas and social interaction.

Another relevant aspect of social engagement identified in the study was the development of support networks among the students themselves. Júlia (31, Ecuador, Year 1) highlighted her active participation in a collective initiative, stating: "I participate in a support group that assists doctoral students." According to the participant, the group "is composed of students from several countries; it could be described as international, and its purpose is to help or guide students through the procedures they need to follow." This type of initiative reflects social engagement based on cooperation, academic solidarity, and the development of support networks, which are particularly significant in a demanding and multicultural context such as doctoral education.

Nevertheless, despite the opportunities for social interaction, some foreign students perceived barriers that hindered their integration. Júlia (31, Ecuador, Year 1) expressed this perception by stating: "I have always felt that perhaps there is a dividing line between those of us who come from

another country and are living in a country that is not our own and that is unfamiliar to us. I have always perceived that barrier, that slight difference between people who come from another country and those who are already here." This perception reveals symbolic boundaries between local and foreign students, which may limit their sense of belonging and opportunities for social connection.

One of the most meaningful experiences of doctoral students' social engagement is their relationship with their thesis supervisor, which involves the subjective aspects of the supervision process. Faculty members who serve as supervisors can monitor students' development in both personal and professional terms and are responsible for guiding them throughout their education, particularly during thesis writing. Supervisors' behavior can directly influence doctoral students' engagement, and "the time devoted to students is essential for helping them address their needs and questions" (Rebecca, 31, Colombia, Year 4). This perspective was confirmed by Ethan (40, Colombia, Year 1), who described his supervisor as someone he admires: "My supervisor is an excellent person. Despite being extremely busy, he sets aside time and gives me one or two hours each week, and that should be valued."

Micaela Pérez (25, Cuba, Year 2) emphasized that "a good relationship with the supervisor is always an advantage," since this closeness facilitates "the frequent exchange of ideas, making it possible to develop a shared project and allowing the research to progress more quickly." This relationship of proximity and cooperation enables "doctoral students to move forward with greater confidence and on a solid foundation" (Micaela Pérez, 25, Cuba, Year 2), demonstrating that social engagement with the supervisor strengthens not only academic progress but also students' confidence in their doctoral journey.

This relationship becomes particularly meaningful when students perceive "that they are not alone and that the supervisor provides the balance between support and challenge that every doctoral student needs" (Sarah, 32, Cuba, Year 3). William (43, Brazil, Year 3) also emphasized the importance of having a supervisor "who understands your limitations, your schedule, what works and what does not work [...], creating an incredible experience of exchange and mutual understanding." Supervisors who invest in developing meaningful relationships with students contribute to a transformative learning environment in which doctoral students can "identify the directions their thesis should take and make use of the contributions they receive" (Rebecca, 31, Colombia, Year 4), thereby strengthening their social engagement within a multicultural academic context.

Table 6. Summary of the findings for the social dimension

THEMES	FACTORS THAT ENHANCE ENGAGEMENT	IMPLICATIONS FOR DOCTORAL EDUCATION
SENSE OF BELONGING	Social interaction, cultural diversity, and participation in collective activities.	Promotes academic integration and commitment to the university.
PEER RELATIONSHIPS	Exchange of ideas, mutual support, and academic interaction.	Enriches collaborative learning and broadens research perspectives.
RESEARCH GROUPS	Regular participation in academic and multidisciplinary groups.	Strengthens academic socialization and supports thesis development.
INSTITUTIONAL SUPPORT NETWORKS	Administrative guidance and support programs for doctoral students.	Facilitates the adaptation, retention, and well-being of foreign students.
RELATIONSHIP WITH THE SUPERVISOR	Frequent interaction, cooperation, and academic and personal support.	Increases confidence, academic security, and research progress.

Source: Own elaboration.

The social dimension of engagement in doctoral education is shaped by meaningful interactions among students, research groups, institutional support networks, and supervisors. These relationships foster academic and cultural integration, collaborative learning, and a sense of belonging. They are particularly important in multicultural contexts, where social support becomes a key factor in students' retention and success throughout doctoral education.

Multicultural learning environment

A multicultural learning environment is an academic context in which students from different countries engage in active, meaningful interactions shaped by their cultural, ethnic, linguistic, and social backgrounds. During their educational journey, doctoral students have the opportunity to participate in international experiences that enhance their learning and research, allowing them to "discover new cultures, meet new people, experience another university and country, and live through new experiences" (Jack, 39, Iran, Year 2).

The learning environment at the UPV was characterized as multicultural, as "an increasing number of foreign students are coming to the UPV" (Rebecca, 31, Colombia, Year 4). Micaela Pérez (25, Cuba, Year 2) emphasized: "I joined a group that is also, I mean, a multicultural group. We are people from different places; there are Cubans, Mexicans, Spaniards, and Iranians." This perception was shared by other students, who indicated that one of their first impressions upon arriving at the university was "the interaction with people who speak different languages and come from different cultures" (Jack, 39, Iran, Year 2). Initially, this may create a sense of novelty resulting from immersion in a specific learning context: "My first impression when I arrived at the UPV was that everything was new because we were all in the same room, and there were people speaking English, Chinese, and Arabic. At first, the differences in schedules were also a cultural shock" (William, 43, Brazil, Year 3).

Experiencing a new multicultural environment requires openness, flexibility, and the ability to adapt in order to construct new meanings from cultural diversity. Alice (41, Peru, Year 3) described this experience positively, stating that "the beautiful thing is that you begin to discover new dishes and a new cuisine [...]. It is also like flying as a balloon without limits; in other words, in your own country, you live inside a bubble, and leaving for another country is fascinating." These experiences contribute not only to students' academic learning but also to their personal and cultural development.

This multicultural experience in everyday academic life promotes not only exposure to different languages and nationalities but also deeper processes of intercultural learning. Micaela Pérez (25, Cuba, Year 2) reported that "later, I thought it was wonderful to discover that there were students from all over the world; even in my research group, there were people from several countries." She emphasized that this diversity enabled her to "learn about different cultures, politics, religions, and customs, and it helped me better understand the environment in which I live." This experience demonstrates that the multicultural learning environment extends beyond the academic sphere and contributes to a broader understanding of the social and cultural context in which students are immersed. Micaela Pérez (25, Cuba, Year 2) emphasized the processes of adaptation and the construction of shared meaning that emerge from intercultural coexistence:

> I feel that, despite our very different educational and social backgrounds, we have all adapted to one another. Being together in a different country has helped us find common ground without losing our identities. I believe that, at present, we have all incorporated

> something from our colleagues' cultures, which further enriches the doctoral experience (Micaela Pérez).

In terms of learning, multicultural experiences have implications for student engagement. When students experience a positive social environment, they feel more motivated to engage in their doctoral studies, particularly when they perceive support from faculty members and interact with them: "Here, you can clearly see that faculty members are much closer to students, not only in terms of their availability outside the classroom but also on a personal level; in other words, there is much more personal interaction" (Eddy, 28, Uruguay, Year 2). This engagement may be even stronger at the UPV than in students' home countries, as reflected in the following accounts:

> I believe that the UPV motivates me more; in other words, its opportunities are more interesting, they draw you in, and, as a result, make you more engaged. The UPV and its faculty members and supervisors manage to spark something in doctoral students that makes them feel committed to the institution and proud to say, wherever they are, that they are doctoral students at the UPV (Sarah, 32, Cuba, Year 3).

> I feel more committed to the UPV. My relationship with this university has been built through my research efforts and academic development beyond the formal requirements [...] it is not only about obtaining the degree [...] it is more about contributing to the institution and feeling that I am part of it [...] (Eddy, 28, Uruguay, Year 2).

> I feel more engaged in certain respects, such as the greater organization of the research system, broader access to scientific resources, and a competitive and stimulating academic environment that increases motivation" (Soraya, 34, Iran, Year 3).

Rebecca demonstrates engagement at the UPV because it is an environment in which students can "work autonomously and are not subjected to as much pressure from faculty members" (Rebecca, 31, Colombia, Year 4) as they are in her home country. John (47, Colombia, Year 3) similarly stated that "one of the fundamental differences I perceive at the UPV is that it provides a more autonomous environment," while Soraya (34, Iran, Year 3) explained that "in Spain, students are expected to demonstrate greater autonomy, relationships with faculty members are less hierarchical, and learning is more self-directed. Academic discussions also tend to be more open." This environment encourages students to assume control of and responsibility for their own education. Its potential implications include the development of metacognitive skills, the selection of learning strategies and methods aligned with individual preferences and needs, improved time management, and greater motivation to learn. All these aspects positively influence cognitive and behavioral engagement.

While participating in this international academic experience, one participant stated that he had the opportunity to "make the most of the time available to acquire knowledge, learn about new methodologies, and take this experience back to my country" (John, 47, Colombia, Year 3). However, living in another country may also expose students to barriers to learning and engagement, particularly when they are immersed in a culture that speaks a different language. Such barriers may hinder social interaction, generate negative emotional experiences, and consequently affect emotional engagement. One participant reported feeling "nervous during interactions because most people do not speak English or speak very little English [...] there is no,

for example, online translation service for English-speaking students" (Jack, 39, Iran, Year 2). Júlia (31, Ecuador, Year 1) also noted that language difficulties intensify this relational barrier, as a lack of fluency in Spanish hinders everyday communication and the ability to establish relationships with other students. This may reduce active participation in classes, discussions, and collaborative activities, restrict access to learning opportunities, and affect all dimensions of academic engagement.

In this regard, it is also important to consider the linguistic barriers involved in producing scientific texts as part of doctoral work. These barriers include limited information and scientific literacy, which restricts students' ability to search for, select, and appropriately use specialized information. A lack of familiarity with scientific concepts and terminology may also make it difficult to understand and use technical language accurately. Another significant barrier is the difficulty of adapting everyday language to scientific discourse, in both one's native and a foreign language, which complicates the expression of specialized ideas. This challenge is compounded by insufficient training in scientific writing, which requires a clear, precise, concise, and formal structure, as well as adherence to the descriptive, prescriptive, and normative conventions of academic discourse. Sociocultural factors, including authors' values, beliefs, and identities, may also influence their writing practices. Likewise, limited command of the technical vocabulary and discipline-specific expressions required in each field may hinder effective scholarly communication. Finally, a lack of familiarity with the conventions and specific structures of scientific writing may make it difficult to produce texts that meet the standards of clarity, organization, and rigor expected in this form of communication (Pineda-González, 2023).

The findings suggest that the multicultural learning environment experienced by the UPV doctoral students who participated in the study affects academic engagement and reveals strong connections among its cognitive, behavioral, emotional, and social dimensions. Table 7 presents a summary of the main findings.

Table 7. Relationship Between the multicultural learning environment and the dimensions of engagement

DIMENSION	ASSOCIATED FACTORS IN THE MULTICULTURAL ENVIRONMENT	IMPLICATIONS FOR DOCTORAL EDUCATION
EMOTIONAL	Intercultural experiences, cultural novelty, close faculty support, and linguistic and cultural barriers.	Influences motivation, sense of belonging, and emotional well-being; it may generate enthusiasm or anxiety depending on the student's level of adaptation.
COGNITIVE	Exposure to diverse cultural perspectives, autonomous learning, and broader access to scientific resources and methodologies.	Promotes critical thinking, metacognition, and the strategic selection of learning and research methods.
BEHAVIORAL	Expectations of autonomy, less hierarchical relationships with faculty members, organization of the academic system, and educational demands.	Encourages self-regulation, time management, and active involvement in academic activities.
SOCIAL	Intercultural interaction, participation in multicultural research groups, and institutional support networks.	Strengthens academic and cultural integration, peer cooperation, and the development of support networks.

Source: Own elaboration.

In summary, the multicultural learning environment functions as a cross-cutting factor that simultaneously influences the emotional, cognitive, behavioral, and social dimensions of engagement. Although cultural diversity broadens opportunities for learning, autonomy, and

academic integration, it also introduces linguistic and adaptive challenges that may affect student engagement. These findings demonstrate that engagement in multicultural contexts is a dynamic and interrelated phenomenon that depends on both institutional conditions and the processes of adaptation and support experienced by students.

DISCUSSION

Analyzing the implications of a multicultural learning environment for the engagement of foreign students is critical to evaluating the educational process. The findings revealed the importance of the physical learning environment for students' well-being and emotional engagement. When students feel welcome and have access to learning resources, they tend to be more motivated to participate in UPV activities. The learning environment fosters emotional engagement by motivating learning. In doctoral programs, this motivation is strongly associated with the thesis development process. This process fosters emotional engagement when students feel connected to their research topics, which is essential to making the writing process more enjoyable, manageable, and rewarding. It also promotes emotional well-being during and at the end of the academic journey, particularly as students gain confidence in developing their theses.

The multicultural learning environment promotes the emotional engagement of foreign students when relationships among students, faculty members, and supervisors generate positive emotions. This finding is consistent with the study conducted by Saleem et al. (2022), which identified a positive relationship between positive emotions and postgraduate student engagement.

Conversely, some emotional experiences may undermine engagement, particularly when they generate fear, anxiety, and frustration. This finding is supported by Jones (2013), who indicated that these factors hinder students' progress. Learning to manage emotions helps students cope with emotional fluctuations, especially because they perceive doctoral education as a solitary process. This sense of isolation becomes particularly evident during the thesis-writing stage.

Cognitive engagement is associated with students' learning strategies. It involves acquiring knowledge through reading, applying concepts, developing strategies, and using search tools to identify literature relevant to the thesis topic. It also includes the use of applications and participation in specific courses that enhance the doctoral thesis. These activities require planning, time management, and active participation (Reschly & Christenson, 2022) to address more complex demands. Such demands include the ability to critically analyze the literature, which requires a more reflective approach to make learning meaningful and transformative.

Sharing knowledge with other students is also a form of cognitive engagement because it supports the thesis development process, which involves not only writing but also conversation, individual and collective reflection, and listening. This finding is consistent with Cloutier (2016), who showed that writing an academic paper involves several actions similar to those identified in this study. It is therefore evident that thesis preparation is a determining factor in students' cognitive engagement.

Another dimension of engagement influenced by the multicultural learning environment is behavioral engagement. The findings revealed that behavioral engagement is associated with fulfilling academic commitments, which requires students to perform their activities in a self-directed and self-regulated manner. Other actions that promote behavioral engagement include active participation in UPV-organized courses and events. From a behavioral perspective, being engaged means assuming an active role in one's education. This occurs when students have opportunities to undertake activities such as teaching a class or presenting their thesis project to others.

Balancing these activities requires planning to avoid compromising thesis development and demands commitment and self-discipline across all aspects of doctoral education.

One of the barriers experienced by students is language, which affects behavioral engagement by hindering interaction and communication. At the institutional level, barriers to integrating interculturality into higher education include insufficient faculty training, limited resources, resistance to change, and the absence of clear policies. Among faculty members, barriers include excessive workloads, limited collaboration, and insufficiently open attitudes toward diversity. Among students, the main challenges include limited awareness, cultural shock, exclusion, and low levels of intercultural participation. These factors hinder the development of inclusive environments and genuinely intercultural education (Murillo-Malagón et al., 2024). For example, Zhu (2025) analyzed the adaptation challenges faced by Chinese students at universities in Barcelona. The study identified barriers such as language difficulties, cultural differences, and insufficient institutional support, while emphasizing structured curricula, faculty internationalization, and intercultural programs as facilitators of cultural inclusion. Potential improvement measures in this context include offering courses, providing faculty training, and delivering psychosocial support to improve student integration.

Another barrier concerns the time students can devote to doctoral education, as their responsibilities involve not only doctoral activities but also other dimensions of their lives. These barriers may lead to discouragement and uncertainty about their ability to complete the doctoral program.

Within a multicultural learning environment, interpersonal relationships are essential for strengthening social engagement. The foreign students at the UPV who participated in the study revealed that social engagement requires a sense of belonging developed through social interaction with individuals from other countries and cultural traditions. It is therefore necessary to foster a learning environment that promotes social engagement. Students identified the range of events organized at the UPV as opportunities to exchange ideas, socialize, and interact with others.

Another relevant action undertaken by the university is organizing academic activities, such as meetings, that encourage the exchange of information about the cultures of different countries. These activities provide opportunities to interact with individuals from diverse academic backgrounds and professional fields, thereby supporting interdisciplinarity and multidisciplinarity. A multicultural learning environment strengthens students' social engagement when the institution plans activities both inside and outside the classroom to encourage social interaction and enhance cultural diversity.

The analysis revealed the influence of thesis supervisors on the engagement levels of the foreign students investigated. When students receive support and guidance from their supervisors, they feel more emotionally engaged, which positively influences their emotional well-being. By collaborating with students and encouraging learning, supervisors make them feel valued and motivated to work on their theses. Regarding cognitive engagement, students consult their supervisors to clarify questions, and the supervisors' availability strengthens their commitment to seeking knowledge. Students understand the supervisor's role as that of a guide who accompanies and advises them throughout their educational journey. This fosters social engagement by building interpersonal bonds and encouraging students to see the supervisor as someone who addresses their needs and questions, understands them, and devotes time to supporting foreign students throughout their education. Sverdlik, Hall, McAlpine, and Hubbard (2017) also identified several supervisory roles and associated the quality of supervision with relationships, collaboration, and engagement. According to Gordon (2003), supervisors are also responsible for guiding, monitoring,

and redirecting students' progress to support the completion of their work and reduce experiences of failure.

The social engagement fostered by the supervisory relationship also helps students feel they are not alone and encourages them to see the supervisor as a guiding figure in their education. This finding demonstrates that academic engagement is associated with the quality of the relationship between supervisors and students. Jones (2013) identified this relationship as a fundamental factor in the successful and timely completion of doctoral education. Masek and Alias (2020) similarly emphasized that effective thesis supervision is essential for timely completion. When supervision is ineffective, it affects completion time and makes it more difficult for students to conclude their research.

The findings of this study are consistent with recent European research emphasizing the importance of multicultural environments and interpersonal relationships for academic engagement. Kassab et al. (2024), for example, demonstrated that the campus environment and students' sense of belonging positively influence sociocultural engagement and student satisfaction in health sciences education programs. Similarly, Abacioglu et al. (2023) showed that multicultural education directly influences student engagement, with peer relationships acting as a key mediating factor.

Within the Spanish context, Strotmann and Kunschak (2022) emphasized that students develop intercultural communication competencies as part of the university's internationalization process. These competencies facilitate academic integration and strengthen students' ability to participate actively in multicultural environments.

Consistent with this evidence, the present study finds that interactions with supervisors and peers at the UPV, together with students' perceptions of institutional support, strengthen the emotional, cognitive, behavioral, and social engagement of foreign doctoral students. These findings reinforce the idea that academic engagement in multicultural contexts depends on students' individual characteristics and on the university environment's capacity to establish connections, promote a sense of belonging, and encourage meaningful relationships. It also depends on the development of the intercultural competencies required for integration into international contexts.

One of the most relevant findings of the study was that the multicultural learning environment influences all dimensions of engagement – emotional, cognitive, behavioral, and social. This finding demonstrates that understanding the multidimensionality of academic engagement in multicultural learning environments is a complex, dynamic, and multifactorial process.

CONCLUSIONS AND IMPLICATIONS

One of the study's conclusions is that a learning environment may be considered multicultural when the institution develops initiatives that foster interaction and the exchange of experiences among students from different countries. The analysis of the multicultural learning environment highlights the role of context in shaping diverse experiences, as variables such as culture and language influence students' learning. Institutions must therefore promote initiatives that enable students from different countries to establish and strengthen interpersonal connections through immersion in a learning environment characterized by cultural diversity and openness to local contexts. This process requires adaptability and openness to change.

In doctoral programs, socialization has been identified as a determining factor in student retention and the successful completion of the educational process. It helps students adapt to the

learning environment by enabling them to better understand the culture – including attitudes, habits, and values – and the institutional norms of the context in which they receive their education (Jones, 2013). When effectively managed, this multicultural learning environment can foster engagement, as students who become integrated into the local context tend to feel more motivated and satisfied with the institution.

The study revealed that faculty members play a decisive role in promoting engagement because they establish closer relationships with students than those students have with faculty members in their home countries. This suggests that foreign students may become more engaged and feel prouder of studying at the UPV. This proximity extends beyond the physical classroom environment and is characterized by the availability of support in other social settings, as well as by the autonomy expected of students. Such faculty behavior promotes students' self-regulation and responsibility for their own educational development. The study also clearly showed that language is a barrier hindering foreign students' engagement in the UPV's multicultural learning environment.

Based on the findings, it may be concluded that foreign students perceive the UPV as a university with a multicultural learning environment that fosters engagement across the four dimensions analyzed: emotional, cognitive, behavioral, and social engagement.

The main theoretical implications of this study concern the analysis of the learning environment from a multicultural perspective, an approach that remains underexplored in the literature. Another theoretical implication concerns the analysis of foreign students' engagement in doctoral programs, as the knowledge generated by this study may contribute to the development of future research on postgraduate education.

The study also has practical implications, as its findings may assist the administrators of the UPV Doctoral School and the Institute of Education Sciences (Instituto de Ciencias de la Educación – ICE) in planning strategies to enhance the multicultural learning environment for foreign students. Further analyses involving foreign undergraduate and master's students at the UPV are recommended.

Future studies could examine in greater depth the influence of the multicultural learning environment on foreign students' academic performance, as well as the factors that constrain their doctoral education. It would also be relevant to investigate the role of supervisors and the ways in which linguistic diversity influences students' motivation and engagement. The analysis could also be extended to other universities with a strong presence of foreign students in undergraduate, master's, and doctoral programs to compare findings and assess their transferability to other contexts.

The findings also open an agenda for future research that includes comparisons among Spanish universities – both public and private and across different autonomous communities – to assess the effects of the multicultural environment on the different dimensions of engagement while considering the field of knowledge and students' mode of enrolment. Longitudinal studies could examine transitions between academic levels and their influence on self-regulation and social participation. Future research could also evaluate language-support programs, intercultural mentoring, supervisor training, and inclusive pedagogical innovations.

Additional research opportunities include analyzing disciplinary differences between STEM fields and the social sciences and humanities regarding scientific writing and collaboration; conducting intensive longitudinal mixed-methods studies to model fluctuations in doctoral students' emotional experiences; and examining the quality and availability of supervision and their relationships with thesis completion and student well-being. These research directions would

enable scholars to move beyond identifying students' needs toward developing initiatives that can be evaluated and compared across institutions.

REFERENCES

Abacioglu, C. S., Epskamp, S., Fischer, A. H., & Volman, M. (2023). Effects of multicultural education on student engagement in low-and high-concentration classrooms: the mediating role of student relationships. *Learning Environments Research*, *26*(3), 951-975. https://doi.org/10.1007/s10984-023-09462-0

Abduh, A., Basri, M., Rapi, M., & Rosmaladewi, R. (2021). Multicultural Engagement Activities to Support Internationalization of Bilingual Higher Education Programs. *The Qualitative Report*, *26*(10), 3296-3306. https://doi.org/10.46743/2160-3715/2021.5022

Barkley, E. F. & Major, C. H. *Student engagement techniques:A handbook for college faculty*. John Wiley & Sons, 2020.

Bernárdez-Gómez, A.; Sá, G. M.; Silva, C. L. (2020). Perspectivas teóricas sobre o engajamento agêntico. *Brazilian Journal of Development*, *6*(10), 75648-75661. https://doi.org/10.34117/bjdv6n10-116

Cayubit, R. F. O. (2022). Why learning environment matters? An analysis on how the learning environment influences the academic motivation, learning strategies and engagement of college students. *Learning Environments Research*, *25*(2), 581-599. https://doi.org/10.1007/s10984-021-09382-x

Chhetri, S. B., & Baniya, R. (2022). Influence of student-faculty interaction on graduate outcomes of undergraduate management students: The mediating role of behavioral, emotional and cognitive engagement. *The International Journal of Management Education*, *20*(2), 100640. https://doi.org/10.1016/j.ijme.2022.100640

Cloutier, C. (2016). How I Write: An Inquiry Into the Writing Practices of Academics. *Journal of Management Inquiry*, 25(1) 69–84. https://doi.org/10.1177/1056492615585875

Creswell, J. W. (2002).Educational research: Planning, conducting, and evaluating quantitative(Vol. 7). Prentice Hall Upper Saddle River, NJ.

Creswell, J. W., & Guetterman, T. C. (2024).*Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Pearson. One Lake Street, Upper Saddle River, New Jersey 07458.

De Vita, G. (2005). Fostering intercultural learning through multicultural group work. In J. Carroll, & J. Ryan (Eds.), *Teaching international students: Improving learning for all* (pp. 75–83).

Dworkin, S. L. (2012). Sample size policy for qualitative studies using in-depth interviews.*Archives of sexual behavior*,*41*(6), 1319-1320.

Gordon, P. J. (2003). Advising to avoid or to cope with dissertation hang-ups. *Academy of Management Learning & Education*, 2, 181-187. https://doi.org/10.5465/amle.2003.9901674

Graetz, K. A. (2006). The psychology of learning environment. *Educause Review*, v. 41, n. 6, pp. 60-75. https://er.educause.edu/articles/2006/1/the-psychology-of-learning-environments

Groccia, J. E. (2018) What is student engagement?. In: Groccia, J. E.; Buskist, W. (eds.). *Student Engagement: A Multidimensional Perspective*. Wiley, 2018.

Jones, M. (2013). Issue in doctoral studies- forty years of journal discussion: Where have we been and where are we going? *International Journal of Doctoral Studies*, *8*, 84-104. https://doi.org/10.28945/1871

Kassab, S. E., Rathan, R., Schmidt, H. G., & Hamdy, H. (2024). Influence of the university campus environment on sociocultural engagement and satisfaction of health professions education students: role of the sense of belonging. *BMC Medical Education*, *24*(1), 1512. https://doi.org/10.1186/s12909-024-06534-4

Kedian, J., & West-Burnham, J. (2017). Innovative learning environments: Beginning with the concept. *Journal of Educational Leadership, Policy and Practice*, *32*(1), 7-21. https://doi.org/10.21307/jelpp-2017-002

Lagrimas, E. L. M., & Buenaventura, V. P. (2023). The Mediating Effect of Constructivist Learning Environment on The Relationship Between School Culture and Student Engagement In Technology And Livelihood Education. *European Journal of Education Studies*, *10*(1). http://dx.doi.org/10.46827/ejes.v10i1.4620

Masek, A., & Alias, M. (2020). A Review of Effective Doctoral Supervision: What Is It and How Can We Achieve It? *Universal Journal of Educational Research*, *8*(6), 2493-2500. https://doi.org/10.13189/ujer.2020.080633

Meng, L., & Jin, Y. (2017). A confirmatory factor analysis of the Utrecht Work Engagement Scale for students in a Chinese sample. *Nurse Education Today*, *49*, 129-134. https://doi.org/10.1016/j.nedt.2016.11.017

Merriam, S. B. & Brockett, R. G. (2007). *The professional and practice of adult education: an introduction*. San Francisco: Jossey-Bass.

Ministerio de Universidades. *La salud mental en el estudiantado de las universidades españolas*, 2023. Available at https://www.universidades.gob.es/estudio-sobre-la-salud-mental-en-el-estudiantado-de-las-universidades-espanolas/ (March 3, 2024)

Ministerio de Ciencia, Innovación y Universidades. (2024). *Estadística de Estudiantes Universitarios (EEU) Curso 2023-2024*. Sistema Integrado de Información Universitaria (SIIU).

Mthuli, S. A., Ruffin, F., & Singh, N. (2021). 'Define, Explain, Justify, Apply' (DEJA): An analytic tool for guiding qualitative research sample size. *International Journal of Social Research Methodology*, *25*(6), 809-821. https://doi.org/10.1080/13645579.2021.1941646

Murillo-Malagón, I. D., Loor-Párraga, A. C., Vera-Pisco, D. G., & Sornoza-Parrales, D. (2024). Promoviendo la interculturalidad en el aula universitaria: desafíos y estrategias. *Revista científica multidisciplinaria arbitrada YACHASUN*,*8*(15 Ed. Esp.), 87-113.

Opdenakker, M. C., & Minnaert, A. (2011). Relationship between learning environment characteristics and academic engagement. *Psychological Reports*, *109*(1), 259-284. https://doi.org/10.2466/09.10.11.PR0.109.4.259-284

Pineda-González, L. L. (2023). Identificación de barreras/competencias lingüísticas en comunicación científica de investigadores universitarios.*Revista Estudios de la Información*,*1*(1), 15-37.

Reid, R., & Garson, K. (2017). Rethinking multicultural group work as intercultural learning. *Journal of Studies in International Education*, *21*(3), 195-212. https://doi.org/10.1177/1028315316662981

Reschly, A. L. & Christenson, S. L. (2022). Jingle-Jangle Revisited: history and further evolution of the Student Engagement Construct. In: Reschly, A. L. & Christenson, S. L. (Org.*). Handbook of research on student engagement*. Cham: Springer International Publishing.

Saleem, M. S., Isha, A.S.N, Awan, M.I., Yusop, Y.B., and Naji, G.M.A. (2022). Fostering Academic Engagement in Post-graduate Students: Assessing the Role of Positive Emotions, Positive Psychology, and Stress. *Frontiers in Psychology*, *13* (920395), 1-11. https://doi.org/10.3389/fpsyg.2022.920395

Silva, A. B. (2005). *A vivência de conflitos entre a prática gerencial e as relações em família*. 273 f. Tese (Doutorado em Engenharia de Produção) – Programa de Pós-Graduação em Engenharia de Produção, Universidade Federal de Santa Catarina, Florianópolis.

Silvola, A., Näykki, P., Kaveri, A., & Muukkonen, H. (2021). Expectations for supporting student engagement with learning analytics: An academic path perspective. *Computers & Education*, *168*, 104192. https://doi.org/10.1016/j.compedu.2021.104192

Skinner, E. A., & Raine, K. E. (2022). Unlocking the Positive Synergy Between Engagement and Motivation. In: Reschly, A. L., & Christenson, S. L. (Org.). *Handbook of research on student engagement*. Cham: Springer International Publishing.

Strotmann, B., & Kunschak, C. (2022). Toward the internationalization of higher education: Developing university students' intercultural communicative competence in Spain. *Language and Intercultural Communication*, *22*(4), 419-438. https://doi.org/10.1080/14708477.2021.2018450

Sverdlik, A., Hall, N.C., McAlpine, L., & Hubbard, K. (2018). The PHD Experience: A review of the factors influencing doctoral students' completion, achievement, and well-being. *International Journal of Doctoral Studies*, 18, 361-387. https://doi.org/10.28945/4113

Tas, Y. (2016). The contribution of perceived classroom learning environment and motivation to student engagement in science. *European Journal of Psychology of Education*, *31*, 557-577. https://doi.org/10.1007/s10212-016-0303-z

Trowler, V. (2010). Student engagement literature review. *The higher education academy*, *11*(1), 1-15.

Wang, M. T., Fredricks, J. A., Ye, F., Hofkens, T. L., & Linn, J. S. (2016). The math and science engagement scales: Scale development, validation, and psychometric properties. *Learning and Instruction*, *43*, 16-26. https://doi.org/10.1016/j.learninstruc.2016.01.008

Zhu, M. (2025). Challenges and Opportunities in Cross-Cultural Education: A Comparative Study of Barcelona and Beijing Foreign Studies University. *EHQUIDAD. Revista Internacional de Políticas de Bienestar y Trabajo Social*, 101-122. https://doi.org/10.15257/ehquidad.2025.0014