



## **The Bilingual Education Cycle: From learning to teaching Physical Education in a Foreign Language**

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This research examines the influence of studying Non-Language Areas (NLA) subjects in a Foreign Language (FL) during pre-university education on three key factors: students' Foreign Language Competence (FLC), their perception of the FL training received during their Primary Education Degree (PED), and their intention to teach Physical Education (PE) in a FL in the future. A targeted sample of 160 students pursuing a PED was surveyed using a purposeful non-random questionnaire. The findings reveal a positive correlation between studying these subjects and enhanced FLC, both perceived and certified. Additionally, students exhibit a more favorable attitude towards the FL training in their PED and the prospect of teaching PE in a FL. Despite existing challenges in Bilingual Education (BE) program implementation at national and regional levels, exposure to NLA subjects in a FL in pre-university education yields positive outcomes in these areas.

**Keywords:** v bilingual education, physical education, preservice teachers, CLIL, foreign language competence

### **INTRODUCTION**

Over the past two decades, European language policies, influenced by the *Common European Framework of Reference for Languages* (CEFR, 2001) and Council of Europe guidelines (2019), have led to the adoption of Bilingual Education (BE) models in countries like Spain. In this transformation, the Foreign Language (FL) is used as the language of instruction in Non-Language Areas (NLA). BE, particularly through the Content and Language Integrated Learning (CLIL) approach, actively integrates FL into academic concepts, promoting meaningful learning and plurilingualism (Pavesi et al., 2001; Coyle et al., 2010). Despite criticisms on, research highlights CLIL's effectiveness (Fernández-Sanjurjo et al., 2019; Costa and D'Angelo, 2011).

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In Spain, each region, including Galicia, has tailored BE to its specific linguistic and educational needs, promoting plurilingual competence (González-Porto, 2017; Lasagabaster and Ruiz de Zarobe, 2010). However, challenges such as inadequate teacher training and increased workload have arisen, potentially affecting teaching quality (Custodio-Espinar, 2019; Couto-Cantero and Bobadilla-Pérez, 2017). While existing BE mainly focuses on in-service teachers who are encouraged to participate in professional development programs (Sánchez-García, 2023), this study addresses the research gap by exploring pre-service teachers' FL preparation before entering the Primary Education Degree (PED) program, particularly in the context of teaching Physical Education (PE) through a FL. The research is situated within the Galician Community, an area characterized by the presence of two official languages, namely Spanish and Galician. As a result, the educational framework adopted in this region is designated as "plurilingual," setting it apart from monolingual communities that adhere to a "bilingual" model. The implementation of this plurilingual approach within the Galician educational system occurred comparatively later, specifically during the academic year 2010-2011, in contrast to its adoption in other regions across Spain.

### **Literary Review**

#### **Teachers' linguistic competence**

In the academic context, analyzing teachers' Foreign Language Competence (FLC) is crucial, encompassing effective oral and written communication and understanding cultural nuances (Pérez, 2016; Gutiérrez, 2016). FLC is a key professional skill in the current educational framework (Rrustemi & Kurteshi, 2023). In BE, teachers' FLC influences classroom communication, planning, material creation, and assessment (Pérez-Cañado, 2018). Proficiency in both subject matter and FL is essential for teaching NLA in an FL, emphasizing continuous training and adequate resources (Pérez-Cañado, 2018). Integrating FL in NLA subjects fosters interdisciplinarity, overcoming compartmentalization (Guzmán et al., 2019; Chiva-Bartoll et al., 2018). Pre-university courses enhance students' FLC, shaping their development as educators (Gómez-Parra et al., 2021; Bialystock & Barac, 2011). The choice of subject and language significantly influences teachers' identity, especially for non-native FL instructors (Nikula et al., 2016; Skinnari & Bovellan, 2016). Most importantly, FL teacher training affects beliefs and professional identity (Portolés and Martí, 2018).

#### **Initial Teacher Training in Bilingual Education**

The existing research on bilingual and plurilingual program development has mainly focused on the training needs of practicing teachers, revealing a mismatch between their initial training and the demands of teaching in such programs (Fernández-César et al., 2013). However, there is a significant gap in understanding the perspectives of pre-service teachers, crucial in identifying this misalignment. Studies emphasize revising curricula in Education faculties to better prepare future bilingual teachers, acknowledging their vital role in BE (Fernández-Díaz, 2017; Jover et al., 2016; Pérez-Cañado, 2016). Pre-service teachers' proficiency in FLs developed before university is crucial to consider, as a basic FLC can hinder their readiness to teach in a FL in the future (Cortina-Pérez & Pino-Rodríguez, 2021). Perception of future teachers regarding

their training in the program is pivotal, with varying perceptions observed. Some students feel inadequately equipped, especially when instruction emphasizes grammar and translation, causing frustration (Torres-Outón, 2019; Castellano-Risco, 2017), an aspect to be taken into consideration since, as Murwaningsih (2024) points out, the teacher's own attitude influences their well-being.

Analyzing the impact of NLA subjects in FLs before pursuing a PE degree is essential to understanding training needs, particularly in programs lacking emphasis on robust language skills, leading to a lack of confidence in teaching in a FL (Custodio-Espinar, 2019; Calle-Casado, 2015). Despite positive outcomes in various bilingual programs in Spain (Gil-Galván & Martín-Espinosa, 2020; Pérez-Cañado & Lancaster, 2017; Lasagabaster & Ruiz de Zarobe, 2010), challenges persist, such as lack of training for university professors (Arcas y Sánchez, 2024), the need to adapt content to students' language competence levels (Hernández-Ramírez, 2019), and the absence of dedicated credits for FL instruction in teacher training programs at certain Spanish universities (Jover et al., 2016).

### **Physical Education in a FL**

Bilingual PE in Spain combines physical activity with learning a FL in an ever-evolving educational context. Various studies (Martínez-Hita et al., 2023; Gil-López et al., 2021; Salvador-García, 2019; Hernando et al., 2018; Baena-Extremera et al., 2017; Fernández, 2017; Coral, 2013) have emphasized the relevance of this combination due to its unique characteristics. These specificities, as pointed out by Torres-Outón (2019), include the application of the communicative approach, the natural and playful acquisition of the FL (Gil-López et al., 2021), the creation of real learning environments, student motivation, emphasis on body language, and the automation of common expressions. Furthermore, it is suggested that movement and physical activity allow the achievement of objectives even when students do not fully master the FL. Additionally, it promotes interculturality (Gómez-Parra et al., 2021) by facilitating interaction and collaboration among students from different cultural and linguistic backgrounds in an inclusive environment. Moreover, it has been observed that this combination also positively contributes to the mental and emotional well-being of bilingual students, enhancing their cognitive flexibility and adaptability (Lamb & King, 2019).

This study aims to investigate the impact of pre-university education with NLA subjects in a FL on three specific variables: students' FLC, their perception of FL training in the PED, and their willingness to teach PE in a FL in the future. This study addresses a significant gap in educational research in this area by investigating how exposure to English before university influences the readiness of prospective young teachers in Galicia to teach bilingual subject areas in the future. Although the effectiveness and implementation of BE in different contexts has been extensively studied, there is a paucity of research examining how prior experiences with English may impact the readiness of prospective teachers to participate in bilingual programs and teach in a multilingual environment. In addressing this gap, this study seeks to provide a deeper understanding of the factors that influence prospective teachers' choice to participate in bilingual teaching, which may have significant implications for the preparation and

professional development of educators in Galicia. To achieve this, there are three specific objectives:

S.O.1 Analyze the correlation between undertaking NLA subjects in a FL during pre-university education and students' FLC.

S.O.2 Investigate the repercussions of pre-university education in NLA subjects in a FL on students' assessment of the FL training received in the PED.

S.O.3 Examine the impact of pre-university education in NLA subjects in a FL on students' willingness to teach PE in the FL in the future.

## **METHOD**

This quantitative study employed a cross-sectional, descriptive, and correlational research design. In the following sections, we delineate the participant characteristics, specify the used instrument, and elaborate on the procedure and data analysis techniques employed, which enabled the derivation of the findings of this study.

### **Participants**

A non-random purposive sampling method was used in this study involving 160 participants (63.7% female, 35% male and 1.3% unspecified sex) with a mean age of 21.5 years. The participants in this study were selected by convenience, which implied choosing individuals who were accessible for the application of the questionnaire. In this case, it was chosen to recruit third (66.3%) and fourth (33.7%) year students of the PED degree at XXX University (UXX), as it was the quickest and most convenient way due to their availability. This choice was based on two main reasons. Firstly, their proximity to the completion of the degree and their imminent entry into formal teaching, which provides them with a valuable perspective on BE. Secondly, it was considered that the students on these courses may have taken or be interested in taking subjects in the major (PE, specifically), as the exclusion criterion took into account their specialisation in physical education or their expressed interest in it. It should be noted that UXX PED students are exposed to only one subject related to FL teaching, which is taught in English. Within this subject, the CLIL approach is briefly discussed together with other methodologies and resources for language learning in the context of Primary Education.

### **Research Tool**

In order to achieve the study objectives, a questionnaire tailored specifically for this research was employed. This questionnaire comprised inquiries grouped into different sections. The first section focused on gathering sociodemographic and educational information from the participants, including specific questions about their pre-university training in NLA subjects in a FL and their certified proficiency level in English. Another section focused on the participants' training related to FL received during their PED, both in general and specifically within the PE specialization. A section was dedicated to understanding the students' needs regarding FL training in their program, and finally, inquiries were made regarding their willingness to teach PE in a FL. It is

essential to clarify that although the questionnaire incorporates the term "FL," the majority of participants interpret it as referring to the English language.

In order to ensure the content validity, expert judgment was sought from four specialists: two specializing in CLIL, one in general pedagogy, and one in PE. During this phase, adjustments to the research instrument were made based on the recommendations provided by the experts.

### **Procedure**

The questionnaire was administered using an online form created on *Google Forms*, accessible to participants in their university classrooms. To ensure efficiency, two research team members visited each classroom during scheduled hours, providing instructions on accessing and completing the form and addressing participant queries. Access to the form was closed once the allotted time had passed. This process took place in three classrooms, involving two third-year groups and one fourth-year group of the undergraduate program.

### **Data Analysis**

The statistical software package SPSS 28.0 (IBM Corp., Armonk, NY, USA) was employed to conduct both descriptive and inferential analyses of the data. Descriptive analyses were performed to report participants' responses to each item in the questionnaire. For the inferential analysis of the data, non-parametric statistics were used due to the non-normal distribution of the sample. The Mann-Whitney U test was applied to compare groups (those who received training in NLA subjects in a FL during their pre-university education and those who did not). Additionally, the Chi-square test was utilized to analyze the association between qualitative variables. A confidence level of 95% ( $p < 0.05$ ) was assumed to determine the significance of the studied differences and associations.

## **FINDINGS**

### **Previous learning experience with NLA subject in a FL**

In this section, the study examines students' evaluations and experiences with NLA subjects in a FL during their pre-university education. The results reveal that only 39.4% of the sample had taken these subjects, while 60.6% had not. Among the students who participated in these subjects, their evaluation is moderately positive, with a mean score of 3.5 on a scale from 1 to 5. However, there are significant differences of opinion within this group, as indicated by the high standard deviation of 1.1. Students in these subjects tend to disagree that studying in English made it difficult to achieve the subject objectives ( $M=2.3$ ;  $SD=1.1$ ) and that the objectives were met at an adequate level ( $M=3.9$ ;  $SD=0.9$ ). Their perception of improvement in FL competency through these subjects is moderate ( $M=3.1$ ;  $SD=1.2$ ).

Regarding the impact on their liking for the language, participants generally disagree that NLA subjects taught in a FL helped them develop a preference for the language ( $M=2.2$ ). It's noteworthy that there is a high degree of response dispersion ( $SD=1.8$ ),

indicating a wide range of opinions, ranging from highly positive to strongly negative evaluations.

**Relationship between previous learning experience with NLA subject in a FL and certified language level**

No significant differences were detected in possessing English proficiency certification based on whether students had taken NLA subjects in a FL or not ( $X^2 = 2.547$ ,  $p > 0.05$ ). However, there is a trend where students who had taken NLA subjects in a FL are more likely to possess an English proficiency certification (with English certification: NLA subject in FL: 23.8% vs No NLA subject in FL: 15.6%) and vice versa (without English certification: NLA subject in FL: 28.7% vs No NLA subject in FL: 31.9%).

The study further examined the issue by considering both the presence of certification and the certified English proficiency level of participants. Responses were categorized into two groups: basic level (67.5%), including individuals without certification or with A1, A2, or B1 level certifications, and advanced level, encompassing those with B2, C1, or C2 level certifications. The categorization into these groups was based on the CEFR, ensuring equal representation of FL knowledge categories in each group and using level B2 as the cutoff point, aligning with the minimum requirement set by certain Spanish regions, including Galicia, for teaching NLA subjects in a FL at the Primary Education level.

The study revealed a significant relationship between students who had taken NLA subjects in a FL and their level of certified English proficiency. While only one out of three participants had an advanced level of English proficiency, the Chi-square test indicated that those who took NLA subjects in a FL were more likely to possess this advanced level ( $X^2 = 13.221$ ,  $p < 0.001$ ) (Figure 1). Almost half of the sample, who did not take NLA subjects in a FL during their pre-university education, fell into the basic level of English certification (no certification or A1, A2, or B1 levels). This finding suggests that increasing the percentage of students taking NLA subjects in a FL is positively correlated with achieving advanced levels of English proficiency certification, which is crucial for their education and future academic and professional opportunities.

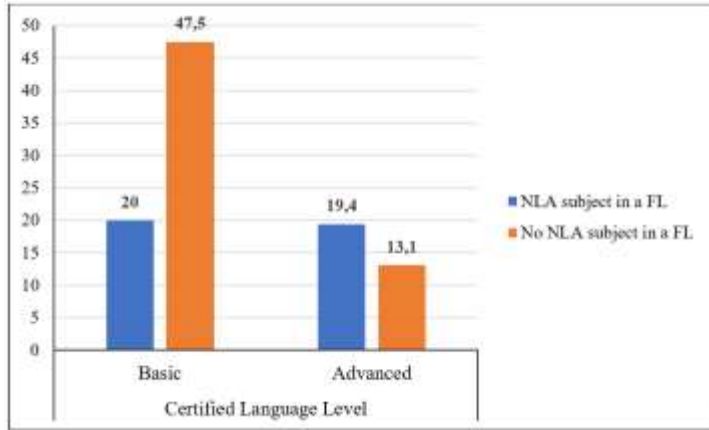


Figure 1 Accredited English certified proficiency level based on taking NLA subjects in FL (%).

**Relationship between previous learning experience with NLA subject in a FL and self-perceived linguistic competence**

As illustrated in Table 1, students who have taken any NLA subjects in a FL perceive themselves as more competent in speaking, reading, writing, and listening in a FL. The most significant difference is observed in the listening skill.

Table 1

FLC in speaking, reading, writing, and listening in FL. Comparison between students who have taken NLA subjects in FL and those who have not

HAVE TAKEN NLA SUBJECT IN FL		
VARIABLES	YES vs NO <i>M (TD)</i>	Z
Speaking	3.32 (1.02) vs 2.79 (0.95)	-3.076**
Reading	3.94 (0.96) vs 3.55 (0.93)	-2.646**
Writing	3.40 (0.97) vs 3.02 (0.86)	-2.357*
Listening	3.79 (1.06) vs 3.19 (1.01)	-3.498***

\*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001; M = media;TD = Typical deviation; Z = Z Value (U Mann Whitney test) (n=160)

**Relationship between previous learning experience with NLA subject in a FL and students’ appreciation of the FL training received during the Degree in Primary Education**

In this section, the study investigates the impact of having taken NLA in a FL during pre-university education on students' evaluation of FL training received in the PED. Initially, students provided an overall negative evaluation, with the highest score being 3.02 on a scale from 1 to 5.

Results from the Mann-Whitney test (Table 2) reveal that opinions on FL didactics (items 21 and 22) are not influenced by this variable, indicating no significant differences between the two groups. Similarly, the evaluation of training received in the degree program for teaching (in general) in a FL (item 25) remains unaffected. However, opinions regarding whether the degree program adequately prepares students to teach PE in a FL (items 23 and 24) vary based on students' previous exposure to NLA subjects in a FL. Those who had taken these subjects believe the training prepares them adequately for teaching PE in a FL, contrasting with their peers who did not have this experience.

Similar patterns emerge in attitudinal aspects related to teaching in a FL (items 26 and 27): individuals who had contact with English in NLA subjects value language proficiency more highly and are more motivated to teach PE in a FL in the future.

Table 2

Evaluation of FL-related training received in the PED program. Comparison between students who have taken NLA subjects in FL and those who have not

VARIABLES	HAVE TAKEN NLA SUBJECT IN FL	
	YES VS NO <i>M (DT)</i>	<i>Z</i>
21. The FL didactics received in the degree prepares me to teach the PE subject in a FL.	2.38 (1.14) vs 2.26 (1.08)	-0.671
22. The contents of the FL didactics subject are focused on the training of the FL specialist	2.94 (1.10) vs 2.82 (1.09)	-0.559
23. In the PE mention, I receive sufficient training (specific language, methodological strategies such as CLIL, ...) to teach the subject in English.	2.57 (1.13) vs 2.07 (1.03)	-2.695**
24. My degree training, in general, enables me to teach the PE subject in English.	2.41 (0.97) vs 1.92 (1.11)	-3.251**
25. I have sufficient English training in the degree to use this language in my teaching.	2.30 (1.22) vs 1.99 (1.04)	-1.518
26. The training received in the degree has helped me to positively value the importance of FLs in Primary Education.	3.02 (1.27) vs 2.46 (0.94)	-2.980**
27. The training received in the degree has motivated me to teach PE in a FL.	2.32 (1.17) vs 1.77 (0.97)	-3.420***

\*\*p < 0.01; \*p < 0.001; M = mean; SD = standard deviation; Z = Z values (Mann-Whitney U Test) (n=160)

Table 3 informs us of a moderate association between having taken NLA subjects in an FL during pre-university education and the perceptions of the training needs of students taking the PED program. On one hand, there are no differences between the two groups in the demand for general FL training and specific FL training tailored to NLA subjects (items 28 and 30). On the other hand, having taken NLA subjects in a FL in the past appears to be associated with a higher demand for further training in methodologies for language learning, such as the CLIL approach (item 29), as well as with a higher interest in continuing to receive training in NLA subjects in a FL (item 31).



Table 3  
Evaluation of training needs related to LE based on whether students had taken NLA subjects in FL or not

VARIABLES	HAVE TAKEN NLA SUBJECT IN FL	
	YES VS NO M (DT)	Z
28. In the PED, there should be more general FL training.	3.68 (1.25) vs 3.35 (1.37)	-1.467
29. In the PED, there should be mandatory specific training on methodologies for multilingualism	3.87 (1.10) vs 3.51 (1.14)	-1.987*
30. In the mentions, there should be NLA in FL	3.14 (1.13) vs 2.91 (1.30)	-1,171
31. Some subjects in the PE mention should be taught in FL.	3.10 (1.27) vs 2.53 (1.23)	-2,643**

\*p < 0.05; \*p < 0.01; M = mean; SD = standard deviation; Z = Z values (Mann-Whitney U Test) (n=160).

**Relationship between previous learning experience with NLA subject in a FL and students' predisposition to teach in a FL in their future practice**

Consistent with the trends observed in previous results, having taken NLA subjects in a FL during pre-university education is associated with a greater predisposition to teach a subject (in this case, PE) in a FL. The Chi-square test indicates significant differences between the two groups in their willingness to teach PE in a FL in the future ( $X^2 = 8.974$ ,  $p < 0.01$ ). As depicted in Figure 2, the difference primarily lies in the reluctance of those who have not taken these subjects to undertake this teaching role.

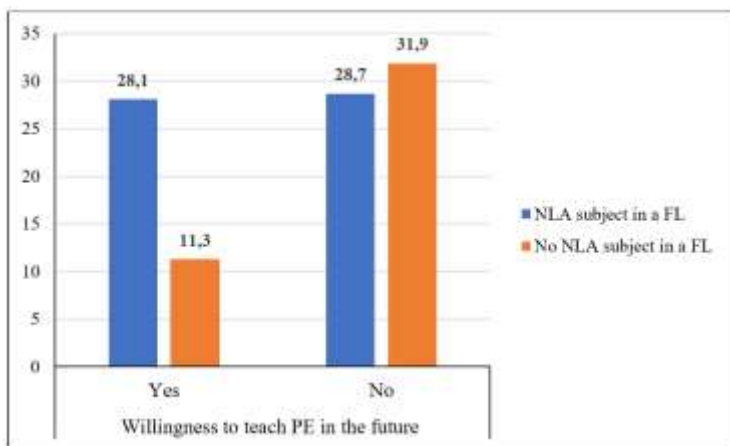


Figure 2  
Willingness to teach PE in the future based on whether students have taken NLA subjects in a FL (%).

There is a consensus among participants that teaching in a FL constitutes an advantage for their future careers. Both those who did not take NLA subjects in a FL during their pre-university education (86.6%) and those who did (93.7%) responded positively to

this question, with no significant differences detected between the two groups ( $X^2=2.001$ ;  $p>0.05$ ).

## **DISCUSSION**

The first objective of this research focuses on analyzing the impact of having taken NLA subjects in a FL during pre-university education on FLC. The obtained results indicate significant differences in all four skills (reading, listening, speaking, and writing), with listening being the most prominent. This suggests that NLA subjects in a FL can further develop this skill, which, according to previous studies (Díaz and Suárez, 2011), can enhance reading, writing, grammar, pronunciation, and basic vocabulary. Moreover, listening involves complex cognitive processes (Ceballos et al., 2015) and is essential for meaningful FL learning (Avila, 2019). Additionally, these findings align with research by Rabéa (2010) and León-Manzanero (2016), indicating that students should receive more input in a FL than they produce as output.

The second objective of this research focuses on studying the impact of having taken NLA subjects in a FL during pre-university education on the evaluation of the training received in the PED program. The results indicate that FLC is lower among students who have not taken NLA subjects in a FL, limiting their ability to fully benefit from subjects taught in a FL during their university degree. This also leads to a negative or less proactive predisposition toward FL training, as these students show less demand for increased training in plurilingual methodologies and are hesitant about the idea of teaching some of their specialization subjects (PE) in a FL. Participants agree that the training they received during their degree does not adequately prepare them for teaching in a FL (in general). However, they express less reluctance when asked about teaching PE in a FL, especially if they had previously taken NLA subjects in a FL, likely including physical education during primary or secondary school.

Regarding the third and final specific objective, it focused on investigating the impact of having taken PE in a FL on students' willingness to teach PE in a FL in the future, the results indicate that prior LE training reduces resistance to using it in their future teaching practice. Consistent with previous research (Cortina-Pérez and Pino-Rodríguez, 2021; Fernández-Díaz, 2017; Jover et al., 2016; Pérez Cañado, 2016), our findings suggest that having taken PE in a FL provides significant advantages to future teachers when facing the challenge of teaching PE in a FL. By having previously studied CLIL subjects during pre-university education, students develop a clearer and more realistic understanding of what teaching in English entails, thus reducing fear of the unknown and lack of confidence when teaching in a FL (Custodio-Espinar, 2019).

## **CONCLUSION AND IMPLICATIONS**

The results corroborate the premise that early exposure to subjects taught in a FL during pre-university education leads future teachers to develop a more favorable perspective and greater willingness toward bilingual teaching in general, particularly in the field of PE. In this regard, it would be pertinent to actively consider the inclusion of PE in a FL in pre-university curricula to promote a more favorable disposition among future educators to teach in bilingual environments.

In summary, the research findings confirm that pre-university education in NLA subjects taught in a FL positively impacts future teachers, enhancing their FLC and confidence in teaching PE in an FL. This experience fosters a more positive attitude toward FL subjects in university education, leading to a more effective learning in these subjects. The study emphasizes the cyclical nature of this process, initiating in schools, intensifying at the university level, and returning to schools (Fig. 3), thus enriching BE. The cyclical nature of the process depicted in Figure 3 reflects a continuous sequence of feedback that spans the educational trajectory of prospective teachers. It begins with early exposure to NLA subjects taught in a FL during pre-university education, thus laying the foundations for the development of FLC and familiarisation with learning academic content in that language. This initial stage is intensified during university education, where students experience greater immersion in the teaching and learning of subjects in a FL, broadening their linguistic competence and pedagogical skills in bilingual contexts. Finally, the cycle is completed when future teachers return to school as practising educators, applying and consolidating the knowledge and skills acquired during their university training in the teaching of NLA subjects in a FL. This professional practice strengthens their FLC and ability to teach effectively in a bilingual environment, while direct classroom experience provides valuable feedback to improve the initial training of future teachers. Together, this continuous flow of learning and experience contributes to the improvement of BE in educational institutions.

The research underscores the need to increase the percentage of NLA subjects taught in FL during pre-university education to better prepare future teachers for challenges and advantages in BE (Martínez-Hita et al., 2023; Gil-López et al., 2021; Salvador-García, 2019; Hernando et al., 2018; Baena-Extremera et al., 2017). This cyclical flow offers continuous opportunities for students to learn NLA subjects in a FL, contributing to the improvement of BE in educational institutions.

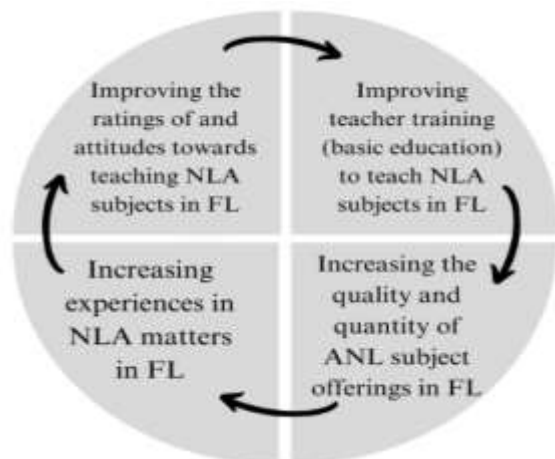


Figure 3  
The cycle of bilingual education

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