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# Intercultural competence in multimodal reading comprehension: content validation of a didactic proposal for a multicultural classroom

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Globally, school classrooms are becoming more and more multicultural, since migration is a phenomenon that has an impact on a planetary level. In Latin America and the Caribbean, different migration flows have occurred in the last 10 years, as a result of natural disasters, political instability, and the search for optimal wages, among other reasons. The migrant population carries with them their cultural identity, which is reflected in the classroom. In the Chilean case, there are schools with a high percentage of Latin American migrant students, which implies an intercultural pedagogical challenge. In the context of learning reading comprehension, data emerge that place migrant students on the SIMCE Reading test with lower scores than local students. Reading performance may have causes in the access gap as an educational level. However, despite the origins of this inequality, there is an immediate need to intervene didactically in the classroom to enhance reading comprehension in multicultural contexts. The preliminary results of a larger research that had as one of its objectives to design and validate the content of a didactic proposal to enhance multimodal reading comprehension by integrating intercultural competence in school contexts with the integration of migrant students are reported. This study uses the quantitative method with a non-experimental and cross-sectional design. Twelve class sessions were designed with their didactic material. Fifteen expert judges validated the proposal. The instrument used was a validation guideline built *ad hoc* for the research. For the analysis, the agreement of the judges was calculated using the relevance index, Aiken's V and Lawshe's content validity ratio. It was possible to obtain a coherent and consistent didactic proposal, which would allow it to be implemented in multicultural school contexts. A didactic proposal is obtained that addresses both the guidelines of intercultural competence and the didactics of language for the understanding of multimodal genres, considering the cultural identity of the students. It is considered that both perspectives in multicultural contexts can be approached at the same time without losing the development of understanding.

## KEYWORDS

intercultural competence, reading comprehension, multimodality, cultural diversity, migration

# 1 Introduction

The phenomenon of migration as a result of the opening of borders has an impact on the countries of destination and origin through the cultural and communicative contact of the populations (Koczan et al., 2021). This phenomenon affects all continents in different magnitudes. Specifically in Latin America and the Caribbean in recent decades, migratory flows have occurred internally. Historical change, since the displacement of people was previously generated towards Europe or North America (Elías et al., 2022). The movements of refugees and migrants in Latin America and the Caribbean during the first months of 2024 reflected trends similar to those observed in 2023. Departures from Venezuela northward through the Darien jungle in Panama have increased significantly (OREALC and UNESCO, 2022). This phenomenon has also affected Chile, a country that was not known for being a country that received migrants. At the end of 2022, the migrant population in Chile was estimated at 1,736,691 (Ministry of Social Development and Family, 2022), which has put pressure on the country's multicultural coexistence.

Data on migratory flows involving children and young people show that this phenomenon impacts the education system, generating new challenges for schools (Melis, 2018). Migration has generated pressure on the education system in some countries, especially in public schools. A negative effect for this type of population is the presence of low promotion rates and growing school dropout rates (Blyde et al., 2020). Based on TERCE's evidence, the existence of inequality of learning achievement of migrant students in Latin America is made visible (LLECE, 2021). For example, in grades 3 and 6, migrant students show lower levels of performance than local students in both reading and mathematics (UNESCO and OREALC, 2016). In the Chilean case, Elías et al. (2022) point out that with the arrival of non-Spanish-speaking migrants there was a negative impact on the SIMCE standardized reading test between 4th and 6th grade. Elige Educar (2017) agrees with UNESCO, pointing out that in the results of the 2015 SIMCE reading test, local students obtained higher scores than migrant students: in 8th grade a difference of 2.48 points in favor and in 2nd grade of 5.98 points.

Within this scenario, studies such as that of Boman and Wiberg (2024) suggest that reading performance in Sweden's PISA in 2018 is affected by several factors, one of them being the migratory origin. Wang (2021) points out that migrant students have a double inequality. Unlike native students, migrant students exhibit low achievement in reading and low life satisfaction. In the study by Vieluf and Sauerwein (2024), the findings establish that migrant students with low levels of cognitive respect from teachers also had low levels in reading. In the field of Spanish-speaking migrant students, the study by Martín-Pastor et al. (2017) on text comprehension by students of migrant origin in Spain. Their findings show that these migrant students achieve low scores, justified by the cultural mastery of what is spoken and written, a product of the dialectal variety.

According to the above, rethinking reading practices from a sociocultural approach becomes a challenge. Migrant communities carry with them their own cultural identities, bringing literate practices from their communities. This implies particular ways of inserting oneself in the classroom that may differ from the hegemonic context of the receiving school (Loyo et al., 2022). In this sphere, the relationship between intercultural competence and reading comprehension arises. For Byram (1997), intercultural competence is

the ability to understand and relate to people from other cultures. In the field of reading, the reader should read and interpret a text from another culture, using the general frameworks of his culture, far from cultural ethnocentrism that allow him to identify the allusions and connotations present in a text. However, studies related to reading comprehension and intercultural competence have focused mostly on the teaching of a second or foreign language (Eide et al., 2023; Khataee and Dowlatabadi, 2023; Ma, 2023; Liao, 2024). It has also focused on university contexts, such as that of Yan et al. (2024) on the perceptions of students and teachers about intercultural competence. Or the study by Jin et al. (2024) that presents the effectiveness of an online educational intervention, aimed at developing the intercultural competence of students who spend a semester abroad.

After reviewing the literature, it is observed that intercultural competence has not been directly studied in relation to reading comprehension in Spanish-speaking multicultural contexts. Within this framework, this research aimed to design and validate the content of a didactic proposal to enhance multimodal reading comprehension by integrating intercultural competence in school contexts with the integration of migrant students.

## 1.1 Reading comprehension

Text comprehension is considered a life skill and an indicator of the quality of human development (United Nations Development Programme, 2018). Recent research indicates that reading skills are fundamental in academic performance (Köse and Güneş, 2021). It has been proven that difficulties in acquiring this skill can lead to unfavorable educational results. It has also been indicated that the achievement of successful reading will depend on the development of both perceptual, cognitive, and linguistic skills (Thomson et al., 2020). However, studies on expert readers show that successful execution is related to metacognitive processing. This processing is manifested through strategies that guide the reader in the regulation and improvement of text comprehension (Mehrdad et al., 2012). Metacognition or regulated learning was born with Flavell (1976). This author understands it as the awareness of one's own knowledge and adjustment of cognitive processes, through monitoring and control. This process would be a precondition for the achievement of critical thinking, where the reader monitors his/her own cognitive knowledge (Mattisson and Karen, 2018).

Some research suggests that good readers have metacognitive strategies before, during, and after reading, making them aware of their own reading process (Öztürk and Aydogmus, 2021; Pressley and Gaskins, 2006). The most reported metacognitive strategies state at the first moment that the reader has a purpose for reading, evaluates the text according to its structure, forms a reading plan and forms a prediction of what will come in the text. In the second moment, good readers leaf through the text or read quickly to know in broad strokes what it is about, they stop at parts of the text to reread a section or to reaffirm the content read, they take notes, underline important ideas, they are aware of the implicit information that the text has and they manage to make inferences, using their previous experiences (Babayiğiti, 2019; Gutiérrez-Braojos and Salmerón, 2012). At the last moment, the reader can reread sections of the text, ask comprehension questions, relate the ideas of the text to its use in the future, among others.

## 1.2 Comprehension of multimodal texts

The spread of mass media, technology, and advertising has brought interest to the relationships between the verbal system and other semiotic systems, understood as systems of meaning that interact with each other (Parodi, 2010). As a result, writing and orality would have been limited in communicating information and knowledge. Thus, the turn towards the visual became unavoidable, giving way to multimodality, understood as several semiotic systems that generate meanings and developed as a line of research since the twentieth century from Systemic-Functional Linguistics (Gladic and Cautín-Epifani, 2016). There are different multimodal models, with the Integrative Model of text and image comprehension standing out. He explains that the improvement of students' learning occurs when they are confronted with oral texts with images as opposed to written texts with images (Schnotz, 2005).

From the grammar of visual design, Kress and Van Leeuwen (2020) describe the way in which elements (people, places, and things) are represented and the visual combinations of greater or lesser complexity and extension. Reading images involves observing in detail to determine the elements that compose it and the way in which ideas and messages are organized for the transmission. That is, it involves relating "figures, shapes, words, colors, textures that appear, in such a way that, when joined, they help to understand and distinguish the visual messages that the author wants to convey" (Barragán et al., 2016, p. 97). In this line, empirical evidence indicates that students acquire several languages and cultures through multiliteracy practices with multimodal design, which significantly favors the learning of English (Rajendram and Govindarajoo, 2016).

The most recent research in the area, given the context of globalization and the predominance of technological means of communication, has been increasingly interested in the educational field. There is research aimed at didactic interventions with multimodal texts. For example, in primary education, Batic and Kac (2020) integrated illustrated books as a multimodal text into teaching fifth-grade students, who at the end of the intervention did not advance in the recognition of multimodal components. Barragán et al. (2016) included the reading of images from advertisements in the intervention of primary and secondary school students, improving their critical thinking skills in this type of text. Hoyos et al. (2020) applied didactic strategies with multimodal texts in seven-year-old students to enhance discursive competence, favoring their development by articulating written, visual, and iconographic expression. Pellicer-Sánchez et al. (2020) worked with multimedia texts with and without audio for text comprehension in young students, evidencing image processing positively related to textual comprehension.

In the Chilean context, research is mostly viewed at the higher education level. The study by Fariás and Véliz (2019) shows that there is disparity in the use of multimodal texts in both English teacher trainers and students in training. Vera (2015) found that students who answered tests with a multimodal format obtained higher levels of reading comprehension in L2 than those who answered only monomodal tests. Roberts and Mayorga (2020) applied an intervention with multimodal texts in the area of mathematics for first-year students of technical careers, which allowed the integration of knowledge from different disciplines and favored reading comprehension. Maldonado et al. (2018) evaluated reading comprehension using the picture book, showing decreased results in the verbal and verbal-iconic dimension.

The study by Espinoza-Gúzman and Bahamondes-Quezada (2020) concludes that teacher training in Chile does not enhance the understanding of advertising texts in the school classroom. At the primary education level, there is research by Meneses et al. (2018) that establishes the significant increase in scientific reading comprehension with multimodal texts in fifth grade students.

## 1.3 Education for cultural diversity

In the context of culturally diverse schools, the teaching of multimodal reading comprehension can be approached from the perspective of intercultural competence (IQ). This has been studied since the end of the twentieth century (Fantini, 2019; Kazykhankyzy and Alagözlü, 2019). And in the literature multiple models are presented. For example, for Deardorff (2020), intercultural competence is oriented towards the ability to interact effectively and appropriately in contexts of cultural diversity. Other authors relate IQ to skills such as awareness of one's own culture, openness, willingness, and the ability to learn and function in new cultures (Lenkaitis et al., 2020). Despite their plurality, they agree that intercultural competence has to do with the human response to multicultural situations (Luo and Ka Yuc Chan, 2022). In the case of second language teaching, Fong and De Witt (2019) focus intercultural competence on multicultural coexistence because it is the cause of many communication problems. In this space, cultural and linguistic differences or different interpretations of communicative behaviour converge between the interlocutors.

From a pedagogical perspective, education in multicultural classrooms is aimed at broadening students' view of other cultures. To do this, the teaching staff must present topics where the student can approach from various cultural points of view. In this way, cultural prejudices can be reduced and students are familiarized with various cultural activities (Mandarani et al., 2024a). Following this line, intercultural competence in the field of research has been most addressed in higher education (Qiu et al., 2024; Heymans et al., 2024; Mardones et al., 2024). For example, according to the study by Banks and McGee Banks (2016), teachers in general find it difficult to relate disciplinary content to cultural issues, arguing that it is not relevant to their discipline. Therefore, they do not orient their disciplinary contents to be related, for example, to ethnic, racial or cultural groups. This is frequently observed in teachers in the area of mathematics and science.

From the didactic field, it is observed that research on reading comprehension and multiculturalism is mostly focused on the teaching of English as a second language. For example, through extensive readings in English as a foreign language, Mandarani et al. (2024b) show that there was integration of content when identifying cultural identity and aspects of the text. In the case of Tristiana et al. (2022), they propose that, with multicultural reading practices, students acquire cultural understanding and at the same time develop reading skills in English as a foreign language.

## 2 Method

### 2.1 Research design

This study uses the quantitative method with a non-experimental and cross-sectional design. Specifically, we sought to obtain evidence

regarding the validity of the content of a didactic proposal, that is, whether the sessions to be developed allow to account for the domains of intercultural competence (Puerta and Marín, 2015) from multimodal reading comprehension in school contexts with integration of migrant students. Escobar-Pérez and Martínez (2008) state that the validity of content varies according to the population in which the proposal will be used, so it is essential to ensure that the components of the proposal (the planned sessions) are relevant and representative of the competence to be evaluated in a particular context. One of the essential requirements for all data collection is validity, referring to the degree of measurement that an instrument intends to measure (Zuluaga et al., 2023). In turn, validity can present different types of evidence, one of them is related to content. There are several methodologies that allow determining the validity of content (Flores et al., 2022), the most commonly used being evaluation by expert judgment; for this reason, it was used in this research.

## 2.2 Participants

A convenience sample of expert judges was used, which included university professionals specializing in the area of language with 5 years or more of experience in the area (Urrutia et al., 2014) and who have at least a master's degree. The literature varies in indicating the adequate number of expert judges for content validation, George Reyes and Trujillo Liñan (2018) state that a predetermined range of judges *a priori* cannot be established, because one of the essential characteristics of judges is that they have motivation for this work and that they want to participate without pressure. In this line, the research was guided by the above and the instrument was sent by email to 20 expert judges, after confirmation of their participation, from which 15 valid responses were obtained (Table 1).

## 2.3 Procedure

The research process was carried out in 4 successive stages. The first stage included an exhaustive review of the literature. To this end, the constituent theoretical bases of the dimensions of the didactic proposal were collected. Subsequently, the theory was divided into three areas: learning content, instructional model and intercultural education perspective. The theoretical bases considered for the contents of the learning were:

- 1 Visual grammar (Kress and Van Leeuwen, 2006) that includes the analysis of morphological elements of the image (dot, line, planto, etc.), dynamic elements of the image (temporality, format, rhythm, etc.) and rhetoric of visual representations (connotation).
- 2 Metacognitive reading strategies (Gutiérrez-Braojos and Salmerón, 2012), according to the moments of reading such as before, during, and after reading (Table 2).

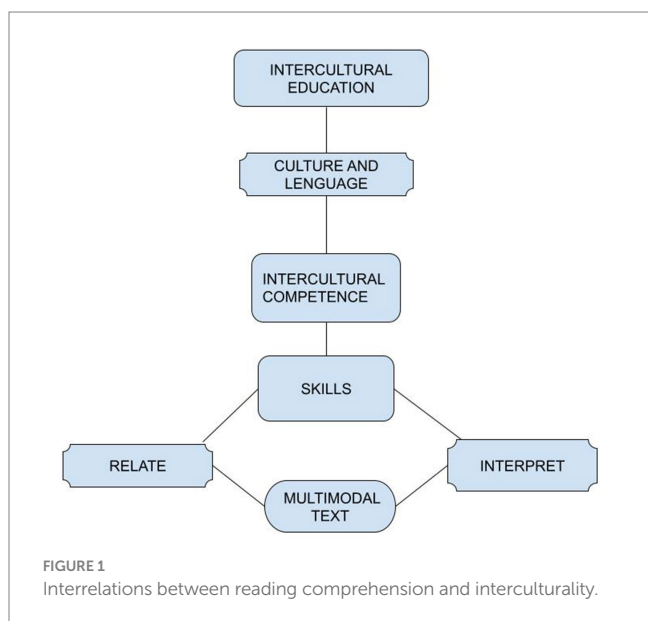
Likewise, the theoretical bases considered for the perspective of intercultural education were framed in the UNESCO Guidelines on Intercultural Education (UNESCO, 2006). This body surveys culture in the educational field. For intercultural education, culture configures the frames of reference, forging the contents that are taught. At this point, culture and language are interrelated. Given this amalgam, from a sociolinguistic perspective it is possible to delve into intercultural competence from reading comprehension. To this end, learning would be aimed at developing the ability to interpret and relate texts from other cultures. In this process, the general frameworks of one's own culture would be used, but moving away from cultural ethnocentrism (Byram, 1997). All this would allow us to discover the allusions and connotations present in the document (Figure 1).

TABLE 1 Description of the expert judges.

Judge	Professional Title	Academic degree	Occupation
1	Spanish Teacher	Master PhD Candidate	University academic
2	Spanish Teacher	Master PhD Candidate	ANID National PhD Fellow
3	Spanish Teacher	Master	University Academic
4	Basic Education Teacher, Language Mention	Master	University academic and professor
5	Spanish Teacher	Master	University Academic
6	Spanish Teacher	Master	Accompaniment in the PACE Program
7	Basic general teacher with a mention in Language and Communication	Master	Consultant
8	Spanish teacher	Doctor	University Academic
9	Spanish teacher	Doctor	University Academic
10	Spanish teacher	PhD Candidate	University Academic
11	Basic General Teacher. Spanish Mention.	Master	Teacher
12	Spanish Teacher	Doctor	University academic
13	Spanish Teacher	Doctor	University academic
14	Spanish Teacher	Doctor	University Academic
15	Basic General Teacher. Spanish Mention.	Master	Academic

TABLE 2 Learning contents of the proposal.

Type of text	Semiotic modes	Metacognitive strategies
Infographic Advertising poster Graphic joke Meme Comic	<ul style="list-style-type: none"> <li>• Linguistic (vocabulary, grammar of the language)</li> <li>• Visual (color, vectors, still or moving image views)</li> <li>• Auditory (Volume, pitch, rhythm of the music, effect of the sound).</li> <li>• Gestural (movement, speed, facial and body expression).</li> </ul>	<p>Before the reading</p> <ul style="list-style-type: none"> <li>• Activation of previous knowledge</li> <li>• Identification of the type of speech</li> <li>• Identification of the purpose of the reading</li> </ul> <p>During the reading</p> <ul style="list-style-type: none"> <li>• Anticipation of textual content</li> <li>• Recognition of the different textual structures</li> <li>• Construction of a mental representation of the text</li> <li>• Supervision of the reading process</li> </ul> <p>After the reading</p> <ul style="list-style-type: none"> <li>• Correct misunderstandings</li> <li>• Develop a global representation of the text</li> <li>• Exercise transfer processes.</li> </ul>



Finally, the theoretical bases considered for the instructional model were the Gradual Transfer of Control of Activity Model (Fisher and Frey, 2013; Pearson and Gallagher, 1983). The model states that in a first phase teachers must carry out direct modeling and instruction. Then perform the scaffolding and guided practice. Finally, the responsibility for learning is given to the students themselves for the development of comprehension tasks (Figure 2).

The second stage provided for the design of the didactic proposal. This considered 12 pedagogical sessions. Its design included practical activities aimed at students that consider different degrees of cognitive complexity according to the levels of comprehension of selected multimodal texts. For this, the didactic criteria provided by the 6th year Basic Study Program of Language and Communication were considered. In each activity, multimodal texts belonging to Latin American countries are analyzed, preferably, to deepen the understanding of the visual meanings and cultural stereotypes presented by the texts. The teacher models the analysis, applying elements of visual grammar and metacognitive reading

strategies. Students replicate the analysis used as part of learning (Table 3).

The third stage considered the design and submission of a Likert scale for validation by expert judges. The fourth and final stage considered the systematization and analysis of the validation of judges on the didactic proposal.

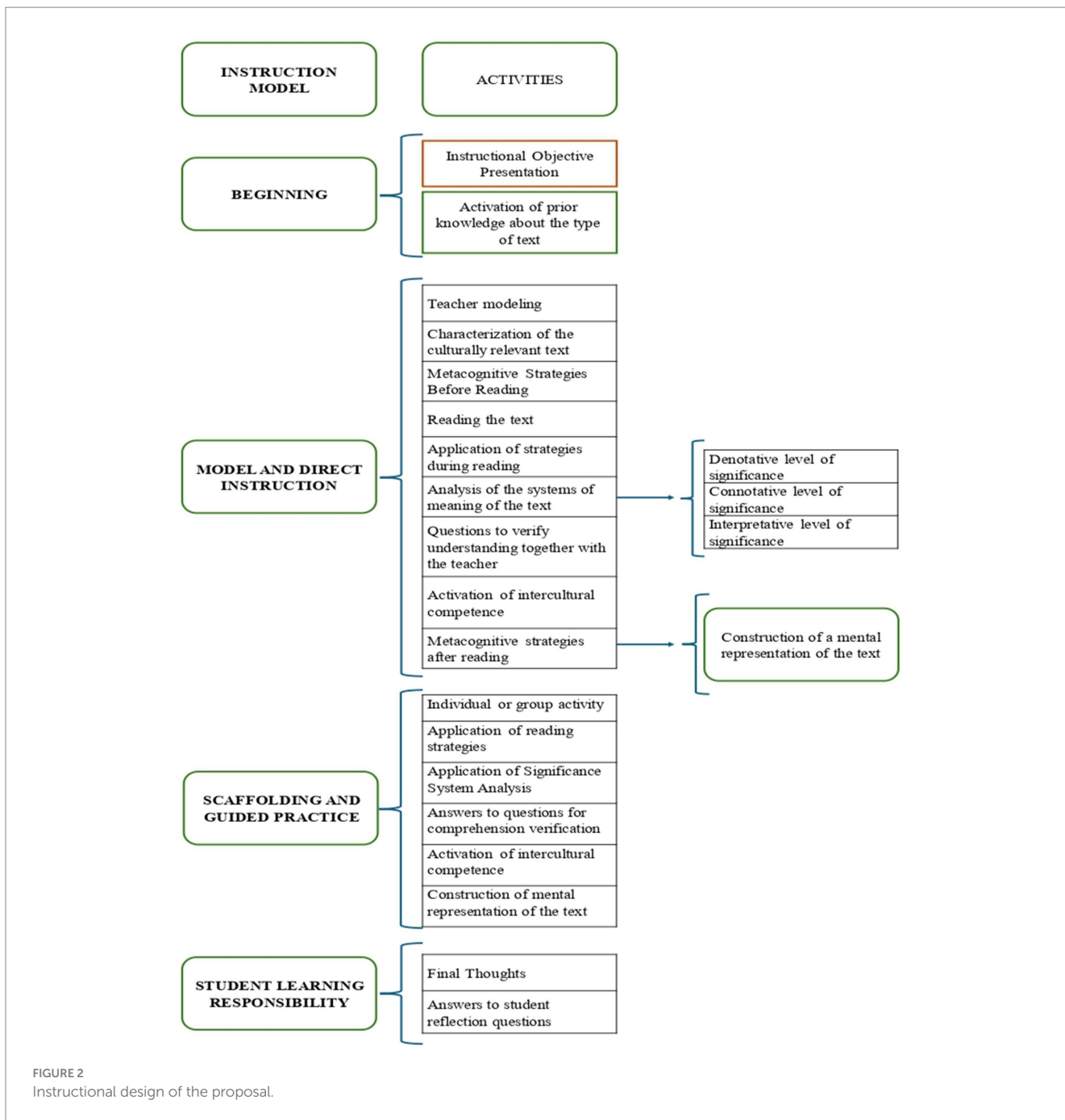
## 2.4 Instrument

Once the group of expert judges was selected, a validation guideline was distributed so that each one could express their degree of agreement in relation to the proposal for the organization of activities to achieve the learning objectives. For this, they were based on the theoretical dimensions that were used in the construction of the proposal. The individual evaluation method was used, where each judge gave his/her opinion to qualify the 12 sessions that make up the didactic device, which were sent via email; the Likert scale used had 3 dimensions:

- Clarity of content: the session is easily understood, has a syntactic and semantics appropriate for the school level to which it is directed.
- Coherence: the session has a logical relationship with the learning objectives to be evaluated and contributes to the proposal as a whole, contributing as a part of the whole.
- Relevance: the organization of the session is appropriate and convenient for the development of the learning that is proposed in the objectives, adapting to the age and educational context to which it is directed.

The judges could rate each dimension according to the options: (1) Disagree, (2) Moderately agree, and (3) Agree; the answers represent an ascending assessment and those left blank were considered within the “Disagree” option. The judges also had the opportunity to deliver their opinions, appreciations or suggestions for improvement in the form of comments.

Then, the judges’ answers were systematized and the statistical analysis was carried out, to obtain the mean and standard deviation of each session in relation to the dimensions in which they were rated.



This made it possible to calculate a Relevance Index for each session, which constituted a first approach to make the decision regarding maintaining or eliminating the sessions that are part of the didactic proposal.

issued in the instrument. The statistical procedures performed were: calculation of the relevance index, Aiken's V and Lawshe's Content Validity Ratio (CVR), which allowed obtaining a content validity index of the device.

## 2.5 Data analysis

A response was obtained from 15 judges, that is, a response rate of 75%. The guidelines were analyzed using three statistical procedures, to analyze the degree of agreement between the opinions of the judges and to make decisions on the maintenance and/or possible modification of the sessions, considering the observations

## 3 Results

### 3.1 Relevance index

Following [George Reyes and Trujillo Liñan \(2018\)](#), to determine the relevance of each of the sessions, the criterion was used that the weighted average of the 3 dimensions of evaluated exceeds 75% of the

TABLE 3 Overview of the sessions.

No	Type of text	Objectives
1	Correction of diagnostic test Infographic Advertising poster Graphic joke Meme Comic	Understand the characteristics of multimodal texts involved in the construction of meaning.
2	Infographic	Analyze an infographic, extracting relevant information and representing it through an outline.
3	Advertising poster	Infer the connotative message of an advertising poster.
4	Advertising poster	Interpret the figurative language used by a person's message advertising poster, substantiating their opinion with information from the text or their previous knowledge in written form.
5	Infographic Advertising poster	Compare the use of linguistic and visual grammar in texts multimodal with informative and argumentative purposes.
6	Comic	To analyse the multimodal textual resources of linguistic and visual grammar for the construction of the message present in a comic.
7	Graphic joke	Analyze the multimodal textual resources of linguistic and visual grammar for the construction of the message present in a graphic joke.
8	Meme	To analyze the multimodal textual resources of linguistic and visual grammar for the construction of the message present in a meme.
9	Meme Graphic joke	Contrast Multimodal textual resources for the construction of the denotative and connotative message present in a meme and graphic joke.
10	Comic Graphic joke	Contrast multimodal textual resources for the construction of the denotative and connotative message present in a comic and graphic joke.
11	Comic Meme Graphic joke	Contrast Multimodal textual resources for the construction of the denotative and connotative message present in three texts different multimodal.
12	Advertising video	Interpret the figurative language used by the message of an advertising video, substantiating their opinion with information from the text or their previous knowledge in written form.

maximum score assigned in the assessment made by the judges; In this case, the maximum possible score was 3 points, so 75% represents a score of 2.25 (Table 4).

In general, all the proposed sessions exceed the proposed evaluation criteria, so they could be maintained as they were designed. However, when calculating the average relevance index of the device, which is 2.62, sessions 3, 11 and 12 are below this average, which will be important to observe in the calculation of the following validation statistics.

### 3.2 Calculation of Aiken's V

According to Merino-Soto (2023), Aiken's V is a statistical coefficient that, based on the assessments of N judges, allows quantifying the relevance of the components of an instrument (device, in this case), with respect to a content domain. It is easy to calculate and interpret, as the result can have values between 0 and 1 and the device will have a higher content validity if the final calculated value is close to 1. Thus, the value 1 indicates a perfect agreement among the expert judges regarding the validity score awarded.

Flores et al. (2022) state that, in order to consider a valid component with a significance level  $p < 0.05$ , Aiken's V values must

be greater than or equal to 0.8. For the dimensions evaluated, first, the average of the results in each session was calculated, the results were: Clarity of Content: 0.91, Coherence: 0.96 and Relevance: 0.95. The three dimensions result in values that account for validity and when averaging the results a figure of 0.94 is obtained, which allows us to conclude that, according to the judges' criteria, the device has content validity.

On the other hand, Aiken's V calculated for the 12 sessions programmed in the instrument, averaging the results obtained in the dimensions, gives a figure of 0.81. This allows us to conclude again that the device, in general, has content validity. However, when reviewing the results of each session, it is possible to affirm that sessions No. 12 (0.71), No. 11 (0.77), No. 8 (0.79), and No. 3 (0.79) need to be reviewed and/or reformulated; being the final sessions, No. 11 and 12, the ones that require the most revision, which coincides with the first finding of the relevance index (Table 5).

To establish which dimensions were the ones that obtained the lowest values, Table 3 was prepared, which allows us to observe the results of the dimensions for each session (Table 6):

In session N°12 the three dimensions evaluated have the same value (0.71); in session No. 11 the relevance dimension is below the average (0.77), so it would be important to review its adequacy to the specific context of application; in session No. 8 the three dimensions

TABLE 4 Calculation of the relevance index for the sessions of the didactic device.

Sessions	Content clarity		Coherence		Pertinence		Average of each session	Is it maintained?
	Stocking	Standard deviation	Stocking	Standard deviation	Stocking	Standard deviation		
Session 1	2,53	0,64	2,80	0,41	2,53	0,74	2,62	Yes
Session 2	2,50	0,52	2,64	0,50	2,71	0,47	2,62	Yes
Session 3	2,50	0,52	2,57	0,51	2,64	0,63	2,57	Yes
Session 4	2,62	0,51	2,77	0,44	2,69	0,63	2,69	Yes
Session 5	2,50	0,52	2,79	0,43	2,71	0,47	2,67	Yes
Session 6	2,64	0,50	2,64	0,50	2,79	0,43	2,69	Yes
Session 7	2,57	0,51	2,57	0,51	2,71	0,47	2,62	Yes
Session 8	2,57	0,51	2,57	0,51	2,57	0,65	2,57	Yes
Session 9	2,64	0,50	2,86	0,36	2,71	0,61	2,74	Yes
Session 10	2,64	0,50	2,79	0,43	2,71	0,61	2,71	Yes
Session 11	2,57	0,51	2,57	0,51	2,50	0,65	2,55	Yes
Session 12	2,43	0,65	2,43	0,76	2,43	0,76	2,43	Yes

TABLE 5 Calculation of the V of Aiken for the dimensions and sessions of the didactic device.

	V of Aiken	Validity
<b>Dimension</b>		
Content Clarity	0,91	It is valid
Coherence	0,96	It is valid
Pertinence	0,95	It is valid
<b>Sessions</b>		
Session 1	0,81	It is valid
Session 2	0,81	It is valid
Session 3	0,79	Invalid
Session 4	0,85	It is valid
Session 5	0,83	It is valid
Session 6	0,85	It is valid
Session 7	0,81	It is valid
Session 8	0,79	Invalid
Session 9	0,87	It is valid
Session 10	0,86	It is valid
Session 11	0,77	Invalid
Session 12	0,71	Invalid

obtain the same value (0.79) which is very close to the critical value for the required level of significance; and, in session N°3, the dimension with the lowest score is that of clarity of content (0.75), so it would be necessary to check if the syntactic and grammar used is in accordance with the school level to which the device is directed.

### 3.3 Content validity ratio

Lawshe’s RVC allows us to know the degree of agreement among the participating expert judges and results in a Content Validity Index (CVI). The RVC can take values from -1 to +1; if it is negative, it is

because the agreement occurs in less than half of the judges; if it is null and void, it is because there are exactly half of the agreements between the judges; and, if it is positive, more than half of the judges agree. In addition, in order for it to be statistically significant at 5% ( $p < 0.05$ ), a table is used that establishes the critical value to be considered according to the number of judges; in this case, since there are 15 judges, the minimum value that the RCV must have is 0.49 (Tristán-López, 2008).

Table 4 presents the results of the RVC by session and dimension, the adjustment proposed by Tristán-López (2008) has been made, which normalizes the values and is represented as RVC’. Finally, for the calculation of the Content Validity Index (CVI), the values of the RVC’ for each session are averaged (Table 7).



TABLE 6 Calculation of Aiken’s V per session of the didactic device and dimension.

Dimensions per session		V of Aiken	Aiken V per session
Session 1	Content Clarity	0,77	0,81
	Coherence	0,90	
	Pertinence	0,77	
Session 2	Content Clarity	0,75	0,81
	Coherence	0,82	
	Pertinence	0,86	
Session 3	Content Clarity	0,75	0,79
	Coherence	0,79	
	Pertinence	0,82	
Session 4	Content Clarity	0,81	0,85
	Coherence	0,88	
	Pertinence	0,85	
Session 5	Content Clarity	0,75	0,83
	Coherence	0,89	
	Pertinence	0,86	
Session 6	Content Clarity	0,82	0,85
	Coherence	0,82	
	Pertinence	0,89	
Session 7	Content Clarity	0,79	0,81
	Coherence	0,79	
	Pertinence	0,86	
Session 8	Content Clarity	0,79	0,79
	Coherence	0,79	
	Pertinence	0,79	
Session 9	Content Clarity	0,82	0,87
	Coherence	0,93	
	Pertinence	0,86	
Session 10	Content Clarity	0,82	0,86
	Coherence	0,89	
	Pertinence	0,86	
Session 11	Content Clarity	0,79	0,77
	Coherence	0,79	
	Pertinence	0,75	
Session 12	Content Clarity	0,71	0,71
	Coherence	0,71	
	Pertinence	0,71	

The values resulting from the RVC’ indicate that the dimension where there were fewer agreements among the judges was that of content (0.53) where sessions No. 2, 3, 5 and 12 obtain values below the minimum stipulated for the number of judges. On the other hand, the IVC values indicate that the degree of agreement among the judges is optimal; however, the situation is repeated that the sessions with the lowest results are the same as in the previous analyses: N°12 (0.51), N°11 (0.53), N°8 (0.56) and N°3 (0.56).

## 4 Discussion

Given the results of content validation of the learning sessions, it is found that a didactic proposal aimed at enhancing multimodal reading comprehension can be obtained by integrating intercultural competence. It is evident that there can be in a didactic proposal the teaching of disciplinary content (multimodal reading comprehension), considering the cultural diversity of the learner (Banks and McGee Banks, 2016). In this way, the didactic proposal is oriented towards the

TABLE 7 Calculation of Lawshe's QVR per session of the didactic device and dimension.

Sessions	Content clarity		Coherence		Pertinence		IVC
	Supervisory board	RVC'	Supervisory board	RVC'	Supervisory board	RVC'	
Session 1	0,20	0,60	0,60	0,80	0,33	0,67	0,69
Session 2	-0,07	0,47	0,20	0,60	0,33	0,67	0,58
Session 3	-0,07	0,47	0,07	0,53	0,33	0,67	0,56
Session 4	0,07	0,53	0,33	0,67	0,33	0,67	0,62
Session 5	-0,07	0,47	0,47	0,73	0,33	0,67	0,62
Session 6	0,20	0,60	0,20	0,60	0,47	0,73	0,64
Session 7	0,07	0,53	0,07	0,53	0,33	0,67	0,58
Session 8	0,07	0,53	0,07	0,53	0,20	0,60	0,56
Session 9	0,20	0,60	0,60	0,80	0,47	0,73	0,71
Session 10	0,20	0,60	0,47	0,73	0,47	0,73	0,69
Session 11	0,07	0,53	0,07	0,53	0,07	0,53	0,53
Session 12	-0,07	0,47	0,07	0,53	0,07	0,53	0,51

learning of contents specific to the discipline of language: types of multimodal texts, metacognitive strategies and elements of visual grammar. But also, communicative competence is inserted from the development of the ability to interpret texts from other cultures.

Every didactic proposal is built with the aim of being applied. However, from the investigative perspective, it is necessary in the first instance to validate its content by expert judges. This is the first step to evaluate and verify the quality, relevance, and effectiveness of the instruments to be used, ensuring that they measure what they intend to measure and that they are appropriate for academic or research use (Flores et al., 2022). According to the results obtained in the 3 methods applied to verify the validity of content based on expert judgment, the proposal as a whole has validity. By verifying the agreement between the opinions of the experts, the indicators show that it can be used for academic or research purposes when it comes to comprehension of multimodal texts, as proposed by Batic and Kac (2020), Barragán et al. (2016), and Hoyos et al. (2020).

However, in order to improve its use and ensure the quality, relevance and effectiveness of the didactic proposal and ensure that it teaches what it intends to teach (comprehension of multimodal texts integrating intercultural competence), it would be necessary to review some of its components. The results of Aiken's V are the ones that provide greater clarity in this regard, since 4 sessions of the device obtain a coefficient lower than the required critical value (sessions N°4, 8, 11 and 12). It is these same sessions that, although they are considered valid in the Relevance Index and in the Content Validity Index (calculated through the RVC), in both tests they obtain a critical value very close to the required critical value. Therefore, it is considered that they should be revised, with the purpose of improving the proposal and ensuring that it can teach more effectively the comprehension of multimodal texts integrating intercultural competence.

To this end, it was proposed to use the comments made by the expert judges in the validation questionnaire. For example, session N°3 aims to infer the connotative message of an advertising poster. For this session, it was suggested to make explicit the levels of inference that were expected to be achieved in student learning. In this way, it would be possible to understand which metacognitive strategies

would be worked on and to be able to evaluate the students' work (Öztürk and Aydogmus, 2021; Pressley and Gaskins, 2006; Babayiğiti, 2019; Gutiérrez-Braojos and Salmerón, 2012).

In the case of session N°8, the objective is to analyze the multimodal textual resources of linguistic and visual grammar for the construction of the message present in a meme. For this session, it was proposed to review the logical sequence of the session's activities to give coherence to the session. In this way, the modeling in the first stage could be clearly evidenced. To then continue with mediation, guided practice and, subsequently, the autonomous activity of the students is developed (Fisher and Frey, 2013; Pearson and Gallagher, 1983).

In the case of session N°11, the objective is to contrast multimodal textual resources for the construction of the denotative and connotative message present in three different multimodal texts. It is proposed to review the possibility of carrying out a more interactive activity or personal work, in which students develop and reach conclusions or critical contributions from a challenging analysis that allows them to broaden their view of other cultures from various points of view. In this way, prejudices can be reduced and familiarized with diverse cultural activities can be reduced (Mandarani et al., 2024a).

Finally, in the case of session N°12, the objective is to interpret the figurative language used by the message of an advertising video, substantiating their opinion with information from the text or their previous knowledge in written form. For this session, it was suggested that the students be given video observation criteria for questioning and subsequent exchange, as well as the activation of previous knowledge about the topic of the text. In this sense, metacognitive strategies would be strengthened before, during, and after reading, making students aware of their own process (Öztürk and Aydogmus, 2021; Pressley and Gaskins, 2006) being able to establish the implicit information that a text possesses and make inferences using their previous experience (Babayiğiti, 2019; Gutiérrez-Braojos and Salmerón, 2012).

Finally, the judges' corrections were aimed at improving the clarity, coherence and relevance of the didactic proposal. Indeed, all

the sessions that presented critical indexes were corrected, according to the suggestions issued by the judges. In this way, it was ensured that the 12 sessions can teach more effectively the comprehension of multimodal texts integrating intercultural competence. In short, the sessions that were adjusted are part of the 12 sessions that make up the final didactic proposal. However, methodological limitations arise in this regard. The Delphi method could have been used to validate the content of the proposal. This technique is characterized by having judges who must give their opinion on more than one occasion, through several rounds until a consensus is reached (Varela-Ruiz et al., 2012). Therefore, the improvements made to the sessions with critical indices would have been made during the consensus process of the experts. Despite that, this method requires a lot of time to carry out, for this reason, it was not considered in the validation process.

As a projection of this research, the didactic proposal is in a first stage with content validity. Then, in a second stage, it can be applied to 6th grade students from schools with integration of the migrant population. This second stage would allow the validation of the 12 sessions, for example, through studies with experimental designs with pre- and post-test. However, despite being only in the first stage, the contribution of this study lies in the design of the didactic proposal that considered basic theoretical aspects to achieve learning in multimodal reading comprehension. The innovation of the proposal lies in establishing the disciplinary dialogue between the cognitive theories of reading comprehension in conjunction with sociocultural theories of reading comprehension. This makes it possible to integrate intercultural competence with the reading environment, identifying elements of cultural identity and aspects of the reading process (Mandarani et al., 2024b). In addition, it is observed that research in the area is mainly oriented in the field of English as a second language. This makes the study a scientific contribution, since its theme is aimed at the comprehension of texts in Spanish as a mother tongue in multicultural contexts.

## 5 Conclusion

Education in Latin America has been impacted by the phenomenon of migration. It has been shown that migrant students have low levels of reading proficiency unlike local students. These differences can cause gaps in access to education. However, little research has been carried out in the area. This makes it necessary to develop the creation of didactic proposals that seek to enhance reading comprehension in multicultural contexts, integrating intercultural competence.

It is essential to point out that it was possible to design and validate the content of a didactic proposal aimed at the development of multimodal reading comprehension, integrating intercultural competence aimed at schools with migrant populations. The proposal has the merit of incorporating intercultural competence that considers the cultural diversity of students. Methodologically, the didactic proposal is validated through a rigorous procedure with a large number of expert judges and establishes three different measures to ensure its validation.

In short, the proposal aims to contribute to the scientific field and to the school reality that Chile presents at this time with the increase in the arrival of the migrant population to the country. In this context, the didactic proposal considers the perspective of intercultural education to be a contribution both to the reduction of the learning gap in reading comprehension and to the recognition of the cultural identity of the students. Therefore, a didactic proposal

is achieved that interdisciplinarily dialogues intercultural competence with text comprehension. This seeks from the research field to contribute to the learning gap, seeking greater inequity in the educational system.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## Ethics statement

The studies involving humans were approved by Committee on Research Ethics in Social Sciences and Humanities, Faculty of Philosophy and Humanities, University of Chile, No. 008/2022. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

## Author contributions

TM: Conceptualization, Formal analysis, Funding acquisition, Investigation, Project administration, Resources, Supervision, Writing – original draft, Writing – review & editing. CS: Conceptualization, Investigation, Supervision, Writing – original draft, Writing – review & editing. DE: Formal analysis, Methodology, Validation, Visualization, Writing – review & editing.

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## Generative AI statement

The author(s) declare that no Generative AI was used in the creation of this manuscript.

## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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