# Inclusive learning, agentic teaching: Preparing future teachers for transformative practice

*Aprendizaje inclusivo, enseñanza agente: Formar futuros docentes para una práctica transformadora*

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## ABSTRACT

Educational transformation is crucial for the development of agency in the 21st century. Fostering the personal and professional agency of future educators prepares them to meet challenges and drive innovation. Agency, as self-determination and the ability to enact to transform, proved fundamental in the process of becoming a teacher. In the context of English language acquisition, it emerged as a dynamic quality shaped by multimodal inclusive experiences in a Design-Based Research. Conducted in a public special education teacher training program during the 2023-2024 academic year, this study integrated Braille and Mexican Sign Language to support accessible language learning. Although few pre-service teachers initially demonstrated agency traits, the study revealed the importance of promoting it through reflective, collaborative and inclusive practices. Multimodality strengthened not only English development but also the confidence to embrace diversity in the classroom. These findings underscore that fostering agency is essential to preparing future educators to respond to current educational demands and to promote equity through teaching. The study calls for agency development to be intentionally embedded within teacher training programs.

## RESUMEN

*La transformación educativa es crucial para desarrollar la agencia en el siglo XXI. Fomentar la agencia personal y profesional de las y los futuros docentes les prepara para afrontar los desafíos y generar propuestas innovadoras. La agencia, entendida como autodeterminación y capacidad de actuar para transformar, resultó fundamental en la formación inicial. En el contexto de la enseñanza del inglés, emergió como una cualidad dinámica moldeada por experiencias multimodales e inclusivas dentro de una Investigación Basada en el Diseño. Se implementó en una institución pública formadora de docentes en educación especial durante el ciclo escolar 2023-2024, integrando braille y lengua de señas mexicana para apoyar el aprendizaje accesible del idioma. Aunque pocos docentes en formación demostraron inicialmente rasgos de agencia, el estudio reveló la importancia de promoverla mediante prácticas reflexivas, colaborativas e inclusivas. La multimodalidad fortaleció no solo el desarrollo del inglés, sino también la confianza para acoger la diversidad en el aula. Estos hallazgos subrayan que fomentar la agencia es vital para preparar a docentes que respondan a las demandas educativas actuales y promuevan la equidad desde la enseñanza. El estudio propone que el desarrollo de la agencia sea intencionadamente incorporado en los programas de formación docente.*

## KEYWORDS - *PALABRAS CLAVE*

agency, design-based research, language acquisition, pre-service teachers, inclusive education

*agencia, adquisición del idioma, educación inclusiva, formación docente, investigación basada en diseño*

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## 1. INTRODUCTION

Inclusion is a philosophy rooted in human rights, advocating for equal opportunities for all individuals regardless of differences. Being inclusive, however, requires more than ideals; it demands tangible actions and societal transformation to ensure all participate fully in every aspect of life. In education, inclusion remains a significant challenge. Many teachers often lack the preparation to effectively incorporate all students into the teaching-learning process. This gap is compounded by the reluctance to fully embrace differences. Inclusive practices can only succeed if teachers adjust their mindset toward diversity. However, transforming attitudes needs more than technical training, it requires formative experiences that invite future educators to question assumptions, take initiative, and engage meaningfully with the complexity of inclusion. That is teacher agency: the capacity to act with intention to improve education and promote more just, equal learning environments.

Fostering agency in teacher training is crucial for inclusive education because it empowers individuals to actively participate in the decision-making processes regarding student's needs, learning goals, and instructional strategies. While teacher agency is recognized as an essential factor in teaching effectiveness, its role in supporting inclusion, especially through preservice training, remains underexplored. Few studies directly link the development of teacher agency to the implementation of inclusive educational practices within teacher preparation programs. This gap highlights the importance of embedding agency with teacher training frameworks to ensure that, beyond mastering pedagogical strategies, teachers possess the sustained drive and commitment necessary to transform entrenched educational methodologies. Without agency, even the most well-intentioned efforts to foster inclusion may ultimately fall short.

Adopting English as a tool to integrate technology, multimodality, Braille and Mexican Sign Language (MSL) in the training of future special education (SE) teachers represents a significant step toward personalizing learning and promoting inclusion. By combining these elements, a learning environment is created in which teacher trainees can engage with English while developing skills in alternative communication systems, essential in special education. Technology enhances this process by offering digital tools that support flexible, multimodal learning experiences, enabling content access through visual and auditory means. This integrated approach positions language acquisition as a vehicle to understand and practice inclusion. In this sense, what becomes necessary is not effective teaching in the traditional sense but what Priestley et al. (2015a) describe as the "complex interactive process of communication, interpretation and joint meaning-making, where teacher judgement and decision-making" (p. 4) shape the learning experience. This study allowed such processes to emerge in the transitional stage of students becoming teachers, emphasizing the importance of fostering agency intentionally throughout teacher training—especially in special education.

Becoming an inclusive teacher begins with the desire to teach and is strengthened by the agency to enact this commitment. In this evolving context, agency is shaped by the world's uncertain shifts, which prompt confidence, reflection, and the need to question established practices in order to foster educational values and advocate for more just learning

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environments. In this study, agency is understood as a dynamic and evolving capacity that must be supported as future special education teachers move from learning to teaching.

## 1.1. Theoretical perspectives on agency

Educators need to create inclusive classrooms for all students, fostering increased cultural understanding, stronger critical thinking skills, and creativity among students (Molina et al., 2021). It is necessary for teachers to build close connections with their students, being conscious of interactions (Li, 2023). Educators´ beliefs about mind malleability guide their teaching methods and interactions with students (Dweck, 2006). Becoming a teacher for the 21st century requires a strength of character and conscious actions. However, aligning inclusive values with classroom practice is often an intricate process. While student teachers may recognize and support the principles of inclusion, effectively implementing inclusive practices necessitates not only a robust teacher identity but the active exercise of agency.

Becoming a teacher is a socially constructed process, emphasizing that teacher identity is not formed in isolation but through continuous engagement with social, cultural, and institutional contexts (Solari & Martín, 2020). Recognizing teaching as an intercultural phenomenon highlights the importance of collaborative learning, reflective practice, and adaptability to diverse educational settings. The evolution of students´ own perception of themselves as teachers, considering factors such as self-efficacy, passion for teaching, and the support received from mentors and colleagues (Varis et. al, 2023) must be critically reflected upon. Through collaborative efforts, students and teachers co-construct knowledge and challenge established norms, fostering transformative agency (Virkkunen, 2006., Lipponen & Kumpulainen, 2011).

Given the critical role of agents of change in inclusive settings, it is essential to understand that agency is not merely a personal skill but a pragmatic will. Agency is a decisive intention of action. It is self-reliance, knowing and trusting in one´s self, highlighting intrinsic motivation as the energy that impulses action, especially when uncertain events affect life and demand responsible actions to succeed (Bandura,1997). Action is grounded on what the person is, meaning beliefs, abilities and intelligence as vital assets that turn into autonomy, competence, and alliances in supportive social environments to enhance well-being (Ryan & Deci, 2017, Biesta et al., 2015, Nussbaum, 2011).

Transitioning from student to teacher involves an ongoing process of building professional identity and agency, an evolving self-definition within the teaching profession that teacher training programs must foster. This dual concept emphasizes the connection between who the teachers are (identity) and their purposely actions (agency) (Ruohotie-Lyhty, 2018., Archer, 2000). Identity and agency develop in parallel, and it is reflection that brings them into dialogue. Reflection, then, becomes the instrument that helps future educators make sense of their values, decisions and classroom actions.

As this reflective process deepens, it becomes clear that agency does not operate in isolation. Agency aligns cognition, emotion, and actions, guiding continuous growth amid external

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influences. To become a sentient-thinking-acting being, individuals must be aware of awareness of life provocations and make conscious choices to respond, this is the essence of being an agent of the self. This means self-confidence and consciousness are agency fundamentals relying on responsibility.  All these attributes foster personal strengths that allow any individual to forge their personal narratives, so constructing life meaning is determined by attitude and action (Seligman, 1990; Bruner, 1990).  Teaching is attitude and action.

Teacher´s agency relates to character, that strength of a person to speak their voice to determine quality teaching. It consists on the knowledge, consciousness, and capacity that allows a teacher to innovate educational practice (Olsen & Elliot, 2023). Character encourages to work ardently to direct own professional prosperity, but also to inspire students' development.  Consequently, teacher agency entails instructional decision-making to design and adapt teaching methods and strategies to meet diversity and promote engagement and collaboration to transcend the classroom.

Teacher training should actively shape the learning environment, considering the context, culture, and structure, thereby enhancing strengths and addressing weaknesses in professional practices (Priestley et al., 2015b). Integrating theory with teaching practice enables teachers to understand and exercise their agency in the classroom (Maclellan, 2017).  By embracing these, teachers act as cultural change agents, navigating educational challenges through personal pedagogical choices that advance student development (Husu & Kumpulainen., 2021, Courtney et al., 2018., Biesta et al., 2017). Transformative agency fosters proactive initiatives, promoting growth (Kajamaa & Kumpulainen, 2019).

To support transformative practices, teacher training must function as an activity system, a dynamic and evolving network of social, cultural, and institutional influences (Engeström, 2013) where future teachers´ agency is shaped, emphasizing that the system must enable meaningful change by aligning structural conditions with reflective and purposely action.  In line with an ecological model (Priestley et al., 2015a., Biesta & Tedder, 2007), this system should intentionally interact with pre-service teachers´ inner and outer contexts, fostering reciprocal influences to empower teachers to be agents of change.

From the temporal perspective of agency proposed by Emirbayer and Mische (1998), the development of agency unfolds across three interrelated dimensions: the iterational, shaped by past experiences and internalized beliefs; the practical-evaluative, which entails context-sensitive decision-making and action; and the projective, oriented toward future goals and aspirations.  In teacher education, this framework shares the importance of preparing future educators not only to act in the present but also to critically reflect on their histories and envision themselves as transformative agents of change. When agency is positioned as a foundational element in teacher training, the formation process itself becomes a guided trajectory, one that intentionally nurtures, challenges, and supports movement across these dimensions.  In this way, teacher training can serve as both a reflective and forward-looking space that prepares preservice teachers to act meaningfully within diverse, evolving educational environments.  In this sense, the English classroom becomes more than a site of

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language acquisition; it becomes a space where teacher identity and agency take shape, preparing educators to respond to the complexity with inclusion and purpose.

## 2. METHOD

### 2.1. Objectives

The general objective of this research was to design and validate a digital multimodal educational methodology that responded to develop communicative skills in the acquisition of English as a second language and to impulse supportive attitudes in students towards inclusion. While the initial research question focused on the digital multimodal educational methodology, as researchers it is important to have a more open perspective to analyze phenomena that come to light during the research process considering that teaching and learning are multifactorial processes affected by personal and environmental influences. In this respect, student agency emerged as an unconsidered variable that shapes learning and that derives from individual´s attitudes and character, those attributes that also manifest inclusion, build up language, and signify teacher agency.

### 2.2. Research development

This research was conducted across two consecutive English courses at a public pre-service teacher education institution during the school term 2023-2024. The intervention involved a shift from traditional textbook-based learning approach in the first semester to a Project-Based Learning (PBL) methodology in the second.

During the first semester, classes began in a traditional, in-person format. However, one week into the term, the school was unexpectedly closed for remodelling, and all sessions were moved to a distance-learning format without prior notice. Additionally, the instructor had to temporarily step away, which affected the continuity of instruction. Activities during this period were mostly individual, based on completing structured language exercises in the book, with minimal collaborative work or adapting to varied learning needs. A few online lessons were held using the book platform. However, the main source of student´s performance derived from the autonomous resolution of the digital platform.

In contrast, the second semester was conducted under hybrid and unstable conditions caused by a water shortage in the city. Students were frequently notified at the last minute whether classes would take place in person or online. Despite this uncertainty, implementation was carried out through a DBR approach, implementing PBL framework. To energize teaching practices and contextualize English in SE teacher training, Multimodal Virtual Learning Objects (MVLOs) were designed integrating Braille and Sign Language (SL) as innovative modalities in Ed-tech to support the active methodology. This proposal allied English to SE to motivate and interest students. Across implementation, ongoing adjustments were made.

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## 2.3. Design-Based Research

The foundational framework for the research was Design-Based Research (DBR), an approach inherently flexible and iterative within a real setting used in the field of educational technology focusing on innovation (Reeves, 2006; Easterday et al., 2017). Its guiding principle was to solve the impassivity to acquire the language, introducing novel elements to transform the situation (De Benito & Salinas, 2016). The DBR framework enabled iterative refinement of the multimodal interventions through projects and the MVLOs.

The DBR process implemented in this study followed the seven phases proposed by Easterday et al. (2014), starting with the identification of the problem within a real educational context: the limited engagement of future special education teachers in English language learning. The second phase consisted of a thorough literature review on multimodality, inclusive pedagogies, Universal Learning Design, TPACK to support inclusive learning through accessible strategies such as Braille and Mexican Sign Language. In the third phase, design goals were established: to foster the acquisition of language learning and enhance attitudes toward inclusion. In the fourth phase, learning solutions were developed in the form of multimodal virtual learning objects (OMVA) and structured learning sequences. These were implemented in five iterative cycles, which formed the fifth phase, allowing for adjustments based on student performance and classroom observations. During implementation, signs of learner agency began to emerge spontaneously, prompting interest in observing its development throughout the interventions. As a result, in the sixth phase, the research incorporated this variable, complementing the whole research. Finally, in the seventh phase, the findings are reported, in this article, emphasizing how learner agency evolved through the interaction with inclusive, multimodal, and project-based educational designs.

The DBR process unfolded across five iterative cycles, each aligned with a specific project under feedback. In the first cycle, OVMA were sent at the beginning of the project in hopes of fostering autonomy, however, they were later modified to be revisited consistently during the project. In the second cycle, OVMA were redesigned for practicality and implemented in a fully remote format. By the third iteration, objects were adapted for in-class use to check understanding, focusing on visual recognition of Braille and MSL, allowing students to demonstrate what they had learned independently. In the subsequent iterations, OVMA included short English texts requiring students to respond using Braille or LSM, thus increasing cognitive demand. The activities were designed to promote linguistic reciprocity between modalities: when content was present in Braille or LSM, students were expected to respond in English; conversely, when presented in English, students were required to complement answers using Braille or MSL. This bidirectional demand aimed to reinforce both English language development and multimodal literacy.

In parallel, PBL design also evolved. During the first cycle, students struggled with group organization and role understanding, prompting the introduction of rotating and evaluable roles in the next phase. When initial research efforts proved superficial, mostly involving copied internet content, the following cycle incorporated guiding questions and curated information sources to scaffold authentic inquiry using English specific structures to allow communication.

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As students failed to coordinate effectively in the production of digital collaborative work, two specific digital tools were suggested to support remote teamwork. The teacher also joined the platforms as a collaborator to provide timely guidance. By the fifth cycle, the process had become more fluid; however, the hybrid modality of the final presentations, partly in-person and partly online, posed a logistical challenge as the semester came to a close.

## 2.4. Sample and participants

The research participants were a finite group, being a convenience sample, made up of 26 participants from the first year in teaching training in SE. It was integrated by 23 women and three men, ranging from 18 to 24 years old. The majority of the women were between 18 and 20. Only six were above 22 and the three men were under 20. Their language skills varied.

## 2.5. Data collection for agency

The quasi-experimental design acknowledged the comparison of two semesters without random assignment, to assess the impact of the two distinct educational methodologies. Although the initial focus was on English proficiency and inclusive attitudes, agency emerged as a significant factor through the intervention. Agency became apparent as an unexpected variable in response to the unique challenges and circumstances of the two semesters. The comparison of student performance across semesters revealed changes in traits of agency as a consequence of the interventions. This study stresses the importance of agency in education even though it was identified retrospectively.

During two semesters, qualitative and quantitative evidence was collected on students´ performance using checklist-based assessment of productive skills--speaking and writing—to identify attitudes towards communicative challenges, the knowledge to construct ideas, fluency, pronunciation, and classroom engagement.

During the first semester, student performance data were gathered from OVMA activity grades, digital platform logs of completed exercises, and systematic teacher observations regarding individual class participation (frequency, consistency, accuracy, errors, pronunciation, fluency, and presence). In the second semester, with the introduction of PBL learning and a hybrid format, additional evidence was collected from students´ teamwork, participation in both in-person and online activities, interactions, use of English, OVMA engagement, and task organization.

All data from both semesters was then systematically coded into six agency-related factors, autonomous learning, communication and collaboration, emotional and social engagement, decision-making, responsibility and commitment, autonomous learning, and self-reflection. The six traits used to observe students´ agentive actions, are grounded on established educational theories. The concept of situated learning by Lave and Wenger (1991) and self-efficacy by Bandura (2006) support the development of active participation and decision-making. Vygotsky´s sociocultural theory (1978) and Piaget´s interactionist view (1970) provides the foundation for communication and collaboration. Emotional and social engagement is

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rooted in Deci and Ryian´s self-determination theory (1985), along with Kolb´s experiential learning model (1984), which underscores the emotional dimensions of learning. Bandura´s social cognitive theory (2001) and Deci and Ryan´s work on autonomy and responsibility (2000) support the role of responsibility and commitment in agency. For autonomous learning, Zimmerman´s theory of self-regulation (2002) and Knowles´s concept of self-directed learning (1975), are central. Finally, the trait of self-reflection is backed by Flavell´s concept of metacognition (1979) and Schön´s reflective practitioner model (1983). These theoretical frameworks together justify the conceptualization and observation of agency as expressed.

To structure this mixed-method analysis, each trait was operationalized as a 5-point Likert scale, transforming both performance checklists and coded observations into numeric scores. Descriptive statistics (means and standard deviations) provided an overview of the trends across two semesters, while paired t-tests and one-way ANOVAs were performed to assess the statistical significance of any observed changes. The quantitative data were cross-referenced with qualitative teacher notes concerning each student´s attitude and behavior, allowing for the identification of those who showed signs of agency development in the first semester, which was later corroborated through their actions in the second. All student responses and teacher records were anonymized to protect confidentiality and encourage honest participation. By triangulating test scores, Likert-scale ratings, and descriptive narratives, this approach yields a comprehensive portrait of how agency unexpectedly emerged and evolved within two English courses.

## 2.6. Ethical Statement

This study involved human participants and the collection of personal data. All participants were informed of the purpose and scope of the research and gave their voluntary, written consent prior to participation. The study was reviewed and approved by the Ethics Committee of a public teacher education institution.

Personal data were handled in compliance with international data protection regulations, including the General Data Protection Regulation (GDPR). All data were collected, stored, and analyzed securely and anonymously, ensuring confidentiality and minimizing any potential risks to participants.

Where technological tools were used, their ethical implications were critically considered. Particular attention was given to minimizing bias, ensuring accessibility, and protecting user privacy throughout the research process.

## 3. RESULTS

This section reports two consecutive semesters marked by unforeseen circumstances.

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## 3.1. Diagnostic Data Analysis

A summary of the initial data is shared to understand the general patterns and characteristics identified in participants. Table 1 reveals some leading insights into students´ attitudes towards English.  Age played a significant role in the classroom dynamics.  Observations noted that, in general, older peers dominated interactions, while younger ones lacked self-determination. This created a lethargic atmosphere.

Table 1

*Descriptive Statistics: Participants Characteristics and Attitudes Towards English Learning*

| Category | Mean | Median | Mode | Standard deviation | Range | Minimum | Maximum |
|---|---|---|---|---|---|---|---|
| Students' age | 19.50 | 19.00 | 18.00 | 1.98 | 6.00 | 18.00 | 24.00 |
| English liking | 3.71 | 4.00 | 3.00 | 1.00 | 4.00 | 1.00 | 5.00 |
| Importance of learning English | 4.75 | 5.00 | 5.00 | 0.53 | 2.00 | 3.00 | 5.00 |
| English usefulness | 4.79 | 5.00 | 5.00 | 0.51 | 2.00 | 3.00 | 5.00 |
| Student estimate of language proficiency | 1.83 | 2.00 | 2.00 | 0.70 | 2.00 | 1.00 | 3.00 |
| Years studying English | 9.13 | 9.00 | 6.00 | 4.10 | 12.00 | 3.00 | 15.00 |

*Note:* English liking, the perceived importance of learning English, and its usefulness were rated on a 5-point Likert scale (1=strongly disagree, 5= strongly agree). Self-assessed language proficiency was rated from 1 to 5 (1=low, 5=high).

The average score of 3.71 indicated a neutral to slightly positive attitude towards English. However, the self-estimated language proficiency, with a mean score of 1.83, suggested that despite having studied English for an average of 9.13 years, students did not feel competent in the language, indicating a significant gap in skills.  The relationship between the perceived importance of English and the low self-perceived proficiency highlighted a motivation gap. Significant variability in students´ experiences, evidenced by a wide range in years of English study and a high standard deviation (4.1), revealed that students came from diverse educational backgrounds. This shaped the initial classroom dynamics and peer interactions.

Despite moderate interest in English, students strongly recognized the importance and usefulness of the language, with a high mean score of 4.7.  In contrast, while 75% of the students reported a willingness to learn it for personal growth, few identified practical reasons for doing so. While they valued the language, their lack of confidence and proficiency hindered their motivation and engagement. These findings suggested the need for targeted instructional strategies and support such as confidence-building activities and differentiated instruction to impulse learning.

## 3.2. Students' involvement and outcomes analysis

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The analysis of students´ learning across two semesters derived from the assessment of behaviors, decisions, and actions registered. Despite the limitations of the hybrid environments, these data offer valuable insights into attitudes and performance toward learning. Table 2 presents an overview of English I measures, while Table 3 shows data from data from English II, allowing for comparison.

Table 2

*Descriptive Statistics: English I*

| Measure<br>First Semester | Mean | Median | Mode | Standard deviation | Range | Minimum | Maximum |
|---|---|---|---|---|---|---|---|
| active participation | 1.84 | 2 | 1 | 0.94 | 3 | 1 | 4 |
| communication and collaboration | 2.24 | 2 | 2 | 0.72 | 2 | 1 | 3 |
| emotional and social engagement | 2.48 | 2 | 2 | 0.87 | 3 | 1 | 4 |
| decision-making | 2.76 | 3 | 4 | 1.09 | 3 | 1 | 4 |
| responsibility and commitment | 3.12 | 3 | 4 | 0.93 | 3 | 1 | 4 |
| autonomous learning | 2.80 | 3 | 3 | 1.15 | 4 | 1 | 5 |
| self-reflection | 3.00 | 3 | 3 | 0.76 | 3 | 1 | 4 |

*Note:* These data represent factors related to students´ performance in English I during the first semester. All measures were rated on a 5-point Likert scale (1=strongly disagree, 5=strongly agree).

Table 3

*Descriptive Statistics: English II*

| Measure<br>Second Semester | Mean | Median | Mode | Standard deviation | Range | Minimum | Maximum |
|---|---|---|---|---|---|---|---|
| active participation | 3.54 | 3 | 3 | 1.24 | 4 | 1 | 5 |
| communication and collaboration | 3.54 | 3.5 | 3 | 1.21 | 4 | 1 | 5 |
| emotional and social engagement | 3.35 | 3.5 | 4 | 0.89 | 4 | 1 | 5 |
| decision-making | 3.81 | 4 | 5 | 1.20 | 4 | 1 | 5 |
| responsibility and commitment | 4.08 | 4 | 4 | 0.98 | 3 | 2 | 5 |
| autonomous learning | 3.69 | 4 | 4 | 1.01 | 4 | 1 | 5 |
| self-reflection | 3.35 | 4 | 4 | 1.29 | 4 | 1 | 5 |

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*Note:* These data represent factors related to students´ performance in English II during the second semester. All measures were rated on a 5-point Likert scale (1=strongly disagree, 5=strongly agree).

During the first semester, many students relied heavily on the teacher´s guidance, showing low self-determination in learning. This dependence was identified in distant classes when required participation prevailed over voluntary. Task delivery varied considerably. The most proficient students delivered fewer tasks or submitted lower-quality work. Overall, students demonstrated limited interest while working with the traditional methodology.

In contrast, most students improved their performance during the second semester. Attitudes became more positive, and task completion was more consistent and punctual. Interestingly, less proficient students became autonomous and active users of the online resources, achieving better post-test scores. This contradicted the assumption that greater prior knowledge leads to better performance. Some students with language experience made less effort and avoided communicating in English. The differences in agency-related behaviors between semesters are reflected in Table 4 and Figure 2.
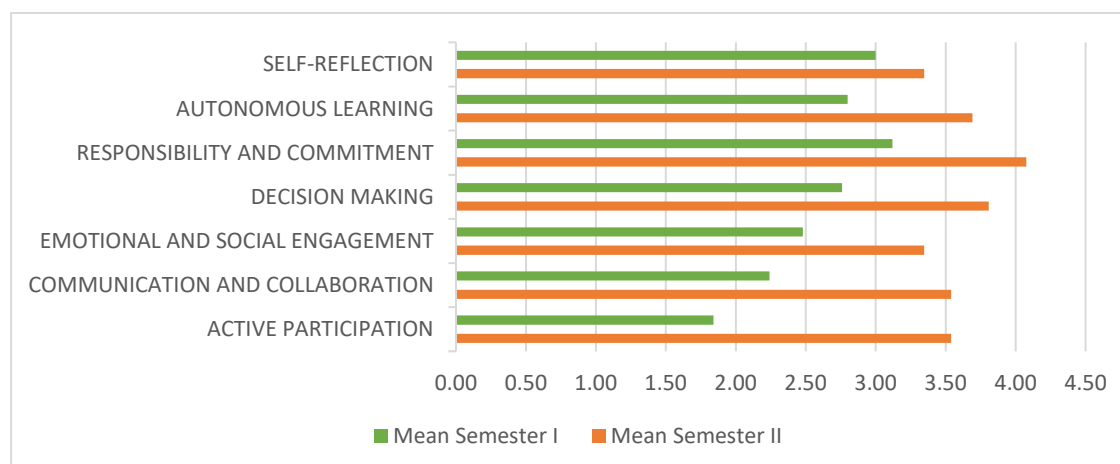
Table 4

*Changes in Agency-Related Behaviors Across Two Semesters of English*

| | *Active Participation* | *Communication and Collaboration* | *Emotional and Social Engagement* | *Decision Making* | *Responsibility and Commitment* | *Autonomous Learning* | *Self-reflection* |
|---|---|---|---|---|---|---|---|
| English I | 1.84 | 2.24 | 2.48 | 2.76 | 3.12 | 2.8 | 3 |
| English II | 3.54 | 3.54 | 3.35 | 3.81 | 4.08 | 3.69 | 3.35 |

*Note:* Values represent means showing progress in performance across two semesters.

Figure 2

*Comparison of Students' Involvement and Outcomes over Semester I and Semester II*

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*Note:* The bar chart compares seven aspects of student agency between two semesters measuring students´ performance.  A Likert scale ranged from 1 (low) to 5 (high) reflect changes in key areas.

## 3.3. Traits of agency

### 3.3.1. *Active participation*

Active participation considered students´ involvement in the activities, discussions, and tasks in both online and in-person teaching. During the first semester, participation in online classes was below moderate.  A significant increase occurred in the second semester, with the mean rising from 1.84 to 3.54 (see Figure 3).  This improvement reflected growth in students´ communicative skills and self-confidence.  Contributing factors to low participation in the first semester were poor internet connectivity, cameras turned off, and home distractions.  During the second one, interactions in person fostered natural communication.  In general, it was registered that the high- and low-proficient students participated more during both semesters.

**Figure 3**

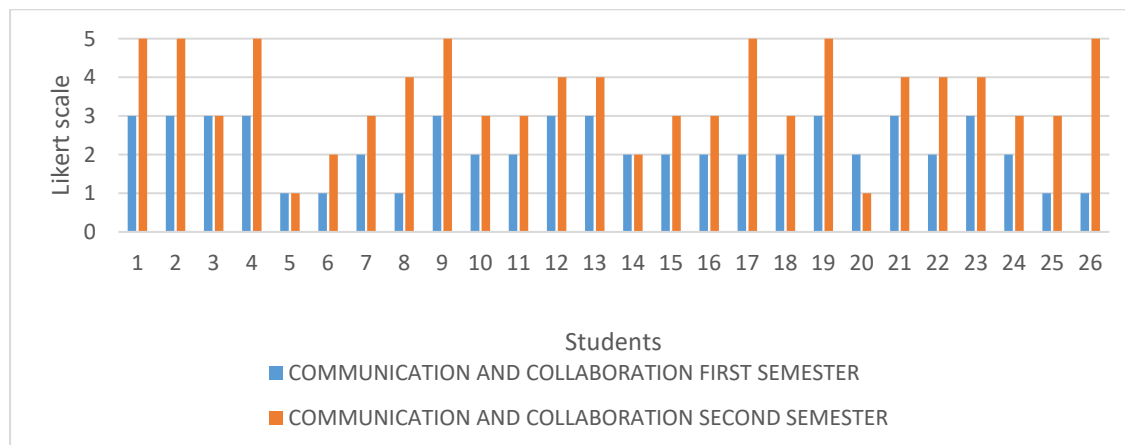*Students´ Active Participation across Two Semesters*
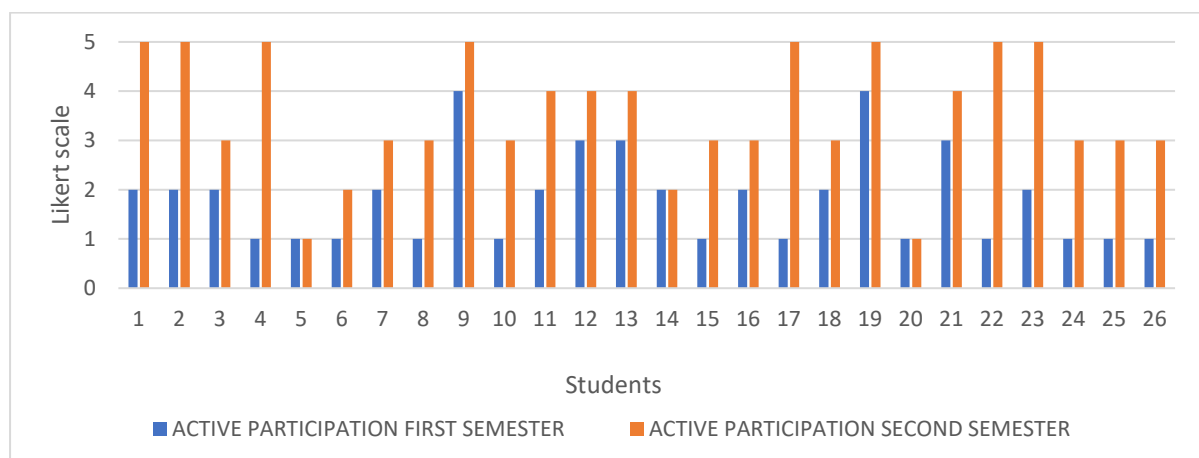


*Note.* Values represent teacher-assessed levels of student participation on a 5-point Likert scale (1=low, 5=high).

### 3.3.2. *Communication and collaboration*

This trait refers to the ability to exchange ideas clearly and to work effectively in group settings. During the remote semester, students showed reluctance to communicate through apps and mostly worked independently, revealing a general lack of collaborative digital skills. In the second semester, both mean (from 2.24 to 3.54) and mode (from 2 to 3) increased as shown in Figure 4. Project-based work fostered peer relationships, resulting in better communication and collaboration.

**Figure 4**

*Students´ Communication and Collaboration across Two Semesters*

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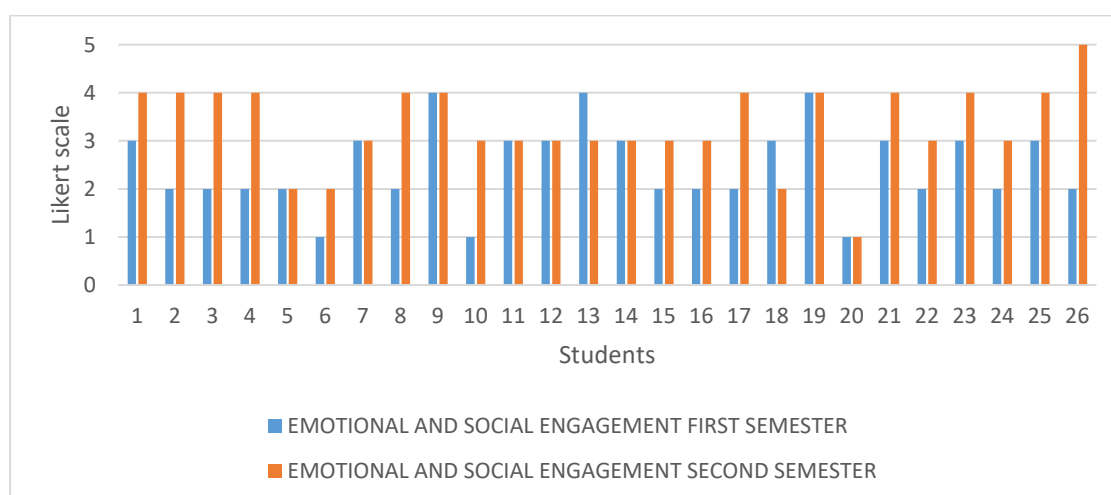educational inclusion

*Note:* The chart reflects students´ communication and collaboration measured by the teacher across two semesters. Scores range from 1(low) to 5 (high).

### 3.3.3. Emotional and social engagement

Emotional and social engagement is an important component of agency. The degree to which students can connect emotionally and socially to learning environments and peers is significant in today´s education. Students showed a slight yet positive trend, with mean scores rising from 2.48 to 3.35 (see Figure 5). However, it remained the one of the lowest-rated aspects in both semesters. Classroom observations during the second semester revealed some group tensions and unbalanced dynamics, often influenced by low self-confidence and underdeveloped self-management skills. Improvement in this area could correlate with more supportive learning environments.
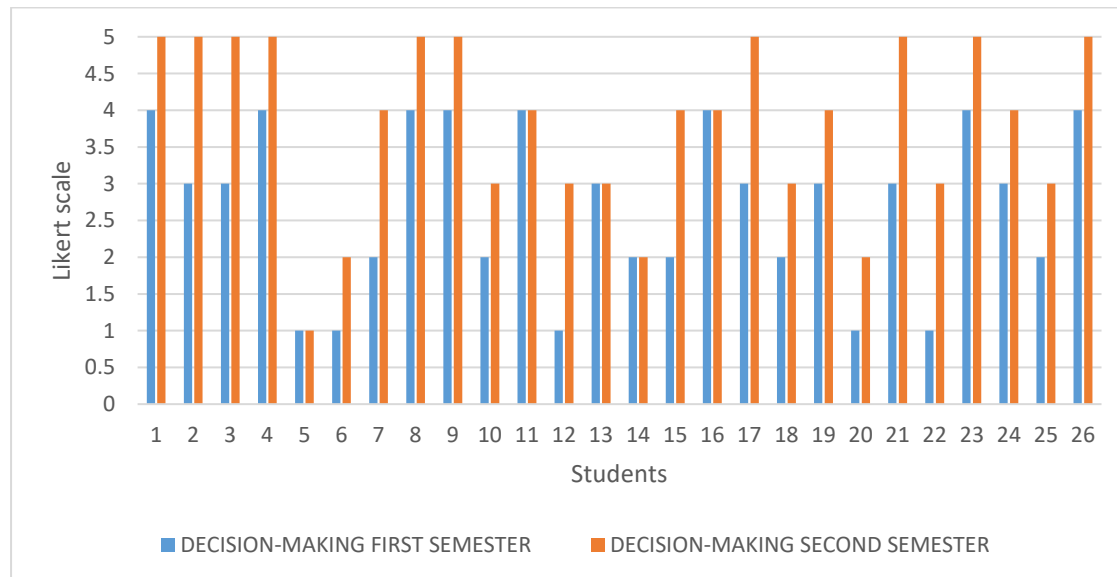
**Figure 5**

*Students´ Emotional and Social Engagement across Two Semesters*



*Note:* The chart reflects students´ emotional and social engagement measured by the teacher across two semesters. Scores range from 1(low) to 5 (high).

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### 3.3.4. Decision-making

Decision-making reflects maturity and the capacity to make informed, responsible choices. Observations indicated that age was not a determinant for better decision-making. Students´ ability to make autonomous and beneficial academic decisions improved notably in the second semester´s PBL approach, as it promoted problem-solving and collaborative decision-making through role-based group tasks.  The mean increased from 2.76 to 3.81, showing significant growth in this area, as Figure 6 shows.

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**Figure 6**

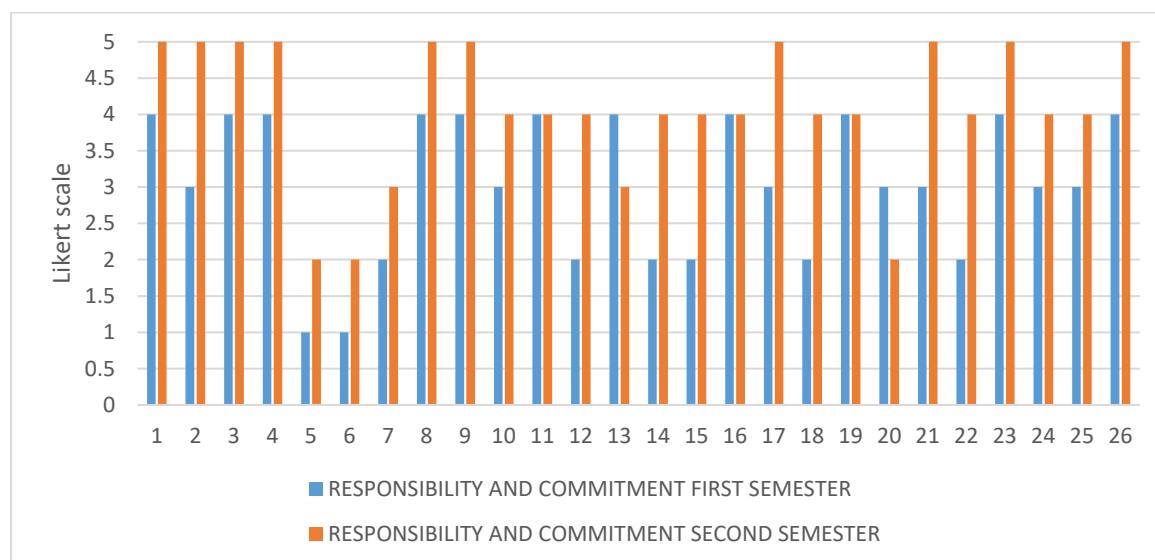*Students´ Decision Making across Two Semesters*



*Note:* The chart reflects students´ decision-making measured by the teacher across two semesters. Scores range from 1(low) to 5 (high).

### 3.3.5. Responsibility and commitment

Responsibility and commitment are reflected in the students' ownership of their learning, assuming their obligations in and out the classroom and being dedicated to them. Responsibility is associated to have to do. Commitment is doing in spite of odds without excuses. In certain contexts, being accountable just means immediate answer to work. This characteristic was mostly evidenced when solving the commercial platform exercises, MVLOs and the project assignments, delivering them punctually and accurately.

Results reveal mean score 3.12 to 4.08. Teacher´s qualitative observations and field notes indicated that the shift in responsibility was linked to the relevance of the project topics, the autonomy granted to students in decision-making, and the sense of purpose derived from inclusive materials. Furthermore, students were encouraged to reflect on their roles within the team and on the impact of their contributions, which fostered a sense of accountability. In all students an increase is observed from one semester to the next. Evidence shows that all students engaged more in MVLOs in the second semester more than they did with the commercial platform in the first one.

Observations displayed that responsibility prevailed over commitment. Commitment associates with connection, implying motivation, therefore it is correlated with other traits to exhibit agency. Data in Figure 7 demonstrates that the majority of the participants were consistent in taking ownership of their work, thus to display agency other associations need to be made.

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Figure 7

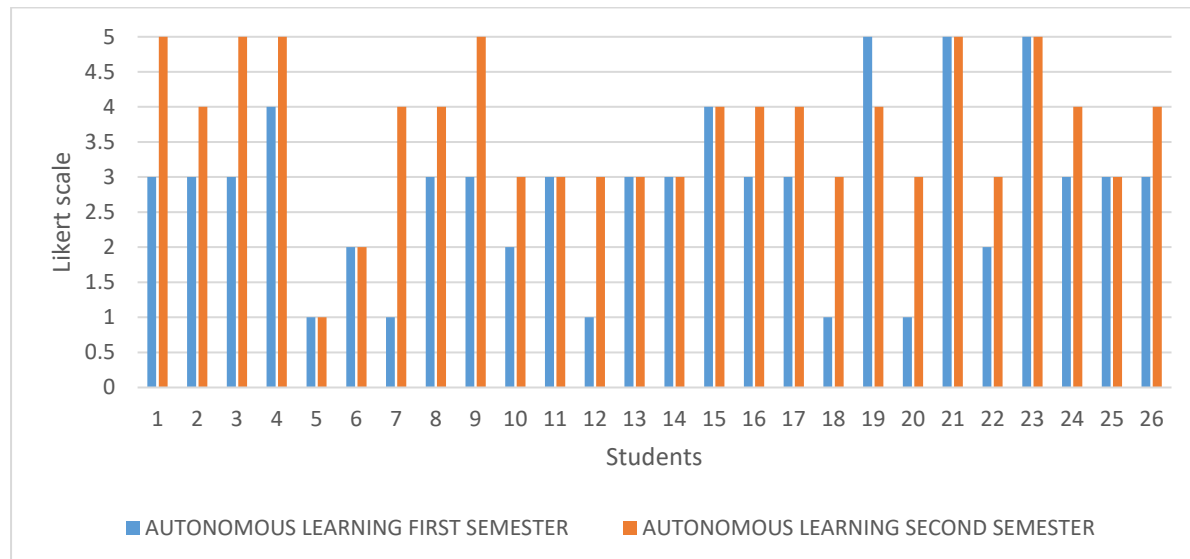*Students´ Responsibility and Commitment across Two Semesters*



*Note:* The chart reflects students´ responsibility and commitment measured by the teacher across two semesters. Scores range from 1(low) to 5 (high).

### 3.3.6. Autonomous learning

Autonomous learning involves student´s ability to take control of their learning process including self-direction and critical thinking, traits strongly related to maturity. In a practical sense, it refers to students´ initiative and determination to take action for personal academic growth. In the context of this study, it was associated with how students managed tasks, outside the classroom, such as preparing materials for projects, completing research, or practicing language skills without direct supervision.

The increase in mean from 2.80 in the first semester to 3.69 in the second one reflects increase in this aspect, indicating that students were more capable in the second semester, completing tasks independently. A clear difference was evident from the first semester as seen in Figure 8.

Notably, during the first semester, some students, particularly those with lower proficiency, took responsible steps to strengthen their skills. They engaged in independent English practice, completed platform exercises, and developed personal strategies to address their language gaps. By contrast, students with higher proficiency often demonstrated less commitment in developing to deepening their knowledge or taking ownership of their learning process.
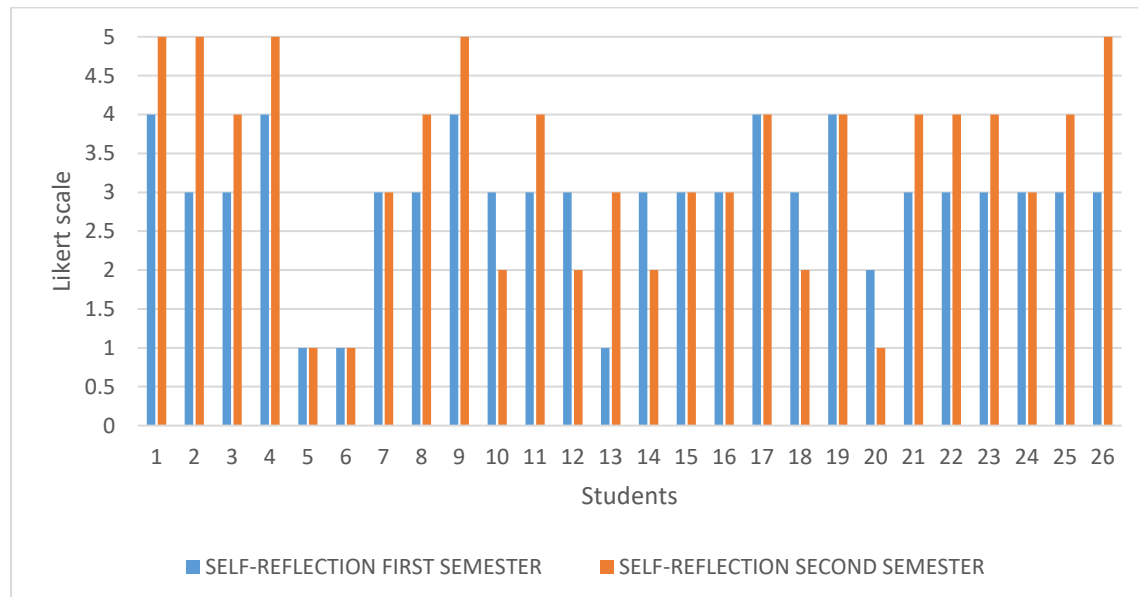
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**Figure 8**

*Students´ Autonomous Learning across Two Semesters*



*Note:* The chart reflects students´ autonomous learning measured by the teacher across two semesters. Scores range from 1(low) to 5 (high).

### 3.3.7. Self-reflection

Self-reflection directs the attention to the ability to think seriously and evaluate one´s own learning, behavior, and progress critically to make changes.  Improvement as a goal is deeply associated to self-reflection, it implies growth, awareness, analysis, and it guides to innovation to solve problems. This trait means students assess their own work, reflect on successes and areas for improvement, and set personal learning goals to achieve them.  Students had the opportunity to evaluate their own actions at the ending of each semester.

There was some improvement in students' ability to reflect on their learning experiences, as indicated by the increase in mean scores from 3.00 to 3.35.  Figure 9 displays a modest difference in some students who became more self-aware of their learning processes and outcomes in the face-to face environment. Self-reflection is closely linked to critical thinking, resilience, and growth mindset.  Classroom observations identified a small group of students who were conscious of their language development and actively sought to improve it.  These students showed greater awareness of what was happening in the learning environment, made adjustments, and demonstrated growth.  However, it was evident that not all students engaged in reflective thinking.

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**Figure 9**

*Students´ Self-reflection across Two Semesters*



*Note:* The chart reflects students´ self-reflection measured by the teacher across two semesters. Scores range from 1(low) to 5 (high).

## 4.  DISCUSSION

This study set out to explore how a multimodal, project-based digital methodology, grounded in the principles of comprehensive literacy, could foster English language development and more inclusive attitudes among pre-service special education teachers.  Findings related to language proficiency and attitudes toward inclusion are discussed in other papers. This particular discussion focuses on agency, understood as an emergent phenomenon that became visible when analyzing the learning process as a whole, and which deserves special attention due to its significance within the context of teacher training. Agency is a fundamental element to be cultivated through educational transformation toward more inclusive and active methodologies.

The quantitative and qualitative data collected over two semesters revealed progressive changes in student´s behaviors, aligning with basic dimensions associated with agency: active participation, communication and collaboration, emotional and social engagement, decision-making, responsibility and commitment, autonomous learning, and self-reflection. These tendencies were identified throughout two contrasting instructional contexts, one based on a textbook and its online platform, and the other grounded in project-based learning with Multimodal Virtual Learning Objects using Braille and Mexican Sign Language.  Improvements were particularly evident in areas such as autonomous learning and responsibility, where the highest increases in mean scores were recorded.  Rather than treating these traits as isolated variables the study examined their interrelation as part of a broader pedagogical shift.

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Although the changes cannot be considered definite, they represent consistent patterns that suggest the emergence of agency-related behaviors. Future research would benefit from longitudinal designs in better conditions that explicit focus on agency as a central construct in order to determine the extent to which these tendencies develop into sustained educational practices.

The findings of this study align with Priestley´s et al. (2015a) ecological model of teacher agency, which frames agency not as a fixed individual attribute but as a situated, context-dependent achievement. From this perspective, agency arises through the interaction of personal capacities, professional contexts, and temporal conditions. In the present study, the implementation of a multimodal, project-based methodology, in the second semester, provided students with more meaningful opportunities to exercise agency through collaboration, reflection, and autonomous learning. These learning conditions allowed pre-service teachers to engage more intentionally with the educational process, developing not only language skills but also disposition and actions that reveal potential for professional agency. Future research should further explore how specific contextual and relational factors contribute to sustaining these forms of engagement in the longer term.

These observations also resonate with Engeström (2011) concept of expansive agency, the ability of an individual or a group to shape and transform their surrounding environment and activities, which emerges when individuals begin to reconceptualize their actions in context (activity systems) and initiate transformations in their practice. Although students in this study were not yet fully capable of critically redesigning the educational tools or structures around them, their engagement in multimodal, project-based tasks signaled a shift from passive reception toward more proactive participation. The gradual assumption of responsibility, autonomous learning, and reflective practices, especially evident during the second semester, suggest that students were entering early stages of expansive agency, marked by questioning routines and adapting strategies. Given that these were first-semester pre-service teachers, their contact with inclusive methodologies and reflective learning was still in its formative stages. Longitudinal studies could help identify whether these initial patterns develop into more mature expressions of expansive agency over time.

Archer´s (2003) emphasizes the role of internal conversations in her theory of agency. This reflective process offers additional lens through which to view the development of student agency in this study. According to Archer, individuals engage in internal dialogues that guide their actions and decisions, reflecting their own values, beliefs, and past experiences. In the context of this study, some students demonstrated early signs of such internal dialogues, particularly in how they reflected on their learning process to determine personal goals. These students showed an increasing awareness of their educational path, making intentional decisions to improve their language skills and engagement with course content. However, not all students were at the same level of self-reflection, suggesting that the internal conversation process is not automatic. Further research might explore how and if these internal conversations develop as students gain more experience and exposure to reflective practices in teacher training programs, and how this may further shape their agency.

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Greeno and Engeström (2014) conceptualize agency as a relational transformative process shaped by cultural, historical, and social factors. From this view, agency is not solely located within individuals but co-constructed through participation in meaningful practices and relationships. In this study, students were positioned within two distinct learning environments, one more structured and individualistic, and the other collaborative and multimodal, which influenced how they enacted agency. Many students appeared to be in the early stages of navigating the tensions between traditional roles and more participatory expectations. Their actions reflected dynamic interplay between inherited habits and emerging intentions to contribute, reflect, and adapt. Recognizing the influences that shape agency in teacher education, implies that fostering agency requires intentional design of environments that promote participation, collaboration, and problem-solving. Future studies could examine how sustained exposure to inclusive and interactive methodologies helps students transition to more advanced stages of agency development across academic cycles.

A temporal understanding of agency, as proposed by Emirbayer and Mische (1988), complements the findings in this study. Most students found to be acting within the iterational dimension, drawing on past educational routines and familiar behaviors. However, elements of practical-evaluative and projective agency also emerged, especially among those who embraced new challenges and redefined their academic roles. This temporal view underscores agency as a process in motion, an evolving capacity rather than an immediate trait. In teacher education, designing learning experiences that cultivate future-oriented reflection and adaptability may be key to advancing this process. Longitudinal research is needed to determine whether such early-stage agency can be nurtured into sustained professional identity and to verify whether all students eventually develop agency over the course of their academic trajectory.

Teacher identity and agency are not determined attributes but relational, dynamic processes shaped through continuous interactions with one´s environment. This idea echoes with Maturana and Varela´s theory of autopoiesis (1973), which describes living systems as self-producing and self-transforming through recursive interactions. In this view, becoming a teacher involves more than acquiring strategies, it entails actively engaging in social, cultural, and institutional networks that co-construct one´s identity. As Solari and Martin (2020) emphasize, teacher identity is socially built and inherently intercultural, requiring reflection collaboration and openness to diversity. These elements, in turn, are foundational for developing teacher agency. Framing teacher education within these paradigms invites a shift from passive role acquisition to intentional participation in transformative, inclusive practices. Future research might examine how teacher education programs grounded in autopoietic and socio-constructivist principles better support the emergence of agentic teachers prepared for diverse classrooms.

This research underscores two intertwined dimensions of agency: that of the student and that of the teacher. While findings reveal expressions of student agency within a transformative and inclusive learning environment, they also expose a transitional stage, where agency is still in development and not yet fully assumed as professional teacher agency. In between lies teacher training, which plays a vital role in supporting this evolution by offering experiences

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and contexts that allow agency to grow, reflect, and project forward. From this perspective, agency should be understood as a trait to be intentionally cultivated by responsible education, not only in future teachers but in all individuals, as a means to prepare them to act ethically and creatively in uncertain, changing times. This study, therefore, points to the urgency of fostering agency as a core component of education, a condition for forming universal citizens capable of contributing to inclusive and transformative social realities.

## 5. LIMITATIONS

This study was conducted in a highly specific context: a teacher training institution in special education, with a small, non-randomized group of future teachers. Therefore, the findings are not intended to be generalized to broader populations. The dual modality of implementation (remote and in-person) introduced variability in participation, access, and interaction, which may have affected the consistency of student engagement and performance. Additionally, while the design allowed for rich, practice-based insights through iterative cycles, the study relied heavily on teacher observations and descriptive analysis of student behavior, which introduce subjective bias despite efforts at systematic coding. The short duration of each project cycle also limited the long-term observation of agency development. Lastly, the learning objects (OVMA) and project structures were co-designed and adjusted by a single researcher-teacher, which, while beneficial for contextual coherence, may limit replicability in other institutional or disciplinary settings.

## 6. CONCLUSION

This study, designed and implemented within the English course, demonstrates that language learning can serve as a dynamic platform for fostering agency. Supporting Krashen´s (1981) assertion that attitude, encompassing identity and agency, is central to second language acquisition, the findings show that engagement and motivation, regardless of proficiency, can transform pedagogical practices. Integrating multimodal resources, (Jewitt, 2009) and hybrid, technology-enhanced environments (Forero-Arango et al., 2022) contributed to inclusive learning experiences and deeper identity formation, particularly through the use of Braille and Mexican Sign Language. These elements strengthened students´ understanding of their roles as future special education teachers within inclusive education.

Intentionally designed, inclusive and multimodal methodologies not only support academic learning but nurture the holistic development of future educators. By engaging with real-world challenges and embracing diversity as a natural and valuable dimension of life, students begin to adopt a mindset of social commitment and critical awareness. Multimodality and technology, in this context, promote comprehensive literacy, encouraging expression through diverse modes and cultivating a deeper understanding of self and others.

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Within such environments, agency begins to take root. It emerges from students´ engagement with meaningful experiences that prompt them to act, decide, and reflect. When education validates diverse ways of being and learning, students begin to internalize diversity as a shared human condition, enabling them to become active contributors in their communities and professional roles.

This study shows that teacher agency is not simply taught, it evolves through reflective practice and intentional guidance. As student agency matures, it forms the foundation of professional identity. Teacher education must therefore go beyond technical skill development, creating spaces where students reflect critically on their roles and take conscious steps toward becoming inclusive, transformative educators. In this way, agency is not only learned but lived, laying the foundation for meaningful educational change.

Ultimately, developing agency must be a deliberate and central goal in teacher training. A flexible, reflective approach that fosters autonomy, decision-making, and self-efficacy equips future educators to navigate complexity, challenge norms, and lead inclusive practices. Promoting agency across all areas of teacher education is not an optional enhancement; it is a cornerstone of future-oriented, human-centered education.

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