REFERENCIA: Reyes-Tores, A., Tordera Yllesas, J. C., España Palop, E., & Larchen Costuchen, A. (2026). Literacy development and learning by design in english as an additional languaje: an exploratory study in Higher Education. *ENSAYOS, Revista de la Facultad de Educación de Albacete, 41*(1), 114-133. https://revista.uclm.es/index.php/ensayos/article/view/3757

LITERACY DEVELOPMENT AND LEARNING BY DESIGN IN ENGLISH AS AN ADDITIONAL LANGUAGE: AN EXPLORATORY STUDY IN HIGHER EDUCATION

EL DESARROLLO DE LAS LITERACIDADES Y EL APRENDIZAJE MEDIANTE DISEÑO EN INGLÉS COMO LENGUA ADICIONAL: UN ESTUDIO EXPLORATORIO EN EDUCACIÓN SUPERIOR

Agustín Reyes-Torres
mailto:agustin.reyes@uv.es
https://orcid.org/0000-0003-1058-3513
Universitat de València

Juan Carlos Tordera Yllescas
mailto:juan.tordera@uv.es
https://orcid.org/0000-0002-6297-4180
Universitat de València

Eduardo España Palop
mailto:eduardo.espana@uv.es
https://orcid.org/0000-0001-6077-2764
Universitat de València

Alexia Larchen Costuchen
mailto:alexia.larchen@upv.es
https://orcid.org/0000-0001-8260-4059
Universitat Politècnica de València

Recibido: 22/02/2025
Aceptado: 19/06/2026

Abstract

This study examines the effectiveness of Learning by Design (LbyD) in improving literacy and meaning-making processes among students of English as an Additional Language (EAL). Based on a dialogic framework, it explores how LbyD fosters collaborative meaning-making and the development of multiliteracies across personal, linguistic, and sociocultural dimensions. The sample included 66 Primary Education students with an A2-B1 level of English. Through the analysis of students' interaction with multimodal texts in Group 2, the study investigates the potential of LbyD to promote deeper engagement with content, critical thinking, and language competence compared to the traditional method used in Group 1. The results show improvements in students' personal connection with texts, linguistic skills, and sociocultural understanding. This research contributes to the analysis of the LbyD phenomenon and lays the groundwork for future large-scale studies.

Keywords: learning by design; multiliteracies; multimodal; language teaching; higher education.

Resumen:

Este estudio analiza la eficacia del Aprendizaje mediante Diseño (AmD) para mejorar la literacidad y los procesos de formación de significado en estudiantes de inglés como lengua adicional (EAL). Basado en un marco dialógico, se examina cómo AmD fomenta la construcción colaborativa de significado y el desarrollo de multiliteracidades en las dimensiones personal, lingüística y sociocultural. La muestra incluyó 66 estudiantes de Educación Primaria con nivel de inglés A2-B1. A partir del análisis de la interacción con textos multimodales en el Grupo 2, el estudio explora el potencial de AmD para promover una mayor implicación con el contenido, el pensamiento crítico y la competencia lingüística frente al método tradicional del Grupo 1. Los resultados muestran mejoras en la conexión personal con los textos, las habilidades lingüísticas y la comprensión sociocultural. Esta investigación contribuye al análisis del fenómeno del AmD y sienta las bases para futuras investigaciones a mayor escala.

Palabras clave: aprendizaje mediante diseño; multiliteracidades; multimodalidad; enseñanza de lenguas; educación superior.

1. Introduction

From a socio-constructivist perspective (Vygotsky, 1978), learning becomes more meaningful when knowledge is socially negotiated through classroom discourse. Within this framework, interaction enables students to interpret, question, and reshape meanings while connecting new knowledge with prior experiences. Research has consistently highlighted the role of dialogic interaction in promoting collaborative meaning-making and deeper learning (Brophy, 2002; Edwards, 2016; Kim et al., 2015). In addition, structured classroom discourse can support participation and reasoning processes (Muller, 2016; Putnam, 2017; Steward, 2018), with recent studies emphasizing its potential to foster learner agency and student engagement in sociocultural learning environments (Wang et al. 2025; Tao, 2026).

For educators, this involves implementing teaching methodologies that pursue the aim of guiding students to gradually develop their literacy by making use of previous experiences, reflecting on the subject of study, exchanging their views through dialogue and putting into practice what they have learned. As first proposed by Kern (2000), who established a link between literacy and second language (L2) teaching and later extended this perspective to include technological mediation (Kern, 2015) those goals were further explored by Paesani et al. (2016), Zapata (2022), Xie and Jiang (2025), among others. The idea that language learning is not only a linguistic but also a cognitive activity and a participatory social practice within specific cultural contexts is a principle of pedagogies conceptually anchored in the development of multiliteracies.

Such pedagogies offer L2 teachers a new paradigm to reconsider the role of students as active co-constructors of knowledge. To this end, the Pedagogy of Multiliteracies constitutes an approach that provides learners with the opportunity to foster their thinking along with speaking, reading, viewing, listening and writing skills (New London Group, 1996; Unsworth, 2024). This is an important challenge to bring to L2 education in order to meet the demands of the multimodal society of the 21st Century (Amgott, 2023; Reyes-Torres et al., 2025; Lim, 2025). As will be shown, this pedagogy incorporates Learning by Design (New London Group, 1996), an active process of constructing meaning through a variety of oral, visual, auditory and spatial resources consistent with recent research-based practices (Zapata, 2022; Mills et al., 2023, Paesani and Menke, 2023).

2. Literature review

2.1 Transforming Literacy into Multiliteracies and Multimodality

Traditionally, one was considered literate if one had the ability to read and write. These two skills were thought to be sufficient in order to encode and decode messages (Kress, 2010; Kucer, 2015; Kern, 2015). However, this notion of literacy does not fit the current objectives of general and L2 education. The aim is not to train students to decode a text, but to guide them to develop a series of skills that empower them to think about its message and react to it by elaborating their own discourse as social, critical and creative agents of the 21st century. Therefore, as Kucer points out, it is a concept that "cannot be adequately described by measuring a single trait or attribute" (Kucer, 2015, p. 22). According to this author, literacy must be understood not as a product, but as a dynamic process through which individuals are nurtured by their personal experiences, educational background and sociocultural practices (Kucer, 2014, p. 287). He emphasizes its multiple facets and distinguishes three essential dimensions: personal, linguistic, and sociocultural and aesthetic.

The personal or cognitive dimension revolves around the learners' identity, their beliefs, background knowledge and predisposition to start the learning process. Students' previous experiences constitute a major vehicle to feel confident when encountering and managing any type of texts for the first time. For this reason, it is essential to trigger their interest and help them develop some kind of emotional connection with the topic selected. As a result, the role of the teacher is to support learners to design meaning rather than merely acquiring it. From this perspective, learners are viewed as active meaning makers (Kucer, 2014; Kress & van Leeuwen, 2021). This view is supported by Tang et al. (2026), whose meta-analysis found that dialogic reading significantly improves decoding and reading comprehension.

The linguistic or conceptual dimension focuses on the contents and the different ways of representation through which meaning is produced. The objective of the teacher, in this case, is to carefully select the concepts and the elements that will be studied and introduce them gradually, scaffolding, so that students can continue the process of learning. According to Kern (2000; 2015), this dimension introduces a range of metalanguage to enable students to engage in metacognition. In Kucer's terms, the learner is a code breaker. It is therefore about guiding students to identify and learn the different sign systems, the features or characteristics available in the text, in order to create new knowledge.

Finally, the sociocultural and aesthetic dimension shifts the attention back on the reader as a subject who is part of a particular sociocultural context. The aim is to offer them the opportunity to interact with other students and exchange their views. The contrast that may arise in their way of understanding the content of a text is the key to accepting that there is not a single and exclusive meaning (Rosenblatt, 1986; Rojas-Drummond, 2025). It is what we can call the "the beauty of difference" (Reyes-Torres et al., 2021). On the part of the teacher, the aim must be to facilitate students' reflections and guide them to experience enjoyment and pleasure in the very act of reading, viewing and thinking.

These three dimensions are considered equally important and illustrate the fluid nature of literacy. Furthermore, because we live in a multimodal society, today learners face a multiliterate landscape in which nearly all texts that they encounter include a significant variation of signs and symbols such as letters, drawings, pictures, colors, videos, audio sounds, facial gestures, body language, etc. In this respect, multimodal resources constitute new types of texts and new forms of narration that differ significantly from conventional models. As a result, it is important to consider two key ideas. First, the term "text" does not solely apply to a narrative discourse, but rather to a wide range of media products and modes of representation:

TikTok videos, advertisements, music, picturebooks, music, short-animated films, etc. (Cope & Kalantzis, 2000; Stafford, 2011; Reyes-Torres & Portalés-Raga, 2020). Second, the development of literacy must embrace the ability to grasp and construct meaning not only from words but also from images, songs, spaces, sounds, etc. (Kress, 2014; Warner & Dupuy, 2018; Menke & Paesani, 2019). In sum, we can affirm that literacy has indeed turned into multiliteracies and a multimodal approach should be incorporated in current language education (Zapata, 2022).

2.2 Background of Learning by Design

In 1994, a group of scholars led by Mary Kalantzis and Bill Cope, the New London Group, published a manifesto titled "A Pedagogy of Multiliteracies: Designing Social Futures" (1996), in which they embrace "dynamic, culturally and historically situated practices of using and interpreting diverse written and spoken texts to fulfil particular social purposes" (Kern 2000, p. 6). The aim of their approach was to foster the multidimensional concept of literacy that we saw earlier with the educational needs of the students in the 21st Century (Serafini & Gee, 2017). To this end, they conceived the concept of LbyD as a teaching framework based on the use of multimodal texts that involves three elements: Available designs, Designing and the Redesigned (Cope & Kalantzis, 2009; Serafini & Reid, 2023).

The available designs are conceived from the idea that any type of text incorporates signs and characteristics susceptible of interpretation. "These are the structures, 'grammars', or genres that are in use, or available for use, across multiliteracies" (Westby, 2010, p. 66). It is essential, therefore, that the teacher is knowledgeable about them in order to plan the process of guiding students to identify and make semiotic, grammatical and lexical sense of those meanings, as well as the various cultural, literary or multimodal aspects used to create them. It should be pointed out that the reading and interpretation of the available designs of any text depend both on the students' ability and training to recognize the meanings that the text presents, as well as on the mediation and scaffolding provided by the teacher.

The act of designing refers to the process itself that involves the interpretation of the available designs. During this process, teachers must guide the analysis since it is not simply a matter of decoding or repeating ideas, but of constructing a new meaning based on the semiotic systems that a particular text contains. In order to do that, we will pay attention to the grammar, vocabulary as well as the various cultural, literary or multimodal aspects such as body language, pictures or intonation that were used to create them. This can be done individually or collectively. The idea is that students connect what they read, see and perceive with their knowledge and experiences.

The redesigned is the transformed meaning, that is, the new product, text, discourse, image or video, constructed from the two previous steps. In the words of López-Sánchez (2014), it is the result of human agency, that is, the capacity that each person has to assign different levels of relevance and meaning to certain objects or events (Vázquez and Lacorte, 2019; Carcamo & Pino, 2025). In short, it is about students applying their knowledge to another context. Thus, we can understand it as the result of the capacity that each student has to act and think, and it can be embodied through the production of any type of written, oral, visual, audiovisual or digital text that connotes a new understanding. Westby (2010) refers to it as the literacies students produce.

2.3 Knowledge Processes Framework

To put into practice the LbyD approach, Cope and Kalantzis (2009, 2015) propose the Knowledge Processes Framework (KPF) that is made up of four pedagogical acts: Experiencing; Conceptualizing; Analyzing; Applying. As Figure 1 illustrates, these processes do not follow a linear sequence. They are conceived to serve independently or collaboratively as a guide to help students acquire literacy in a dynamic way.

Figure 1

The Knowledge Processes Framework

Note. Adapted from Reyes-Torres & Moya, 2022, p. 105

Experiencing engages learners in meaningful lessons that incorporate both "the known and the new" (Cope & Kalantzis, 2015; Reyes-Torres et al., 2025). This allows them to immerse themselves spontaneously in the text. The initial purpose of the teacher is to activate students' minds by carrying out a situated practice, for example, through an initial discussion of the topics and multimodal features of the born-digital texts selected. Learning activities should initially be grounded in questions and tasks that are meaningful to students.

Conceptualizing draws students' attention to specific concepts and explicit instruction on how form (linguistic, visual, spatial layout, etc.) produces meaning. Therefore, teachers should present students the necessary metalanguage to talk about the Available Designs and guide their interpretation. The goal is to prepare learners for competent participation. What should they know and understand? What specific knowledge do they need so teachers can guide their process of inquiry and meaning making?

Analyzing aims to reflect on the author's writing, discuss any given message from different perspectives and consider how it might relate to particular cultures, social contexts and/or ideologies (Reyes-Torres & Portalés, 2020). In other words, it involves helping learners to become aware of the necessity of stepping out from the text and relate it to the context where it was created. Students must recognize how the social/cultural context influences the selection of particular text and how these factors influence comprehension in designing.

Applying consists of activities that allow learners to elaborate their own understandings based on what they have learned. According to Cope and Kalantzis (2015, p. 32), "knowledge is not (just) the stuff that ends up in our minds. It is what we do and make. Learning is a consequence of a series of knowledge actions." In essence, it is the transfer of new knowledge to other situations and the production of new designs. Thus, students are redesigning by taking a meaning out of one context and adapting it in such a way that it works well somewhere else.

As a final point, the implementation of this KPF places students at the center of learning and contributes to creating a supportive learning environment in which they become capable of producing meaning and thinking critically in the EAL lesson (Paesani & Menke, 2023).

3. Research Aim and Design

The research that we present in this article is part of an innovation project carried out in the Department of Languages and Literature Education at a public university in Valencia, in Spain during the 2022-2023 academic year. The main goal is to unify the teaching approach of three language subjects (English, Catalan and Spanish) under the same prism to prepare students to think and to construct knowledge as an integral part of higher education. From this perspective, language learning contributes to the development of the three dimensions of literacy, personal, linguistic and sociocultural (Kucer, 2014) by improving the cognitive and social training of students and, in addition, their command of language and their ability to express their ideas orally and in writing.

Therefore, we propose a methodological change through which these courses, aimed at the teaching of languages, stop being treated as a subject mainly centralized in syntax, morphology and semantics, and respond to the educational needs of our digital, multimodal and globalized society. In this regard, the LbyD approach allows teachers to incorporate the use of multimodal resources to enhance students' literacy as a multidimensional and plural concept (many and diverse literacies). The final learning aim is to encourage reading, writing, viewing and reflecting as well as the construction of knowledge through interaction and communication from a multilingual and inclusive perspective.

Accordingly, framed in this line of study, this paper addresses one single aspect of a larger research project that was carried out in Spanish, Catalan and English and focuses specifically on the results obtained in the course "English Language for Teachers" with first year students at the Faculty of Education. We conducted an investigation to analyze how the implementation of LbyD in the teaching of EAL promotes the personal, linguistic and sociocultural dimensions of literacy.

The question that underpinned our research can be phrased as follows: In what ways does the LbyD approach enhance literacy development and the process of meaning making in the EAL classroom? Attention was given to how this method promoted reflexivity, how it deepened the students' knowledge and if it was engaging and agentive for all participants. The specific research objectives were: (1) Evaluate literacy development across multiple dimensions in the EAL classroom, (2) Assess the effects of the LbyD framework on the personal, linguistic and sociocultural dimensions of literacy development among EAL learners.

For the purpose of this inquiry, we worked with two groups of EAL students (Group 1: Textbook and Group 2: LbyD to examine their progress regarding personal, linguistic and sociocultural dimensions of literacy. While lessons in Group 1 were taught using a traditional language teaching approach that followed textbooks, the tenets of the LbyD pedagogy were applied in Group 2. In this regard, the methodology based on the assumptions of LbyD was our

independent variable (IV), the cause, while the recorded results, which would predictably be affected by our IV, were our dependent variable (León & Montero, 2003; Morán & Alvarado, 2010). Thus, since our work was empirically contrasted, two groups with similar characteristics were used as a starting point, and since the variables that interested us were controlled, internal validity could be achieved (Morán & Alvarado, 2010; Hernández et al., 2014; Hernández & Mendoza, 2018). This research met all Human Ethics Research protocols, all student names are pseudonyms, and consents were obtained from all participants involved.

3.1 Participants

The study on which we are going to focus on was carried out in the Faculty of Education at the University of Valencia. Classrooms comprised high enrolments of students who were bilingual and spoke Catalan and Spanish on a daily basis. The participants were 66 students (15 men and 51 women) in the first year of the Degree in Primary Education in the course 33680-English Language for Teachers. The general level of English in both groups was low-intermediate (A2-B1, MCER); some students presented a richer vocabulary or more fluency in oral communication, while the vast majority of them were still developing their confidence in the use of English. The distribution by gender in these groups can be seen in table 1.

Table 1

Distribution by gender

	Gender		
Group (Gr.)	**Men**	**Women**	**Total**
Gr. 2: LbyD	9	33	42
Gr. 1: Textbook	6	18	24
Total	15	51	66

$\chi 2$ (1, 66) = 0.111; p = 0.739

From the chi-square value, it can be affirmed that there were no significant differences in the distribution of gender in the groups. Therefore, the gender variable did not influence the results obtained.

3.2 Teaching materials

Although the teaching materials that were used to carry out the research with Group 2: LbyD and with Group 1: Textbook were different, in both cases the contents covered throughout the lessons corresponded to those established in the official university teaching curriculum.

Students in the Group 1 used textbook during the lessons as the only resource. They followed different grammar activities proposed in each chapter and practiced the four language skills assigned. By contrast, the activities prepared for Group 2: LbyD were mostly based on a selection of multimodal resources and the textbook was only used in specific lessons for a short time to refer to the grammar bank it contains. The combination of words, images and sound that the multimodal resources comprise yielded a multimodal reading that offered learners not only a verbal and aesthetic context but also an organized path with a sense of coherence and unity (Serafini, 2014; Serafini & Reid, 2023). The aim was to engage students in active participation and to use English as a vehicular language to explore and build new perspectives. Accordingly,

special emphasis was placed on guiding students to create meaning by paying attention to the topic and the different modes of representation in each of the selected texts.

3.3 Literacy development rubric

In order to carry out initial and final assessment, a rubric was elaborated that evaluated the personal, linguistic, and sociocultural dimensions of literacy. For the personal dimension, the rubric focused on assessing students' connections with their past experiences and previous knowledge writing down their comments. Both elements, past experiences and previous knowledge, could be evaluated with a maximum score of 5, so the maximum score for the personal dimension was 10. The rubric can be seen below in Table 2.

Table 2

Literacy development rubric: Personal dimension

Scale	**1**	**2**	**3**	**4**	**5**
Categories					
Connection with previous experiences	Makes no connection	Comments on an experience but does not develop it	Comments on and explains one experience, or comments on two or more experiences but without developing them	Comments and explains two previous experiences	Comments and explains three or more previous experiences
Connection with previous knowledge	Makes no connection	Comments on some knowledge but does not develop it	Comments on and explains one area of knowledge, or comments on two or more areas of knowledge but without developing them	Comments and explains two previous areas of knowledge	Comments and explains four or more related areas of knowledge

For the linguistic dimension, the rubric assessed learners' ability to use a correct, adequate and specific vocabulary, and also their grammar usage of language to construct sentences and produce meaning. Special attention was paid to how students developed their ideas in a coherent way. This item was evaluated with a 5 as the maximum grade, so the maximum grade for the linguistic dimension was 15. The rubric can be seen in table 3.

Table 3

Literacy development rubric: Linguistic and conceptual dimension

Scale / **Categories**	**1**	**2**	**3**	**4**	**5**
Vocabulary	Makes eight or more errors	Makes between seven and six errors	Makes between five and four errors	Makes between three and two errors	Makes between one and zero errors
Grammar	Makes eight or more errors	Makes between seven and six errors	Makes between five and four errors	Makes between three and two errors	Makes between one and zero errors
Use of language and coherence	The text is totally incoherent. No connectors are used. Ideas are not elaborated	The text presents serious incoherencies, and the cohesive elements are not well used. Ideas are not well expressed	The text presents some coherence, and some ideas are initially developed. The use of connectors can be improved	The text presents well-developed ideas. Coherence errors are occasional	The text conveys very complex ideas in an organized way, and the cohesion is (almost) perfect

For the sociocultural and aesthetic dimension, the rubric assessed, first, students' capacity for personal reflection based on their interaction with the text (going beyond what is said in the text); second, their ability to use the language to exchange their views with their peers; and third, learners' expressions of enjoyment and/or emotional reactions as a result of the work done. Both items were evaluated with a maximum score of 5, so the maximum score for the sociocultural and aesthetic dimension was 10.

Table 4

Literacy development rubric: Sociocultural and aesthetic dimension

Scale	**1**	**2**	**3**	**4**	**5**
Categories					
Interact with the text and create personal predictions and interpretations	The analysis of the text does not show any type of reasoning coherent with the content. It does not create anything new	The analysis of the text shows an initial process of reasoning and induction. Some original ideas appear	Develops an incipient critical thinking: there are some interesting personal and critical ideas that are well developed	The analysis of the text shows a critical perspective in relation and contrast with others. It is original. The learner knows how to connect the ideas in order to reach some conclusion	Excellent analysis of the text; it shows a personal and critical interpretati on
Collaborate with classmates and exchange perspectives	Does not participate in the exchange of ideas and he or she is not open to other perspectives	Hardly participates in the exchange. He or she is quite passive	Shows interest in the exchange of ideas, but does not expose his/her own perspectives	Listens to the ideas of their classmates and uses them to elaborate and present his/her own perspectives	Initiates the exchange of ideas, listens to his/her classmates and contributes to the elaboration of new perspectives in a brilliant way

3.4 Procedure

The corpus of data included students' written work and field notes gathered by the instructor on the oral interactions between students and also between teacher and students. The data were collected from bi-weekly sessions of two hours and across one school term, from February to April of 2023. On the first day of class, before starting the intervention, students in both groups were shown a short-animated film and were asked to write a 200-word comment on it. The only instructions that they received were to react to this multimodal text and to discuss anything that called their attention. They were given 25 minutes to do it. Both Group 1 and Group 2 were assessed later using the evaluation rubric.

Subsequently, as already mentioned, Group 1 followed a more traditional methodology, ~~and~~ while Group 2 was taught in line with the LbyD approach. In order to establish this type of teaching dynamics and facilitate student's involvement, we followed two steps:

Given that there are 15 weeks in the semester, every Monday, from week 2 to week 10, students watched either a short-animated film, an advertisement or a TikTok video. After discussing it briefly in groups and exchanging their initial reactions, they were asked to individually write a comment on the Facebook page of the class. Literature review indicates that this platform can be a relevant tool for pedagogical purposes (Barrot, 2018). They were given time to do it at the end of the session, but they could also finish it at home. Additionally, they were encouraged to read each other's comments. On Wednesdays, the following day of class, the instructor showed on the screen some of those comments and highlighted the points made. This triggered a more in-depth discussion and the opportunity to identify some of the literacy, linguistic and/or visual elements that appeared in that particular multimodal resource.

The second step was to have students complete a task called three types of connections: text-to-self, text-to-text and text-to-world. Students were expected to write a paragraph for each connection in no more than 80 words and upload it to the course virtual platform before the end of the week. The guidelines were to answer some of the following questions for each section:

Text-to-self: What does this remind me of? How does this relate to my life? How is this different from my life? Has something like this ever happened to me? What were my feelings when I watched this?

Text-to-text: What does this remind me of in another book I've read? How is this text similar or similar from other films I've watched? Have I read about something like this before?

Text-to-word: How is this text similar or different from things that happen in the real world? How does the text relate to the world around me? This task helped students to organize their ideas and develop their critical thinking by decoding and interpreting the multimodal aspects of the text.

Finally, after a teaching period of ten weeks, students in both groups were re-assessed. They watched another short-animated film and were asked again to write a 200-word comment on it. As on the first time the only instructions given were to react to it and comment on anything that they found relevant. It should be noted that the level of difficulty of this text was higher because of the language expressions and the vocabulary used. Both groups were re-evaluated using the same rubric.

4. Results

The difference between the initial test and the final test was notorious. The results show that students in Group 2: LbyD had a better grasp of the short-animated film.

The first objective was to examine whether students in Group 1 and Group 2 showed statistically significant improvements in the personal dimension of literacy. Through JAMOVI (Jamovi project, 2022; R Core Team, 2021; Singmann, 2018; Lenth, 2020), the results obtained were as follows:

Table 5

Summary of statistical data on the development of the personal dimension

Group (Gr.)	Personal dimension	Media	SE	Confidence interval 95%	
				Inferior	Superior
Gr. 2: LbyD	Pre-test	2.93	0.191	2.55	3.31
	Post-test	4.45	0.237	3.98	4.93
Gr. 1: Textbook	Pre-test	2.71	0.252	2.20	3.21
	Post-test	2.96	0.314	2.33	3.59

In order to check whether there had been an improvement not only in the initial and final results in Group 2 (LbyD), but also whether this evolution was very marked with respect to that of Group 1, a mixed-design ANOVA was applied. In the intersubject results, an F (1, 64) = 7.53, a p = 0.008 and a value of η2p = 0.105 were obtained, while, in the intrasubject results, an F (1, 64) = 13.6, a $p < 0.001$ and a value of η2p = 0.175 were obtained. With these results, it can be affirmed that not only was there a significant evolution in Group 2, but that this evolution is significant compared to that of Group 1 (Pardo and Ruiz, 2015).

The second objective was to examine whether students in Group 1 and Group 2 showed statistically significant improvements in the linguistic and conceptual dimension of literacy. Through JAMOVI (Jamovi project, 2022; R Core Team, 2021; Singmann, 2018; Lenth, 2020), the results obtained were as follows:

Table 6

Summary of statistical data on the development of the linguistic dimension

Group (Gr.)	Linguistic dimension	Media	SE	Confidence interval 95%	
				Inferior	Superior
Gr. 2: LbyD	Pre-test	7.13	0.263	6.61	7.66
	Post-test	8.95	0.242	8.46	9.43
Gr. 1: Textbook	Pre-test	5.75	0.347	5.06	6.44
	Post-test	5.13	0.321	4.49	5.77

In order to check whether there had been a significant improvement not only in the initial and final results in Group 2, but also whether this evolution was very marked with respect to Group 1, a mixed-design ANOVA was applied. In the intersubject results, an F (1, 64) = 60.5, a $p < 0.001$ and a value of η2p = 0.486 were obtained, while, in the intrasubject results, an F (1, 64) = 23.2, a $p < 0.001$ and a value of η2p = 0.266 were obtained. With these results, it can be affirmed that not only was there a significant evolution in Group 2: LbyD, but that this evolution is significant compared to that of Group 1 (Pardo and Ruiz, 2015).

The third objective was to examine whether students in Group 1 and Group 2 showed statistically significant improvements in the sociocultural and aesthetic dimension of literacy. Through JAMOVI (Jamovi project, 2022; R Core Team, 2021; Singmann, 2018; Lenth, 2020), the results we obtained were as follows:

Table 7

Summary of statistical data on the development of the sociocultural dimension

Group (Gr.)	Sociocultural and aesthetic dimension	Media	SE	Confidence interval 95%	
				Inferior	Superior
Gr.2: LbyD	Pre-test	4.17	0.263	3.64	4.69
	Post-test	5.81	0.254	5.31	6.32
Gr.1: Textbook	Pre-test	3.58	0.348	2.89	4.28
	Post-test	2.50	0.336	1.83	3.17

In order to check whether there had been a significant improvement not only in the initial and final results in Group 2: LbyD, but also whether this evolution was very marked with respect to that which the control group might have undergone, a mixed design ANOVA was applied. In the intersubject results, an F (1, 64) = 28.1, a $p < 0.001$ and a value of η2p = 0.305 were obtained, while, in the intrasubject results, an F (1, 64) = 38.31, a $p < 0.001$ and a value of η2p = 0.374 were obtained. These results confirm that not only was there a significant evolution in the experimental group, but that this evolution was significant compared to that of Group 1 (Pardo & Ruiz, 2015). In addition, it should be noted that in this dimension the results of Group 1: Textbook regarding the sociocultural and aesthetic development are lower than in the pre-test.

5. Discussion and limitations

Findings from this exploratory study illustrate the transformative potential of a dialogic approach within the LbyD framework, unveiling its capacity to engage students holistically and cultivate multiliteracies. By immersing learners in a process of collaborative meaning making, LbyD not only furnishes them with substantive content for discourse but also a context conducive to critical thinking, collaborative learning, and linguistic proficiency in English. This learning process not only depends on cognitive elements but on sociocultural and linguistic ones as well, with multimodal texts playing a crucial role (Kucer, 2014; Brisk, 2022; Zapata, 2022).

Regarding the personal dimension, we can observe that students improved their ability to relate the text being interpreted to their interests, prior knowledge and expectations. In this sense, the current literature defends that if the teaching-learning process fails to affirm the identity of the student, as well as to develop his or her own interests, the only thing that will be achieved is to generate "empty noise" (Brown, 2015). However, the implementation of LbyD in this study shows us the contrary happened as students increased their personal involvement. This points to an additional skill that competent teachers need to develop: they must know how to connect students' interests and intercultural experiences in a non-artificial way with the contents discussed in class (Dolz, Gagnon & Ribas, 2013; Peiser & Jones, 2014).

Moreover, the connection of the personal context of the students with the linguistic productions is also an essential axis in this LbyD model. As Paesani & Menke (2023) highlight, every linguistic exchange is mediated by the previous experiences of the people involved in it. In this case, the results in the linguistic dimension show that multimodal resources can be a potential ally to develop students' vocabulary and grammar skills.

Finally, the sociocultural dimension of literacy development was enriched through increased interaction and exchange of ideas. In line with other authors such as Bloome & Egan-Robertson (2004) Gee (2004; 2014), Luk & Wong (2010) and Johnson & Golombek (2020), we concur that the relationship between form and meaning is always mediated by the sociocultural context, since the learner of a new language constructs the meaning of a text in interaction with other individuals and under the influence of the sociocultural coordinates that surround him or her (Kucer, 2014; Sembiante et al., 2021).

In this regard, while the present study sheds light on the potential benefits of implementing a LbyD approach in the teaching of EAL, several limitations should be acknowledged. First, the study was conducted within a specific context of university-level English language education, which may limit the generalizability of the findings to other educational settings. In addition, the sample size was relatively small and comprised students from a single institution, which may restrict the broader applicability of the results. Furthermore, the duration of the intervention was limited to one academic term, and the assessment relied primarily on students' written work and instructor observations. The study we conducted was exploratory in nature and aimed to provide an initial examination of the LbyD approach. Future research should seek to address these limitations by conducting larger-scale studies with more diverse samples across different educational levels and contexts. In particular, further research could adopt an experimental design with the random assignment of learners to groups in order to more rigorously check the effects of the LbyD approach on students' learning outcomes.

6. Conclusion

Taken together, the findings of this study demonstrate the efficacy of the LbyD approach in fostering multiliteracies and enhancing literacy development among EAL learners. Through a collaborative and dialogic process of meaning-making, students not only engaged with content more deeply but also demonstrated improvements across personal, linguistic, and sociocultural dimensions of literacy. The implementation of LbyD facilitated students' ability to relate the text to their personal interests, prior knowledge, and expectations, thereby enhancing their personal involvement in the learning process. This highlights the importance of affirming students' identities and connecting their intercultural experiences with classroom content in a meaningful way. Furthermore, the study revealed significant improvements in students' linguistic skills, particularly in vocabulary and grammar usage, through the utilization of multimodal resources.

This underscores the potential of LbyD to support language acquisition and development in EAL contexts. Moreover, LbyD proved to be successful in promoting interaction and idea exchange among students, thus enriching the sociocultural dimension of literacy development.

Looking ahead, future research could explore the application of LbyD in the teaching of other additional languages and across different educational levels, such as primary and secondary education. Such studies would provide valuable insights into the broader impact of literacy development and further validate the effectiveness of the LbyD approach across diverse educational contexts. Overall, this study contributes to a growing body of evidence supporting LbyD as an effective framework for literacy development and meaning making among EAL students in higher education.

INFORMATION ON THE AVAILABILITY OF STUDY DATA: Available on request.

ETHICAL INFORMATION: All participants gave their informed consent in accordance with the ethical protocols approved by the Ethics Committee for Experimental Research at the University of Valencia.

AUTHORS' CONTRIBUTIONS: Agustín Reyes: research, writing, original draft, supervision. Juan Carlos Tordera: methodology, formal analysis. Eduardo España: writing, original draft, writing, review and editing. Alexia Larchen: validation, writing, review and editing.

FUNDING SOURCES: Project carried out within the framework of the University of Valencia's Vice-Rectorate for Research programme, under the 'Special Actions' call for proposals, file reference UV-INV_AE 4225665.

CONFLICT OF INTEREST: There are no conflicts of interest.

USE OF GENERATIVE AI: No AI has been used.

References

Amgott, N. (2023). "The challenge was fun": Critical literacy and growth mindset in L2 multiliteracies. System, 113, 103000. https://doi.org/10.1016/j.system.2023.1030

Barrot, J. S. (2018). Facebook as a learning environment for language teaching and learning: A critical analysis of the literature from 2010 to 2017. *Journal of Computer Assisted Learning, 34*(6), 863-875. https://doi.org/10.1111/jcal.12295

Baudrillard, J. (1983). The Ecstasy of Communication. En H. Foster (Ed.), *The AntiAesthetic. Essays on Postmodern Culture* (126-134). Bay Press.Brophy, J. 2002. *Social Constructivist Teaching: Affordances and Constraints.* Emerald Publishing Limited.

Brisk, M. (2022). *Engaging Students in Academic Literacies SFL Genre Pedagogy for K-8 Classrooms*. Routledge.

Brown, D. B. (2015). *Mobile learning for communicative language teaching: An exploration of how higher education language instructors design communicative mall environments* (PhD thesis). The University of Memphis. https://www.proquest.com/dissertations-theses/mobile-learning-communicative-language-teaching/docview/1767318478/se-2

Byram, M., & Wagner, M. (2017). Making a difference: Language teaching for intercultural and international dialogue. *Foreign Language Annals,* 51,140–151. https://doi.org/10.1111/flan.12319

Cárcamo, B., & Pino, B. (2025). Developing EFL students' multimodal literacy with the use of infographics. *Asian Journal of Second and Foreign Language Education, 10*, 16. https://doi.org/10.1186/s40862-025-00322-3

Cope, B., & Kalantzis, M. (2000). *Multiliteracies. Literacy Learning and the Design of Social Futures*. Routledge.Cope, B., & Kalantzis, M. (2015). *A Pedagogy of Multiliteracies. Learning by design.* Palgrave and Macmillan

Edwards, S. (2016). New concepts of play and the problem of technology, digital media and popular-culture integration with play-based learning in early childhood education. *Technology, Pedagogy and Education*, 25(4), 513-532. https://doi.org/10.1080/1475939X.2015.1108929

Gee, J. P. (2014). *An introduction to discourse analysis: Theory and method* (4th Edition). Routledge.

Gee, J. P. (2004). Learning language as a matter of learning social languages within discourses.In Hawkins, M.R. (Ed.), *Language learning and teacher education: A sociocultural approach* (pp. 13-31). Clevedon/Buffalo

Hernández, C., Fernández, C. & Baptista, P. (2014). *Metodología de la investigación*. McGrawHill.

Hernández, R. & Mendoza, C P. (2018). *Metodología de la investigación: las rutas cuantitativas, cualitativa y mixta*. McGrawHill.

Jamovi project (2022). jamovi. (Version 2.3) [Computer Software]. https://www.jamovi.org.

Johnson, K. E., & P. R. Golombek (2020). Informing and Transforming Language Teacher Education Pedagogy. *Language Teaching Research* 24 (1): 116–127. https://doi.org/10.1177/1362168818777539

Kern, R. (2000). *Literacy and language teaching.* Oxford University Press.

Kern, R. (2003). Literacy as a New Organizing Principle for Foreign Language Education. En P.C, Patrikis (Ed.), *Reading between the Lines: Perspectives on Foreign Language Literacy* (40-59). Yale University Press.

Kern, R. (2015). *Language, literacy, and technology*. Cambridge University Press. https://doi.org/10.1017/CBO9781139567701

Kim, Y., Glassman, M., & Williams, M. S. (2015). Connecting agents: Engagement and motivation in online collaboration. *Computers in Human Behavior*, 49, 333-342. https://doi.org/10.1016/j.chb.2015.03.015

Kress, G. (2003). *Learning to write*. Routledge.

Kress, G. (2010). *Multimodality: Social Semiotic Approach to Contemporary Communication*. Routledge.Kucer, S. (2014). *Dimensions of Literacy: A Conceptual Base for Teaching, Reading and Writing in School Settings*. Routledge.

Kress G., & van Leeuwen T. (2021). Reading images: The grammar of visual design (3rd ed.). Routledge. https://doi.org/10.4324/9781003099857

Kucer, S. B. (2014). *Dimensions of literacy: A conceptual base for teaching reading and writing in school settings* (4th ed.). Routledge.

Kucer, S. (2015). Literacy: Varied, Dynamic and Multidimensional. *Journal of Family Strengths*, *15*(2), 1-35. Available at: https://digitalcommons.library.tmc.edu/jfs/vol15/iss2/1

Lenth, R. (2020). emmeans: Estimated Marginal Means, aka Least-Squares Means. [R package] https://cran.r-project.org/package=emmeans

León, O. & Montero, I. (2003). *Métodos de investigación en psicología y educación. McGraw Hill.*López, A., Encabo, E. & Jerez, I. (2017). *Didáctica de la lengua y la literatura en ESO, innovación e investigación*. Síntesis.

López-Sánchez, A. (2014). Hacia una pedagogía para la multialfabetización: El diseño de una unidad didáctica inspirada en las propuestas del New London Group. *Hispania*, 97(2), 81–97. https://doi:10.1353/hpn.2014.0060

Luk, J. C. M. (2005). Voicing the "self" through an "other" language: Exploring communicative language teaching for global communication. In A. S. Canagarajah (Ed.), *Reclaiming the local in language policy and practice; reclaiming the local in language policy and practice* (pp. 247-267, 297 Pages). Lawrence Erlbaum Associates Publishers. https://www.proquest.com/books/voicing-self-through-other-language-exploring/docview/620610092/se-2

Luk, J. C. M., & Wong, R. M. H. (2010). Sociocultural perspectives on teacher language awareness in form-focused EFL classroom instruction. *Linguistics and Education, 21*(1), 29-43. https://doi.org/10.1016/j.linged.2009.12.001

Menke, M.R., & Paesani, K. (2019). Analyzing foreign language instructional materials through the lens of multiliteracies framework. *Language, Culture and Curriculum*, 32(1), 34–49. https://doi.org/10.1080/07908318.2018.1461898

Mills, K.A., Unsworth, L. & Scholes, L. (2023). *Literacy for Digital Futures Mind, Body, Text.* Routledge.

Morán, G. & Alvarado, D.G. (2010). *Métodos de investigación*. Pearson.

Muller Mirza, N. (2016). Emotions, development and materiality at school: A cultural-historical approach. *Integrative Psychological & Behavioral Science*, 50(4), 634-654. https://doi.org/10.1007/s12124-016-9348-4

New London Group. (1996). A Pedagogy of Multiliteracies: Designing social futures. *Educational Review*, *66*(1), 60-93. https://doi.org/10.17763/haer.66.1.17370n67v22j160u

Paesani, K., Allen, H.W., & Dupuy, B. (2016). *Multiliteracies Framework for Collegiate Foreign Language Teaching*. Pearson.

Paesani, K. & Menke, M. (2023). *Literacies in Language Education: A Guide for Teachers and Teacher Educators.* Georgetown University Press. https://doi.org/10.2307/j.ctv31jm8v4

Pardo, A. & Ruiz, M.A. (2015). *Análisis de datos en ciencias sociales y de la salud II*. Editorial Síntesis.

Peiser, G., & Jones, M. (2014). The influence of teachers' interests, personalities and life experiences in intercultural languages teaching. *Teachers and Teaching: Theory and Practice, 20*(3), 375-390. https://doi.org/10.1080/13540602.2013.848525

Putman, R. S. (2017). Technology versus teachers in the early literacy classroom: An investigation of the effectiveness of the istation integrated learning system. *Educational Technology Research and Development*, 65(5), 1153-1174. https://doi.org/10.1007/s11423-016-9499-5

R Core Team (2021). *R: A Language and environment for statistical computing*. (Version 4.1) [Computer software]. https://cran.r-project.org. (R packages retrieved from MRAN snapshot 2022-01-01).

Reyes-Torres, A., & Portalés-Raga, M. (2020). Multimodal Approach to Foster the Multiliteracies Pedagogy in the Teaching of EFL through Picturebooks: The Snow Lion. *Journal of the Spanish Association of Anglo-American Studies*, *42* (1), 94-119. https://doi.org/10.28914/Atlantis-2020-42.1.06

Reyes-Torres, A., Portalés, M., & Torres, C. (2021). The Potential of Sound Picturebooks as Multimodal narratives. *AILA Review*, *34*(2), 300-324. https://doi.org/10.1075/aila.21006.rey

Reyes-Torres, A. & Moya A.N. (2022). Implementation of the Pedagogy of multiliteracies in an increasingly multimodal communication environment: a case study in the EFL classroom in primary education. In Guijarro-Ojeda, J.R., & Ruiz-Cecilia, R. (Ed.) *Research and Innovation in Foreign Language Teaching: A Global Perspective*, pp. 99-120. Tirant lo Blanch.

Reyes-Torres, A., Brisk, M. E., & Lacorte, M. (2025). *Multiliteracies, Multimodality, and Learning by Design in Second Language Learning and Teacher Education*. Routledge.

Rojas-Drummond, S., Rubio-Jiménez, A. L., & Trigo-Clapés, A. L. (2025). Multiliteracies as dialogic meaning-making social practices. In S. Rojas-Drummond (Ed.), *Learning together* (pp. xx–xx). Springer. https://doi.org/10.1007/978-3-032-06018-1_5

Rosenblatt, L. (1985). The Transactional Theory of the Literary Work: Implications for Research. In Ch. Cooper (Ed.), Researching Response to Literature and the Teaching of Literature (p. 33–53). Ablex Publishing Corporation.

Rosenblatt, L. (1986). The Aesthetic Transaction. Journal of Aesthetic Education, 20 (4), 122–28. htpps://doi.org/10.2307/3332615

Rosenblatt, L. (1995). The Literary Experience. In L. Rosenblatt (ed.). Literature as Exploration (32–66). The Modern Language Association.

Sembiante, S. F., Cavallaro, C. J., & Troyan, F. J. (2021). Language Teacher Candidates' SFL Development: A Sociocultural Perspective. *Language and Education, 35*(5), 479-499. https://doi.org/10.1080/09500782.2020.1833909

Serafini, F. (2014). *Reading the visual: An introduction to teaching multimodal literacy*. Teachers College Press.

Serafini, F. & Gee, E. (2017). *Remixing Multiliteracies: Theory and Practice from New London to New Times (Language and Literacy Series).* Teachers College Press.

Serafini, F., & Reid, S. F. (2023). Multimodal content analysis: expanding analytical approaches to content analysis. *Visual Communication*, *22*(4), 623-649. https://doi.org/10.1177/147035721986413

Singmann, H. (2018). *afex: Analysis of Factorial Experiments*. [R package]. https://cran.r-project.org/package=afex.

Stafford, T. (2011). *Teaching Visual Literacy in the Primary Classroom*. Routledge.

Stewart, S. D. (2018). Children shaping reading identities with picturebooks in a pre-kindergarten classroom (Ph.D. Thesis). https://www.proquest.com/dissertations-theses/children-shaping-reading-identities-with/docview/2120609857/se-2

Tang, M., Lau, K.-L., & Du, Y. (2026). Effects and moderators of dialogic reading on children's reading literacy: A three-level meta-analysis on studies from 2000 to 2025. *International Journal of Educational Research, 137*, 102963. https://doi.org/10.1016/j.ijer.2026.102963

Tao, Y., Wang, D. & Chen, G. (2026). How does dialogic teaching facilitate students' creative thinking? Evidence from a sequential analysis of teacher–student dialogue in primary language classrooms. British Educational Research Journal, 52, 776–805. https://doi.org/10.1002/berj.70031

Unsworth, L. (2024). Multimodal Literacy in a New Era of Educational Technology: Comparing Points of View in Animations of Children's and Adult Literature. *ECNU Review of Education*, *7*(2), 384-405.

Vázquez, G. & Lacorte, M. (2019). Métodos y enfoques para la enseñanza. En J. Muñoz-Basols, E. Gironzetti, & M. Lacorte. (Eds.). *The Routledge Handbook of Spanish Language Teaching: Metodología, recursos y contextos para la enseñanza del español* (pp. 11–25). Routledge

Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press.

Wang, P., Chen, F., Wang, D., & Li, X. (2025). Enhancing students' dialogic reflection through classroom discourse visualisation. *International Journal of Computer-Supported Collaborative Learning, 20*, 293–315. https://doi.org/10.1007/s11412-024-09443-2

Warner, C., & Dupuy, B. (2018). Moving toward Multiliteracies in Foreign Language Teaching: Past and present perspectives ... and beyond. *Foreign Language Annals*, 51, 116-128. https://doi.org/10.1111/flan.12316

Westby, C. (2010) Multiliteracies: the changing World of Communication. *Topics in Language Disorders*, 30 (1), 64-71. https://doi.org/10.1097/TLD.0b013e3181d0a0ab

Xie, L., & Jiang, L. (2025). Promoting second language writing autonomy through digital multimodal composing. *Journal of Second Language Writing, 69*, 101225. https://doi.org/10.1016/j.jslw.2025.101225

Zapata, G. (2022). *Learning by Design and Second Language Teaching: Theory, Research and Practice.* Routledge.