



Pedagogical challenges in designing Virtual Exchange activities for pre-primary EFL education¹

Desafíos pedagógicos en el diseño de actividades de intercambio virtual para la enseñanza del inglés como lengua extranjera en educación infantil

FLORENTINA NICOLÁS-CONESA²

Universidad de Murcia, España

florinc@um.es

<https://orcid.org/0000-0001-8472-0811>

Abstract:

This study explores the challenges encountered by nine groups (N=43) of Spanish student-teachers enrolled in a double degree in pre-primary and primary education when designing virtual exchange-based EFL teaching units for 5-year-old children. The data for the study included reflective journals documenting the challenges encountered while designing the activities to meet the criteria associated with successful virtual exchange practices within eTwinning projects. The reflective journals were analysed qualitatively and quantitatively following a data-driven approach. Findings reveal a range of pedagogical and practical difficulties, particularly in relation to intercultural learning, children's agency, higher-order thinking, and broader community impact.

Resumen:

Este estudio analiza los desafíos a los que se enfrentaron nueve grupos (N = 43) de docentes españoles en formación matriculados en un doble grado de Educación Infantil y Educación Primaria al diseñar unidades didácticas de inglés como lengua extranjera (alumnado de cinco años) para ser implementadas en un contexto de intercambio virtual. Los datos del estudio se recogieron mediante diarios reflexivos en los que los participantes documentaron las dificultades encontradas durante el diseño de actividades que incluyeran los criterios asociados a prácticas exitosas de intercambio virtual en proyectos eTwinning. Los diarios reflexivos se analizaron tanto cualitativa como cuantitativamente siguiendo un enfoque inductivo basado en los datos. Los resultados revelan una serie de dificultades pedagógicas y prácticas,

1 Como referenciar este artículo (How to reference this article): Nicolás-Conesa, F. (2026). Pedagogical challenges in designing Virtual Exchange activities for pre-primary EFL education. *Educatio Siglo XXI*, 44(3), 123-150. <https://doi.org/10.6018/educatio.720031>

2 Autor de correspondencia: Florentina Nicolás-Conesa.

en particular en relación con el aprendizaje intercultural, la autonomía de los niños, el pensamiento de orden superior y el impacto en la comunidad en general.

Keywords:

Pre-primary education; virtual exchange; eTwinning; challenges.

Palabras clave:

Educación infantil; intercambio virtual; eTwinning; desafíos.

Résumé:

Cette étude analyse les défis auxquels ont été confrontés neuf groupes (N = 43) d'enseignants en formation initiale espagnols, inscrits dans un double diplôme d'éducation enfantine et d'enseignement primaire, lors de la conception d'unités didactiques d'anglais comme langue étrangère (pour des élèves de cinq ans) destinées à être mises en œuvre dans un contexte d'échange virtuel. Les données de l'étude ont été recueillies au moyen de journaux réflexifs dans lesquels les participants ont documenté les difficultés rencontrées lors de la conception d'activités intégrant les critères associés aux pratiques réussies d'échange virtuel dans le cadre de projets eTwinning. Ces journaux réflexifs ont été analysés à la fois de manière qualitative et quantitative, selon une approche inductive fondée sur les données. Les résultats révèlent une série de difficultés pédagogiques et pratiques, en particulier concernant l'apprentissage interculturel, l'autonomie des enfants, la pensée d'ordre supérieur et l'impact sur la communauté au sens large.

Mots-clés:

Éducation enfantine; échange virtuel; eTwinning; défis.

Fecha de recepción: 04-06-2026

Fecha de aceptación: 21-09-2026

Introduction

While the affordances of Virtual Exchange (VE), particularly regarding the development of linguistic and intercultural competence, have been extensively documented in English as a foreign language (EFL) contexts, especially higher and secondary education (O'Dowd, 2018, 2021) and, to a considerably lesser extent (Dooly & Vinagre, 2022), primary education (e.g., Okumura, 2025; Reader, 2024), little is known about the suitability of this practice in pre-primary education. This may stem from the widespread assumption that young learners' communicative competence at this stage is insufficient to sustain meaningful participation in VE interactions (Dooly, 2021).

Among the lines of inquiry emerging from this gap, the present study explores the challenges experienced by pre-primary education trainees when designing a VE project. The trainees were asked to design their projects in accordance with a set of criteria intended to reflect the charac-

teristics of high-quality VE initiatives, particularly those associated with exemplary eTwinning projects as defined within an Erasmus+ project.

Literature review

Research on VE in higher education settings

VE can be understood as a technology-mediated educational approach that brings together learners from different countries to interact and learn collaboratively using a shared foreign language. At its core, it involves meaningful communication between peers across geographical boundaries, with digital tools enabling both interaction and joint learning processes (Dooly & Vinagre, 2022). In addition, VE is not limited to student interaction alone. It also requires coordination between teachers, who work together to design, organise, and implement pedagogical activities that connect their respective classrooms. VE projects can be conducted through eTwinning, which is a free and secure European educational network that connects teachers and schools to collaborate on international projects through digital technologies. Following Dooly and Vinagre (2022), the design of tasks in VE is closely related to Task-based Language Teaching (TBLT; González-Lloret & Ortega, 2014), in which learners are required to complete meaningful tasks through interaction, collaboration, negotiation of meaning, and the use of the target language to achieve communicative goals. Many teachers adopt TBLT to design VE activities (Evaluate Group, 2019) because in this approach language learning is organised around the completion of meaningful and goal-oriented tasks promoting authentic intercultural communication, learner engagement, and the development of both linguistic and digital competences in online collaborative environments.

Most research on VE has been conducted in higher education settings with adult learners in foreign language education contexts (O'Dowd, 2018, 2021) where the efficacy of VE for intercultural and linguistic development is well-documented (Asensio Pastor & Al-Momani, 2025; O'Dowd, 2021). In university contexts, VE interactions have been shown to draw learners' attention to linguistic form, meaning negotiation, or the enhancement of socio-pragmatic awareness (Li, 2020; Vinagre & Muñoz, 2011; Ware & O'Dowd, 2008). However, research on interactional

analysis in VE has shown that young learners can also notice and use formulaic language, as well as engage in short turn-taking exchanges in carefully scaffolded activities (Dooly, 2015). Primary school learners can also use language autonomously in synchronous online activities to express their ideas and respond with actions (Wigham & Whyte, 2024). In other words, VE can also promote meaningful communication and language development among young learners (Dooly & Sadler, 2016). A growing body of research suggests that the learning benefits associated with VE are closely linked to the design and type of tasks used (Hauck et al., 2020). Along these lines, O'Dowd and Waire (2009) proposed a model for online collaboration for university students using 12 types of activities that were grouped into three broad categories according to their purpose: exchanging information, discussing and comparing perspectives, and working together to create a shared product. This model, which was originally designed for university-level language learning contexts, has influenced projects in secondary or primary education. However, many of the tasks proposed in the model require complex cognitive and collaborative processes to exchange detailed information, compare perspectives or analyse cultural differences, which can be particularly challenging for young learners.

Research on VE with young learners

Studies on VE in school contexts remain comparatively limited (Dooly & O'Dowd, 2018). This scarcity could be related to the children's features that make it more difficult to implement VE for language learning. For instance, compared to adult learners, children tend to have shorter attention spans and more limited topics of interest (Dooly, 2015; Pennock-Speck & Clavel-Arroitia, 2023), as well as lower communicative competence in an L2, more basic technological skills, limited experience with online interaction, and a greater need for teacher supervision during VE activities (Dooly & Vinagre, 2022; Wigham & Whyte, 2024). In addition, when implementing VE activities with children, teachers need to focus on oral production because of underdeveloped literacy skills that hinder the possibility of conducting complex reading or writing tasks for interaction (Dooly & Vinagre, 2022). Despite these limitations, thousands of schools are registered on eTwinning to engage in VE in both primary and pre-primary education (see Dooly & Vinagre, 2022). However, relatively

few studies have examined the use of VE with young learners (Dooly & O'Dowd, 2018).

Many teachers lack clear guidance on how to effectively design, implement, and evaluate VE projects. To examine these difficulties, Wigham and Clavel-Arroitia (2025) investigated primary and secondary school teachers' self-reported experiences with VE and the challenges associated with its implementation. The results indicated that teachers across both educational contexts reported insufficient technological training for VE as well as difficulties in the design of speaking tasks for large classes, particularly given that young learners typically possess lower L2 proficiency levels than adult learners.

Some studies have analysed the experiences of pre-service primary school teachers implementing VE projects during their initial teaching placements in school contexts (Bejarano Sánchez & Giménez Manrique, 2018; García-Martínez & Gracia-Téllez, 2018). The effectiveness of VE projects with primary school learners has been shown to depend on close collaboration between partner teachers and on children's understanding of the objectives and purpose of the activities in which they participate, enabling them to adopt a more active and engaged role in the exchange (Bejarano Sánchez & Giménez Manrique, 2018). These studies also suggest that the successful implementation of VE with young learners depends on the provision of structured input, visual and multi-modal support, and carefully scaffolded interaction.

In addition, García-Martínez and Gracia-Téllez (2018) demonstrated that asynchronous VE activities can effectively support content and foreign language learning among young learners (8-10 years old) when tasks are carefully planned and scaffolded. In their study, students from two schools worked on complementary topics related to the human body and exchanged information through videos in English to complete a joint final project. The findings further highlighted the importance of dividing information into manageable tasks and providing adequate scaffolding to accommodate learners' limited L2 proficiency. In addition, the use of games and other engaging interactive activities proved effective in reducing cognitive demands while sustaining children's motivation and participation throughout the exchange.

Most of the research carried out in primary school settings has involved asynchronous communication exchanging emails and videos (Mont & Masats, 2018) or using Padlet, Google drive or video exchanges (Bejarano

Sánchez & Giménez Manrique, 2018; Morcillo Salas, 2018). Activities carried out in primary education are usually asynchronous in the initial stages (e.g. forum discussions, emails, or recorded video messages), followed by synchronous sessions for deeper interaction. The findings suggest that this structure supports progressive scaffolding, allowing learners to prepare language in advance and then apply it in real-time communication.

Challenges identified in studies with primary school learners, such as limited teacher training in VE or difficulties in task design (Wigham & Clavel-Arroitia, 2025), are likely to be even more pronounced in pre-primary settings. Furthermore, findings from primary education cannot simply be extended to pre-primary contexts, as younger children differ significantly in their developmental profiles, relying more heavily on guided oral interaction, physical engagement, and play-based learning. These characteristics introduce additional layers of complexity when designing and managing VE activities for very young learners.

Pre-primary schoolteachers require more targeted preparation to design and implement effective VE tasks, particularly when adapting classroom practices such as storytelling, songs, or movement-based activities to online collaborative environments. As noted by Dooly and Vinagre (2022), further research on teacher education in VE contexts is necessary. Although many schools participate in VE projects through eTwinning, educators still need more specialised training to integrate VE effectively into classroom practice. Studies conducted with pre-primary schoolteachers have shown that they do not feel adequately prepared to integrate technology into their teaching (Romero Tena, León-Garrido, Gutiérrez-Castillo, & Martínez-Pérez, 2025). Bearing in mind that in service teachers face difficulties in integrating technology into their teaching, it is important to train pre-service teachers during their initial teacher education. Although some eTwinning support groups are available, access to these resources can be difficult in countries such as Spain due to bureaucratic restrictions on joining the platform. Moreover, such initiatives do not necessarily provide the systematic, university-based preparation that pre-service teachers need to develop the knowledge and skills required to integrate VE into their future teaching. There remains a lack of systematic support to help pre-service teachers adapt VE to the specific needs of very young language learners. This situation highlights the need for focused research examining the challenges future educators face when designing VE activities in early childhood language-learning contexts.

Without a stronger evidence base, pre-service teachers may struggle to create developmentally appropriate and pedagogically robust VE experiences for young learners. Strengthening teacher education in this area is therefore essential to improving the overall quality and impact of VE practices.

The present study

There is a clear gap in the literature concerning the challenges teachers, and especially, pre-service teachers face when designing VE activities for pre-primary learners. Addressing this gap is particularly important considering the widespread adoption of VE through platforms such as eTwinning, where thousands of schools are actively involved in such projects. In this context, the present study adopts a mixed-methods approach to investigate the challenges experienced by pre-service teachers when designing activities for a VE project in pre-primary education, with the aim of assessing the viability of VE as a tool for language learning in early childhood education. At the same time, it examines the extent to which these activities meet the criteria (see Appendix) associated with successful VE practices within eTwinning projects identified by the Invited consortium, comprised by teacher educators from four European countries (Germany, Slovenia, Poland, Spain) and funded by the Erasmus KA220 programme, thereby providing insights into both pedagogical and practical constraints in this growing field. The following research question was formulated:

What are pre-service teachers' perceptions of the challenges involved when applying the criteria derived from award-winning eTwinning projects to the design of their activities for pre-primary school learners?

Method

Participants and context

The study involved 43 Spanish pre-service teachers enrolled in the fourth year of a five-year double degree in pre-primary and primary education

at a university in southeastern Spain. The research was situated within a course focused on ELT for pre-primary education for which trainees had to design a teaching unit to develop 5-year-old children's oral competences in English. Trainees were told that children would be native Spanish speakers acquiring English as a foreign language. They were organized into nine collaborative workgroups (4 to 5 people) to design a TBLT unit specifically adapted for a VE context.

Participants' training on VE

The pre-service teachers had not received formal instruction on VE projects as part of their degree program. Accordingly, they were provided with a foundational briefing covering the nature and core objectives of VE. This instruction focused on VE role in fostering international collaboration, enhancing communicative competence, and using digital technologies to facilitate both synchronous and asynchronous interaction between partner schools.

Afterwards, they received targeted instruction on VE through short videos, created by the Invited consortium as part of an Erasmus + project, and reflection activities. The videos³ were about (i) how to conduct VE in pre-primary school settings; (ii) how to hold synchronous online meetings; (iii) how to scaffold language in VE for very young language learners; (iv) how to achieve cooperative results between international partners.

Pre-service teachers were asked to analyse and summarise in workgroups the main ideas presented in each video. Subsequently, they were introduced to the evaluation criteria used in award-winning eTwinning projects through a classroom session involving collective analysis and guided discussion led by the university instructor. This process was intended to ensure that participants developed a clear understanding of these quality standards and were able to effectively incorporate them into the design of their own VE teaching units.

As for the criteria (see Appendix), the framework was developed by the Erasmus invited project and it offers a holistic approach for design-

3 <https://youtu.be/LLxihfv4JU0>
<https://youtu.be/dVJ7ltOMFxA>
<https://youtu.be/POHKZhjVG0M>
<https://youtu.be/HEMQW2HglI0>

ning and evaluating VE in early childhood contexts derived from the analysis of award-winning eTwinning projects. The framework consists of 5 broad categories to describe effective VE practices in early childhood education related to content, methodological approach, synchronous and asynchronous communication, technology, and visible outcomes.

Data collection

Data were collected over a four-month period, from November 2025 to February 2026, through reflective journals completed by the pre-service teachers in workgroups while designing a VE teaching unit for a pre-primary educational context following principles of TBLT. The teaching unit consisted of six sessions centred on simple thematic areas, such as the family, with the aim of promoting young learners' oral language development in English. The final task of the teaching unit required children to produce 10-15 thematic words and at least five fixed syntactic structures for oral descriptions. Examples of these structures included: *This is the mother/father/brother/sister*; *The mother/father/brother/sister is happy/sad/angry/scared*; *The mother/father/brother/sister rides a bike/plays football*.

Pre-service teachers designed a range of activities, including songs, stories, and games, incorporating visual support and gestures to scaffold language learning. They were given creative freedom to design the activities as well as the choice to create synchronous and asynchronous activities. Trainees were required to target all vocabulary and linguistic structures progressively across the six sessions and to align activities with the above-mentioned successful criteria for VE projects. Reflective journals were subsequently used to document the challenges encountered in the design of the activities.

Data analysis

The study employed a mixed-methods approach, combining qualitative analysis of pre-service teachers' reflective journals with descriptive quantitative analysis of the data. The qualitative component focused on

the self-reported challenges experienced by pre-service teachers when designing activities for a VE teaching unit. First, a thematic analysis was conducted on the workgroups' reflective journals through a recursive process of reading and rereading the data. A data-driven coding was applied in the reflective journals by identifying relevant thematic units (Luk, 2008) in relation to the successful VE criteria.

To ensure intra-rater reliability, after an initial coding, the researcher revisited and recoded the data two weeks later to verify the consistency and stability of the categorisation process. Any discrepancies identified between the two rounds of coding were reviewed and resolved through careful comparison and refinement of the coding scheme.

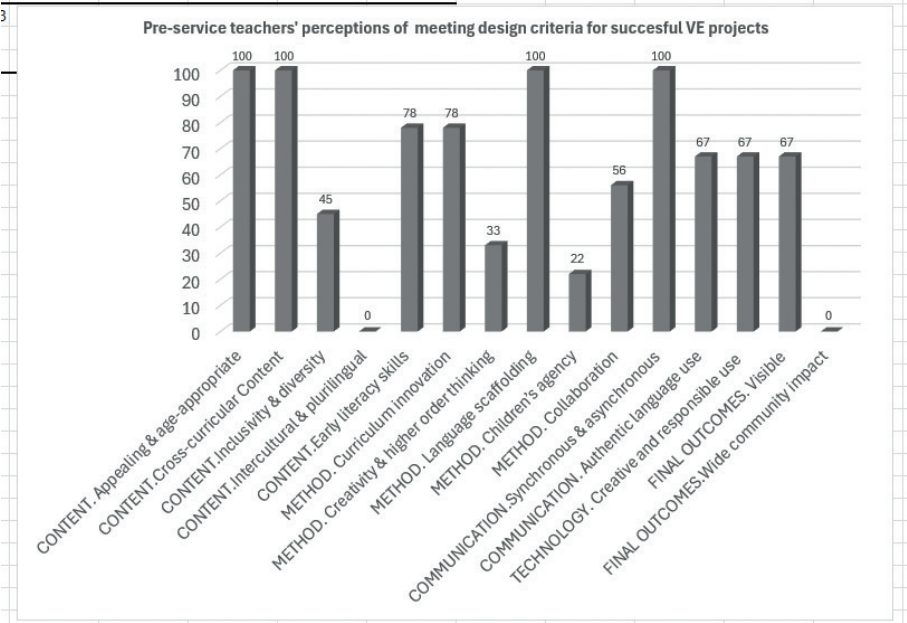
As for the quantitative analysis, percentages were calculated for the identified thematic units of each workgroup within each criterion of successful VE projects.

Results and Discussion

Our study explored pre-service teachers' perceptions of the challenges involved in applying criteria derived from award-winning eTwinning projects to the design of activities for very young language learners.

Figure 1 presents the percentage of workgroups that reported that they were able to meet specific design criteria when creating VE activities for pre-primary school children. High percentages indicate that participants believed the criterion could be successfully addressed in their activity design, whereas low percentages show that participants perceived the criterion as difficult or unrealistic to achieve in this context.

Figure 1
Pre-service teachers' perceptions of meeting design criteria for successful VE projects.



As shown in Figure 1, participants felt more confident meeting criteria related to content selection, language scaffolding, and communication, which are closely aligned with the developmental needs of pre-primary learners. In contrast, criteria related to intercultural learning, children's agency, higher-order thinking, and broader community impact were perceived as more difficult to achieve within the constraints of VE activity design for pre-primary children. In what follows we describe the perceptions of challenges related to each criterion.

Content

Within the content category, appealing and age-appropriate content and cross-curricular content reached 100%, indicating that all participants believed they were able to design activities that were engaging, developmentally suitable, and connected to multiple curricular areas:

Workgroup 1: *“As for cross-curricular content, some activities integrate language learning with content areas such as science. The main problem that we found when integrating concepts from English language and science in a single activity is that we also need to pay attention to careful scaffolding to avoid cognitive overload at this early age”.*

Most participants reported that early L2 literacy skills could be introduced in the design of their activities (78%). However, these were generally limited to oral language (e.g., listening to stories) rather than written English, since the children were only just beginning to develop basic literacy in their L1:

Workgroup 8: *“Since the focus was mainly oral, it was challenging to balance oral language exposure with emergent literacy without introducing written text too explicitly, which could be inappropriate for some children in early childhood education”.*

These results coincide with previous research that indicates that VE activities with children should focus on oral production because of limited literacy skills for reading and writing (Dooly & Vinagre, 2022).

As for inclusivity and diversity, less than half of the pre-service teachers (45%) felt able to meaningfully integrate diversity-related elements into their activity design:

Workgroup 4: *“We only introduced this criterion through the story, because inclusivity and otherness are difficult concepts for young children to understand. We found it especially challenging to work on these ideas while teaching vocabulary and simple language structures. For this reason, we decided to approach inclusivity in a very simple and implicit way, mainly through the characters and the message of the story.”*

Workgroup 9: *“This is a real oversight in our design process. Our song, story and games present a homogeneous world: all animals have standard roles and there is no narrative or visual representation of diversity, abilities or family structures.”*

The integration of inclusivity within language units for five-year-olds was hindered by pedagogical simplification. As trainees prioritized the

“word-level” vocabulary and simple structures necessary, they tended to create stories representing a “homogeneous world” of standard roles. Pre-service teachers found it difficult to develop complex ideas about inclusivity going beyond ideas such as helping each other or being nice to other people.

Along the same lines, pre-service teachers considered that intercultural and plurilingual dimensions were abstract concepts impossible to address (0%) in their activities:

Workgroup 4: *“We did not apply this criterion because we felt that introducing different languages or cultural practices could be confusing for very young learners who are just starting to learn English. For this reason, we decided to focus on one language and keep the activities as clear and simple as possible”.*

Workgroup 8: *“The main limitation was the age of the learners and the linguistic level. Introducing intercultural or plurilingual elements while working with full sentences in English was considered too complex and could have overloaded the cognitive demand of the activities”.*

These findings reveal a “monolingual and monocultural” bias, suggesting that pre-service teachers may underestimate the capacity of five-year-olds to understand cultural differences when supported by appropriate scaffolding. These pre-service teachers overlooked the affective and sensory potential of early childhood, which is best activated through play-based interactions with partner schools.

Previous studies conducted in primary school settings found that synchronous online interactions helped primary school learners recognize cultural similarities and differences and promoted intercultural understanding (Okumura, 2025). Intercultural sensitivity at the pre-primary level does not involve abstract reasoning but the exploration of tangible cultural markers. By using visual resources like pictures and drawings to compare daily routines, cuisine or customs between partner countries, pre-service teachers could make diversity and intercultural differences both cognitively accessible and age appropriate.

Methodological approach

The methodological approach category revealed a mixed pattern of results. Language scaffolding was the most consistently achieved criterion, reaching 100%, which suggests that all participants integrated scaffolding strategies such as gestures, visual support, or modelling to facilitate language comprehension and production, but they found it difficult to provide support to remote learners:

Workgroup 9: "Language scaffolding is present in all the activities. We see this when the teacher is always modelling the sentences and helps with the comprehension through repetition, gestures and visual support (flashcards). In a VE context, it is difficult to give immediate and personalised support, especially when working with the children that are in class and online children at the same time."

The primary difficulty was in providing personalized support and adjusting the "linguistic scaffolding" to meet individual needs, a task significantly amplified in a VE context by technological barriers. A critical factor in this struggle was a misconception of teacher agency. Pre-service teachers thought they were the sole instructors in charge, bearing the entire burden of both the local and remote classrooms for linguistic scaffolding.

The effectiveness of VE projects with young language learners depends heavily on a shared instruction model involving sustained coordination, pedagogical alignment, and close collaboration between partner schools (Bejarano Sánchez & Giménez Manrique, 2018). This collaborative dimension was largely overlooked by the participants when designing the activities, possibly because of their limited teaching experience and insufficient methodological preparation regarding the pedagogical foundations and organizational mechanisms underlying effective VE implementation.

Curriculum innovation obtained a relatively high percentage (78%), indicating that most participants believed they were able to introduce some level of innovation into their activity design, although often within structured formats:

Workgroup 6: *“We aimed to design creative and innovative activities, but sometimes this creativity made the organisation more complex. Finding a balance between innovation and clarity of activities was challenging, especially considering the practical limitations of a real early childhood classroom”.*

Collaboration between children received a moderate score (56%). Pre-service teachers perceived collaboration as being limited to teacher-led group participation rather than pair work. They argued that pair work was less effective because it hindered the teacher’s ability to provide constant supervision, leading to concerns that children would struggle to follow instructions or complete activities independently:

Workgroup 2: *“Although the project is framed as a VE, genuine peer collaboration was not implemented. Due to the young age of the learners, interaction was mainly teacher-led, with children responding chorally or individually but not collaborating with peers. Designing peer teaching or international group work activities is unrealistic, as pre-primary students lack the linguistic, cognitive, and social skills needed to manage collaborative interaction, especially in an online setting”.*

Previous research about VE implemented in primary school settings has shown the value of collaborative, task-oriented topics (see Bejarano Sánchez & Giménez Manrique, 2018; García-Martínez & Gracia-Téllez, 2018; Morcillo Salas, 2018). These studies demonstrate that when engaged in projects requiring moderate cognitive and linguistic coordination, such as co-constructing digital presentations or joint problem-solving, children develop both social and communicative competence. However, the pre-service teachers in this study did not view such peer collaboration as a viable strategy. This scepticism appears rooted in a lack of practical familiarity with VE logistics, which led trainees to prioritize teacher-led control over the collaborative potential of appropriate scaffolded activities.

Lower scores were observed for creativity and higher-order thinking (33%) and children’s agency (22%). These results indicate that pre-service teachers found it challenging to incorporate open-ended thinking, student decision-making, or learner autonomy in their activities with pre-primary school children. The activities designed by the pre-service teachers tended to be highly structured and teacher-led to ensure the acquisition of the target vocabulary and linguistic structures:

Workgroup 3: *“The current teaching unit is composed of pre-defined tasks like the song and specific vocabulary drills. Because every linguistic structure, gesture, and game is already determined by the teacher to meet the final task requirements, students have no opportunity to shape or evaluate the educational process”.*

Workgroup 4: *“This criterion is not included because higher-order thinking skills are difficult to work on at such an early age. We feel that expecting children in early childhood education to analyse or reflect deeply was not realistic, particularly within a virtual exchange context”.*

Pre-service teachers designed activities to ensure L2 development, as required in the ELT course, but also to maintain rigid control over the classroom, which in turn affected the possibility of developing creativity and higher-order thinking skills. Research indicates that hands-on experiences and games could be used to develop some basic problem-solving skills in early childhood education (Aryani et al., 2024). Along these lines, research in primary education shows that the correct use of resources such as storytelling can prompt children to connect narratives to their own lives (Férez Mora & Coyle, 2023) leading to creativity and higher-order thinking skills. Developing these skills does not always require complex language but moving beyond the text. By encouraging pre-primary children to bridge the gap between a narrative and their personal environment, for instance, by selecting physical objects that relate to a character’s experience, trainees could foster creativity and scaffold the foundational stages of higher-order thinking. Such activities may transform digital VE activities from a passive viewing session into a space for more guided discovery and active participation.

Communication

All pre-service teachers considered that they had successfully incorporated synchronous and asynchronous activities in their teaching units (100%). However, they described asynchronous activities as more appropriate for 5-year-old learners.

Synchronous activities mainly adapted asynchronous tasks to online settings. These included recognition games based on total physical

response, matching games where children paired images and produced related vocabulary and linguistic structures, and rhythmic drill games involving movement and linguistic repetition. Trainees reported major difficulties adapting these activities for synchronous VE contexts. Their reflections revealed a “dual-classroom” mindset in which the VE was understood as managing two separate groups.

In recognition games, trainees associated “physicality” exclusively with in-class movement, such as running or swatting, which led them to see remote learners as disadvantaged participants. Rather than redesigning activities for equitable synchronous interaction, they remained constrained by classroom-centred models, revealing a need for further training in hybrid instructional design:

Workgroup 2: “The main issue with synchronous implementation is the strong disadvantage for the remote class. Reaction speed is a key component, and online students would always respond later due to lag. Additionally, the physical setup (running, swatting) cannot be replicated online, making equal participation impossible”.

Matching games also exposed challenges linked to physical resources and split-classroom management. Trainees argued that remote children could not clearly see or manipulate cards, memorize locations, or follow the game logic, which made children in the remote class become passive observers:

Workgroup 5: “Remote students cannot see the details of the cards being flipped, they cannot participate effectively. They are unable to memorize the location of the pairs or follow the game logic, turning them into passive and confused observers rather than active players. Also they cannot “flip” the physical cards themselves. They would have to tell the teacher which card to flip (e.g., “row 2, card 1”), which is too complex for pre-primary children”.

Similarly, reflections on drill games showed that trainees assumed sole responsibility for controlling both environments simultaneously instead of viewing the partner teacher as a co-facilitator. Audio delays and overlapping responses were perceived as barriers that complicated pronunciation monitoring and reduced the pedagogical value of repetition-based activities:

Workgroup 6: *“In a synchronous VE setting, repetition drills can become monotonous and difficult to manage when audio delays are present. Remote students often repeat slightly later than the local group, creating overlapping voices and making it harder for the teacher to assess pronunciation. This can reduce the effectiveness of the drill and lead to frustration for both students and teacher.”*

The same conceptual difficulties appeared in song activities. Trainees believed they alone needed to design activities in which they could provide gestures, flashcards, and rhythm management, rather than collaborating with the partner teacher to support participation across contexts. As a result, technical issues such as lag, poor video quality, and synchronization problems were framed as obstacles preventing remote students from participating fully:

Workgroup 1: *“The core problem is the high reliance on visual and kinetic cues that are fundamentally incompatible with the technical constraints of a synchronous video call. The remote students cannot effectively link the visual cue (the flashcard or the specific gesture) with the spoken language due to poor video quality or lag. Therefore, they are unable to participate fully in the required actions, reducing their role to mere observers”.*

Storytelling activities revealed a predominantly “solo-teacher” mindset. Instead of designing collaborative approaches, pre-service teachers perceived synchronous storytelling as overly demanding because they considered that only one teacher was expected to manage technical, pedagogical, and classroom responsibilities across both settings simultaneously:

Workgroup 9: *“Designing a story activity to be carried out synchronously can be challenging. First, the story may not be clearly heard by the children who are online. If they cannot hear it well, they will not understand it and may lose the thread of the story (...). In addition, the teacher must teach both the online children and the children who are physically present. Telling the story to both groups while trying to capture the attention of each can be difficult for the teacher, and children may lose focus when they are not being directly addressed”.*

Pre-service teachers attributed the challenges of designing synchronous activities to the developmental needs of five-year-old children. However, they failed to recognise that their pedagogical approach to VE was itself problematic. Rather than designing genuinely collaborative synchronous tasks, they attempted to convert asynchronous activities into synchronous ones using digital tools. In doing so, they overlooked the core principles of VE, which emphasise shared planning and sustained collaboration between partner schools beyond the mere use of technology. These findings coincide with Wigham & Clavel-Arroitia (2025) who also reported in a secondary school context that teachers (not trainees) also lack technical and pedagogical training to conduct VE activities.

The moderate percentage for authentic language use (67%) suggests that pre-service teachers perceived the opportunities for genuine communication as constrained. This limitation was not an inherent byproduct of the VE context, but it originated from the participants' belief that pre-primary instruction must rely strictly on controlled repetition and formulaic language patterns possibly because of the linguistic demands of the ELT course:

Workgroup 8: "It was challenging to ensure authenticity while using highly controlled sentence structures. Although contexts were meaningful, spontaneous language production remained limited due to the learners' level."

Workgroup 7: "Language use is highly controlled and based on fixed sentence frames. While appropriate for beginners, this limits authenticity".

Use of technology

Within the category of technological use, the subcategory of creative and responsible tool use obtained 67%. Pre-service teachers generally viewed digital tools as functional tools to maintain connectivity and to replicate existing in-person activities instead of tools for pedagogical innovation and real synchronization:

Workgroup 3: "Because the technology is fundamentally focused on allowing the connection between the local and remote classes via Zoom, the children act as passive observers of the teacher's screen rather than active participants in technology use. The problem with creative, meaningful use of technology

is that digital tools are primarily used to adapt in-person activities for a virtual environment rather than for innovative pedagogical purposes. While the project incorporates a digital dice and a spinning wheel to present vocabulary, these serve merely as digital substitutes for traditional physical materials."

These pre-service teachers defaulted to predictable, asynchronous-style formats using digital tools. Pre-service teachers' descriptions of their use of technology reveal a limited understanding of how digital tools can be used effectively in VE projects, a challenge that has also been self-reported by primary and secondary school teachers in previous studies (Wigham & Clavel-Arroitia, 2025). This finding aligns with earlier research showing that pre-service teachers often lack the pedagogical knowledge needed to integrate technology meaningfully into learning activities (Brown & Warschauer, 2006). As a result, they tend to transfer classroom activities designed for face-to-face instruction directly into online contexts without adapting them to the specific characteristics and affordances of digital learning environments (Hampel, 2006).

Final outcomes

67% of trainees believed the design of their activities produced observable learning outcomes, which were almost exclusively restricted to immediate oral production. Pre-service teachers had previously analysed and discussed successful VE models that used shared products between partner schools. However, trainees overlooked the potential for creating collaborative products in the pre-primary classroom, such as joint drawings or manual crafts:

Workgroup 7: "The problem regarding visible final outcomes is that no tangible product was implemented, as we believed that the oral description in the classroom was a sufficient demonstration of learning."

Pre-service teachers' strong emphasis on linguistic objectives appears to have been shaped not only by the requirements of the ELT course, which prioritised oral production, but also by their limited training in VE pedagogy. This narrow focus often led them to overlook the importance of shared knowledge construction between partner schools and to exclu-

de a final collaborative product from the exchange. Consequently, the VE projects lacked a clear communicative purpose, reducing opportunities for authentic interaction and more meaningful language use.

Additionally, pre-service teachers seemed to have a narrow definition of children's capability, driven by the learners' young age and emergent literacy. Trainees equated "visible evidence" with written texts or complex digital products, which trainees perceived as beyond the reach of pre-primary students. This led to a perceived "undue burden," where the responsibility for a final product was seen as falling solely on the teacher rather than the students:

Workgroup 6: *"The main difficulty was defining what constitutes a 'visible final outcome' in early childhood education, where written production is not yet developed. Unlike older learners, pre-primary students cannot produce written texts or complex digital artifacts."*

Workgroup 9: *"Making the activities have a visible final outcome requires more independence from the children, and since they are so young, in these activities the responsibility falls mostly on the teacher."*

None of the participants (0%) reported having designed their activities with the wider community impact of their VE project in mind. This absence may reflect a "simulation bias" linked to the university-based nature of the teaching unit. Trainees appeared to approach their VE teaching unit primarily as a theoretical lesson-planning exercise aimed at meeting immediate linguistic and academic requirements, rather than as an authentic collaborative initiative with the potential to engage families, schools, or wider educational communities:

Workgroup 2: *"The main problem we encountered was that the unit was designed with a strong focus on linguistic objectives and VE activities, so we did not consider involving the wider community during the design process, as this project was developed as a simulation within a university course."*

Implications and conclusions

The challenges reported by the pre-service teachers must be understood in relation to their limited teaching experience, insufficient exposure

to authentic VE classroom practices, and the limited methodological depth of the introductory VE training, which relied mainly on brief videos and reflective discussions. These difficulties were further shaped by the linguistic demands of the ELT course, which strongly emphasised the development of young learners' oral competence in English. Consequently, trainees tended to prioritise repetitive oral production activities over other key dimensions of VE, such as creativity, collaboration, learner agency, and meaningful communication between partner schools, highlighting the need for more comprehensive VE training in pre-service teacher education.

The results also highlight the need to adapt evaluation criteria for VE to early childhood education contexts. Criteria derived from successful primary-level eTwinning projects provide a valuable starting point for designing activities, but the criteria may not be transferred directly to pre-primary education especially in the case of inexperienced pre-service teachers. VE criteria for early childhood education should place greater emphasis on developmentally appropriate forms of participation, including play-based interaction, multimodal communication, guided exploration, and simple forms of social engagement with partner classrooms.

The study identifies several areas in which teacher education programmes should strengthen pre-service teacher preparation in relation to the VE criteria. Pre-service teachers could be trained on how to incorporate inclusivity and diversity in ways that align with young children's cognitive development, how to design meaningful final products that move beyond purely linguistic outcomes, or how to select and use digital tools effectively for synchronous interaction guided by teachers in two different locations. Training should additionally prepare pre-service teachers to use asynchronous activities as classroom-based oral practice to scaffold children's participation in live exchanges with partner schools instead of using digital tools as functional substitutes for physical materials in teacher-led instruction.

Teacher education should also help future educators understand how the foundations of abstract thinking can be fostered through guided discovery. Storytelling could be used as a foundation for fostering guided discovery and the early development of higher-order thinking skills. Rather than positioning children as passive listeners, pre-service teachers could learn to design activities in which children actively assist story cha-

racters in solving problems. Such activities encourage children to move beyond literal understanding and begin engaging in symbolic thinking.

Finally, immersive initiatives such as the Erasmus+ Blended Intensive Programme (BIP) may provide particularly valuable opportunities for pre-service teacher preparation in VE contexts. By combining virtual collaboration with short-term physical mobility, BIPs create experiential learning environments in which trainees move from passive observation to active participation in the design and management of synchronous and asynchronous VE activities. This type of hands-on experience may help reduce the “simulation bias” identified in the present study by enabling future teachers to engage directly with the pedagogical, technological, and organisational complexities of authentic VE implementation.

Overall, the findings suggest that, by adopting developmentally appropriate criteria and prioritising experiential and pedagogically grounded training, teacher education programmes could better equip pre-service teachers to design activities that support meaningful foreign language development in a VE context.

Acknowledgments

This article is a research outcome of the Erasmus+ project INVITED (Integrating Primary and Pre-school Virtual Exchange Projects into Language Teacher Education) (2023–2026), grant number 2023-1-DE01-KA220-HED-000157119, funded by the European Union.

References

- Aryani, N., Rizka, N., Suparmi, S., Artamevia, F., & Nazli, N. L. M. (2024). Higher Order Thinking Skill (HOTS) through STEAM learning for early childhood. *JPUD-Jurnal Pendidikan Usia Dini*, 18(2), 308-314. <https://doi.org/10.21009/jpud.v18i2.48422>
- Asensio Pastor, M. I., & Al-Momami, R. (2025). El proyecto de telecolaboración e internacionalización “Hablamos” entre la Universidad de Almería y la Universidad de Jordania 1. *Educatio Siglo XXI*, 43(1), 9-30. <https://doi.org/10.6018/educatio.542311>
- Bejarano Sánchez, G., & Giménez Manrique, G. (2018). What makes our schools unique? A telecollaborative experience from the perspective of two ‘new-comers’. In M. Dooly & R. O’Dowd (Eds.), *In this together: teachers’ experiences with transnational, telecollaborative language learning projects* (pp. 145-181). Peter Lang.
- Brown, D., & Warschauer, M. (2006). From the university to the elementary classroom:

- Students' experiences in learning to integrate technology in instruction. *Journal of Technology and Teacher Education*, 14(3), 599-621. <https://www.learntechlib.org/primary/p/5996/>
- Dooly, M. (2015). Networked classrooms and networked minds: Language teaching in a brave new world. In C. J. Jenks & P. Seedhouse (Eds.), *International Perspectives on the ELT Classroom* (pp. 84-109). Palgrave MacMillan.
- Dooly, M. (2021). "Can you repeat please?": Young learners' emergent awareness and use of interactional repertoires in a telecollaborative exchange. In D. Masats & L. Nussbaum (Eds.), *Plurilingual classroom practices and participation: Analysing interaction in local and translocal settings* (pp. 149-161). Routledge. <https://doi.org/10.4324/9781003169123-17>
- Dooly, M., & O'Dowd, R. (2018). Telecollaboration in the foreign language classroom: A review of its origins and its application to language teaching practices. In M. Dooly & R. O'Dowd (Eds.), *In this Together: Teachers' Experiences with Transnational, Telecollaborative Language Learning Projects* (pp. 11-34). Peter Lang.
- Dooly, M., & Sadler, R. (2016). Becoming little scientists: Technologically-enhanced project-based language learning. *Language Learning & Technology*, 20(1), 54-78. <https://doi.org/10.64152/10125/44446>
- Dooly, M., & Vinagre, M. (2022). Research into practice: Virtual exchange in language teaching and learning. *Language Teaching*, 55(3), 392-406. <https://doi.org/10.1017/S0261444821000069>
- Evaluate Group. (2019). Evaluating the impact of virtual exchange on initial teacher education: A European policy experiment. Dublin: Research-publishing.net. <https://doi.org/10.14705/rpnet.2019.29.9782490057337>
- Férez Mora, P. A., & Coyle, Y. (2023). Storytelling in EFL primary education: Defining a sociocritical and participatory model with pre-service teachers. *Thinking Skills and Creativity*, 49, 101360. <https://doi.org/10.1016/j.tsc.2023.101360>
- García-Martínez, A., & Gracia-Téllez, M. (2018). A telecollaborative science project: Searching for new ways to make language learning authentic. In M. Dooly & R. O'Dowd (Eds.), *In this together: teachers' experiences with transnational, telecollaborative language learning projects* (pp.35-63). Peter Lang.
- González-Lloret, M., & Ortega, L. (2014). Towards technology-mediated TBLT: An introduction. In M. González-Lloret & L. Ortega (Eds.), *Technology-mediated TBLT: Researching technology and tasks* (pp. 1-22). John Benjamins Publishing Company
- Hampel, R. (2006). Rethinking task design for the digital age: A framework for language teaching and learning in a synchronous online environment. *ReCALL*, 18(1), 105-121. <https://doi.org/10.1017/S0958344006000071>
- Hauck, M., Müller-Hartmann, A., Rienties, B., & Rogaten, J. (2020). Approaches to researching digital-pedagogical competence development in VE-based teacher education. *Journal of Virtual Exchange*, 3(SI), 5-35. <https://doi.org/10.21827/jve.3.36082>
- Li, L. (2020). Promoting interpersonal and intercultural communication with flipgrid: Design, implementation and outcomes. In M. Kruk & M. Peterson (Eds.), *New technological applications for foreign and second language learning and teaching* (pp. 261-281). IGI Global.

- Luk, J. (2008). Assessing teaching practicum reflections: Distinguishing discourse features of the “high” and “low” grade reports. *System*, 36(4), 624–641. <https://doi.org/10.1016/j.system.2008.04.001>
- Mont, M., & Masats, D. (2018). Tips and suggestions to implement telecollaborative projects with young learners In M. Dooly & R. O’Dowd (Eds.), *In this together: teachers’ experiences with transnational, telecollaborative language learning Projects* (pp. 93-122). Peter Lang.
- Morcillo Salas, A. (2018). Are we really that different? A telecollaborative project between refugee students from Myanmar and a primary school in Sabadell (Spain). In M. Dooly & R. O’Dowd (Eds.), *In this together: teachers’ experiences with transnational, telecollaborative language learning projects* (pp. 65-92). Peter Lang.
- O’Dowd, R. (2018). From telecollaboration to virtual exchange: State-of-the-art and the role of UNICollaboration in moving forward. *Journal of Virtual Exchange*, 1, 1-23. <https://doi.org/10.14705/rpnet.2018.jve.1>
- O’Dowd, R. (2021). Virtual exchange: moving forward into the next decade. *Computer Assisted Language Learning*, 34(3), 209–224. <https://doi.org/10.1080/09588221.2021.1902201>
- O’Dowd, R., & Waire, P. (2009). Critical issues in telecollaborative task design. *Computer assisted language learning*, 22(2), 173-188. <https://doi.org/10.1080/09588220902778369>
- Okumura, S. (2025). Language learning and intercultural awareness: Insights from a primary school synchronous virtual exchange. *International Online Journal of Primary Education*, 14(3), 74-87. <https://doi.org/10.55020/iojpe.1670036>
- Pennock-Speck, B., & Clavel-Arroitia, B. (2023). Virtual exchanges among primary-education pupils: Insights into a new arena. In A. Potolia & M. Derivry-Plard (Eds.), *Virtual Exchange for Intercultural Language Learning and Teaching* (pp. 115-132). Routledge. <https://doi.org/10.4324/9781003024620-6>
- Reader, S. (2024). Asynchronous virtual exchange and young English learners’ intercultural communicative competence: An exploratory study. *Language Teaching for Young Learners*, 6(2), 220–242. <https://doi.org/10.1075/ltyl.00054.rea>
- Romero Tena, R., León-Garrido, A., Gutiérrez-Castillo, J. J. & Martínez-Pérez, S. (2025). Autopercepciones y perfiles en dos áreas de competencias digitales en el profesorado de Educación Infantil de Andalucía. *Educatio Siglo XXI*, 43(3), 101-128. <https://doi.org/10.6018/educatio.630311>
- Vinagre, M., & Muñoz, B. (2011). Computer-mediated corrective feedback and language accuracy in telecollaborative exchanges. *Language Learning & Technology*, 15(1), 72-103. <http://lt.msu.edu/issues/february2011/vinagremunoz>.
- Ware, P., & O’Dowd, R. (2008). Peer feedback on language form in telecollaboration. *Language Learning & Technology*, 12(1), 43-63. <http://lt.msu.edu/vol12num1/wareodowd/>
- Wigham, C. R., & Clavel-Arroitia, B. (2025). The training needs of primary and secondary in-service school teachers engaging in virtual exchange. *Journal of Virtual Exchange*, 8, 13-38. <https://doi.org/10.21827/jve.8.41576>
- Wigham, C.R., & Whyte, S. (2024). Teacher role in synchronous oral interaction: Young

Nicolás-Conesa, F. (2026). Pedagogical challenges in designing Virtual Exchange activities for pre-primary EFL education. *Educatio Siglo XXI*, 44(3), 123-150.

learner telecollaboration. *Language Learning & Technology*, 28(1), 1-27. <https://doi.org/10.64152/10125/73599>

Appendix

Criteria for successful VE practices within eTwinning projects, identified by the INVITED consortium: <https://invited-project.eu/criteria-for-ve-projects-in-early-language-education/>



Area	Nº	Criteria	Definition
Content	1	Appealing and age-appropriate topics	Topics that are engaging and relevant for children taking into consideration their interests, as well as their linguistic and cognitive abilities
	2	Cross-curricular content	Content and/or activities that integrate concepts and skills from more than one subject area to encourage more holistic learning and competence development
	3	Inclusivity and different forms of otherness	Content and/or activities that (i) ensure that all children, regardless of their background or abilities are included and valued in the project; (ii) celebrate diversity and promote tolerance of difference
	4	Intercultural practices and plurilingual expression	Content and activities that foster understanding and appreciation of different cultures and/or encourage the use of multiple languages to enhance students' intercultural awareness and language skills
	5	Early literacy skills	Activities that develop reading and writing competences
Methodological Approach	6	Curriculum innovation through creative educational approaches, strategies, and methods (e.g., storytelling, STEAM, project-based learning, reflective learning, multisensory learning, etc.)	The use of novel and imaginative activities to enhance student engagement and learning outcomes
	7	Activation of children's creativity and higher order thinking skills	Encouraging children to think critically, solve problems, and express their creativity through challenging tasks
	8	Language scaffolding	Language support provided by teachers to help children participate in project activities. This includes modelling and practising the vocabulary and language patterns needed for



			different tasks, and providing feedback.
	9	High degree of children's agency in designing, shaping and evaluating the educational process	Allowing children to participate in decision-making and gain some control over their project and learning experience to foster independence and responsibility.
	10	Different forms of collaboration (peer teaching, national and international group work)	Tasks that involve working together with peers, either within the same classroom or with children from partner countries to achieve common learning goals
Communication	11	Synchronous and asynchronous communication between participating students	Facilitating both real-time (synchronous) and time-independent (asynchronous) activities among students
	12	Opportunities for authentic language use in meaningful communicative oral, written and multimodal tasks	Inclusion of tasks that allow children to use language in real-world contexts employing multiple modes (linguistic, visual, aural, gestural, spatial) and different media (video, audio, digital, print)
Use of Technology	13	Creative, meaningful, and responsible use of diverse technological tools	Integrating technology in ways that are innovative and purposeful to support and enhance the learning experience and develop digital competences
Final outcomes	14	Visible results in the form of digital, multimodal and/or handmade products (booklets, posters, videos, etc.)	Encouraging the creation of tangible outcomes from learning tasks to showcase children's communicative, linguistic, intercultural, digital, social and citizenship competences
	15	Wider community impact including schools and families with local/global outreach	Ensuring that project activities have a broader influence, engaging not just the students but also their families, the school and the wider community