

TOWARDS A MULTIDIMENSIONAL MODEL OF FAMILY–SCHOOL ENGAGEMENT IN EARLY CHILDHOOD EDUCATION: DUAL PERSPECTIVES AND IMPLICATIONS.

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Summary

Family-school engagement is key to holistic development and educational equity in early childhood. This study proposes and empirically evaluates a hierarchical model of engagement, composed of five dimensions: communication-participation, trust-inclusion, learning support, institutional resources, and digital mediation. The objective was to analyze the relationships between these dimensions from a dual perspective (families and teachers) in early childhood education contexts. Participants included 299 teachers and 308 family members from urban early childhood institutions, who completed a validated Likert-type questionnaire. A cross-sectional quantitative design was applied, employing descriptive analyses, internal consistency estimation (Cronbach's alpha), interdimensional correlations, and hierarchical modeling. The findings revealed: (a) high internal consistency across all dimensions ($\alpha \geq .90$), (b) strong correlations between dimensions within each group, (c) a more cohesive perceptual pattern in families, and (d) a greater weight of relational dimensions in the hierarchical model. This study provides empirical evidence and a robust theoretical framework for evaluating engagement in an integrated manner. Its distinctive value lies in offering a useful tool for institutional assessments, pedagogical decisions, and public policies aimed at improving communication, cultural inclusion, and digital equity in early childhood education settings.

Keywords: School–family engagement, Early childhood education, Educational communication, Cultural inclusion, Digital mediation

Introduction

The relationship between family and school has been widely recognized as a key factor in the holistic development of children in early childhood education; however, its understanding often remains at a declarative rather than an analytical level. Although there is consensus that this relationship is “fundamental,” especially in the early years of life, conceptual ambiguity persists regarding what truly constitutes effective collaboration beyond attending meetings or the occasional exchange of information. This partnership in early childhood education forms a central axis of the mesosystem that can enhance socio-emotional development and learning when supported by bidirectional communication, inclusion, and institutional support.

Recent research agrees that family-school engagement cannot be reduced to isolated practices, but rather constitutes a complex, relational, and contextual construct, influenced by dynamics of communication, trust, and mutual recognition (Epstein, 2022; García-Sanz et al., 2021; Paccaud et al., 2021). From this perspective, it is necessary to abandon simplified views of the relationship and move toward models that allow us to understand how this relationship is constructed, perceived, and experienced in everyday practice. This approach opens the door to a deeper examination of family-school engagement as a multidimensional educational phenomenon.

In this context, the early childhood education stage, particularly between the ages of three and five, takes on strategic importance, as it is the moment when the family-school relationship begins to solidify and acquire meaning for both parties. Far from being a peripheral support, the bond at this stage acts as a foundational space where expectations, forms of communication, and feelings of belonging are shaped, influencing subsequent educational experiences.

The family-school relationship in early childhood education is a key element of the mesosystem that can enhance socio-emotional development and learning when supported by bidirectional communication, inclusion, and institutional support. The literature agrees on the multidimensional nature of this theoretical framework and that its impact depends on the type of participation and its alignment with developmental milestones. Furthermore, teachers and families may differ in their assessment of this relationship, making it necessary to incorporate information from multiple sources.

Collaboration as ecosystems in the family and school

Contemporary studies emphasize that the quality of this relationship depends less on the quantity of interactions and more on their coherence, bidirectionality, and relational meaning (Goodall, 2022; Fan & Williams, 2023; Anderson & Rivers, 2023). In this context, the need arises to analyze not only the actions implemented by educational institutions, but also how these are interpreted and experienced by families, recognizing that both perspectives may not fully coincide.

Indeed, one of the most significant contributions of recent research is the identification of a perception gap between teachers and families regarding the degree and quality of family-school engagement. While teachers tend to value institutional efforts positively, families often express a more nuanced and less enthusiastic experience, especially in areas such as digital mediation and

access to support resources. This discrepancy does not imply a negative evaluation by families, but rather a difference between the effort perceived by those making the effort and the experience lived by those receiving it. Recognizing this gap is not only a relevant empirical finding, but also an essential starting point for designing more sensitive theoretical models and assessment tools capable of integrating both perspectives and guiding more coherent and equitable educational practices. This need underscores the importance of analyzing family-school engagement from multidimensional and dual-perspective approaches, such as the one developed in this study.

Family commitment from a multidimensional perspective

The family-school partnership in early childhood education is a key axis of the mesosystem, capable of fostering trust, socio-emotional development, and meaningful learning when structured on principles of bidirectional communication, cultural inclusion, and institutional co-responsibility (Epstein, 2022; Tschannen-Moran, 2024; García-Sanz et al., 2021). Recent research agrees that it is a multidimensional construct, whose manifestations vary according to pedagogical practices, digital mediation, and the perceptions of the stakeholders (Anderson & Rivers, 2023; Zañartu & Pérez, 2025). Furthermore, there is evidence that the assessment of this partnership by teachers and families can differ significantly, justifying the need to incorporate multiple informants to capture a comprehensive and situated view of the phenomenon (Paccaud et al., 2021; Fan & Williams, 2023). This perspective allows us to move towards more complex models that transcend the traditional view of parental involvement as unidirectional and merely in-person, laying the groundwork for more robust and contextualized analytical approaches. This complexity is precisely what the present study explores by proposing and validating a hierarchical model of family-school engagement from a dual perspective.

Despite the consensus on the importance of family-school engagement in early childhood, methodological fragmentation persists in its evaluation, commonly focusing on a single informant or isolated dimensions of the phenomenon (Hernández-Prados et al., 2023; Santos Urbina et al., 2025). Several studies warn that families' perceptions are often underrepresented in the design of school policies and that their assessments may contrast with those of teachers, especially in culturally diverse or digitally mediated contexts (Puccioni et al., 2022; Park & Beuckelaer, 2023). In this regard, recent analytical frameworks have begun to incorporate more symmetrical participation models, guided by the principle of shared responsibility (Goodall, 2022; Kim, 2025). In light of these advances, this article proposes an original contribution: a second-order hierarchical model constructed and validated from a dual perspective, using simultaneous data from teachers and families at the early childhood level. This model allows for measuring engagement across five key dimensions and also contrasting patterns of perception, affinity, and divergence among the stakeholders. This approach enables the refinement of institutional diagnoses and provides empirical evidence for the design of more integrative and contextually sensitive strategies.

Dual perspective: families and teachers

Analyzing family-school engagement from a dual perspective has gained relevance in contemporary research, as it allows for the identification not only of levels of participation but also of discrepancies in the interpretation of that participation among key actors in the educational process (Paccaud et al., 2021; Park & Beuckelaer, 2023; Santos Urbina et al., 2025). While teachers tend to evaluate their actions based on effort and the implementation of strategies (input), families judge the relationship based on the perceived impact on their daily experience (output), which can generate systematic perception gaps (Fan & Williams, 2023; Zañartu & Pérez, 2025). This divergence is accentuated in aspects such as digital mediation, the visibility of institutional resources, and the quality of dialogue, where families' scores tend to be significantly lower, despite sharing the importance of the same pillars. Incorporating both voices simultaneously not only adds ecological validity to the analysis of the link, but also enables a more nuanced understanding of the phenomenon, which serves as a basis for the design of collaborative models tailored to the real experience of those who make up the educational community.

Although teachers and families generally agree on the importance of building a collaborative and respectful relationship, recent research reveals that both groups use different interpretive frameworks to evaluate this collaboration, which can lead to a disconnect between perceived effort and actual impact (Erdem, 2021; Lau & Lee, 2021; Pölzl-Stefanec, 2025). Teachers tend to approach family involvement from an organizational perspective, where the implementation of resources, platforms, or communication spaces represents the fulfillment of their institutional role (Prado, 2025; Santos Urbina et al., 2025).

In contrast, families evaluate the quality of the bond through subjective experiences: feeling welcomed, having an active channel of communication, and perceiving concrete responses to their needs or concerns (Fan & Williams, 2023; Hajhashemi et al., 2024). This divergence, however, does not imply opposition: recent studies show that there is a shared structure in how both groups experience the dimensions of commitment, which enables the construction of common reference models that harmonize perspectives without hierarchizing them. Based on this premise, the present study proposes a hierarchical architecture based on five functional dimensions, empirically observed through a multigroup factor analysis approach.

Communication and trust between teachers and families

The true essence of learning emerges when the school and home environments connect through communication rooted in empathy and sincerity. As researchers like Garbacz et al. (2022) and Sheridan et al. (2021) emphasize, simply sharing information is insufficient; active listening and emotional validation are essential, transforming the school into a space of mutual trust. This relationship is strengthened when educators move beyond simply transmitting information and become facilitators who encourage families to participate in decision-making (Kim & Hill, 2024). In this regard, Thompson et al. (2023) note that the quality of interaction and the recognition of each family's uniqueness are the pillars that foster a genuine sense of belonging and a shared commitment to children's well-being.

However, this connection largely depends on the educator's internal perspective and their willingness to see parents as valuable partners. According to Georgiou (2022) and Hornby and Lafaele (2023), teachers' beliefs and biases act as filters that can either facilitate collaboration or

create barriers of mistrust. When educators feel confident in their communication skills and view family diversity as an asset, more inclusive and humane environments are created. Therefore, changing the relationship between families and schools requires teachers to examine their own attitudes, moving from rigid approaches to more inclusive practices where a passion for teaching and respect for the home always go hand in hand.

Bonds of trust for educational inclusion.

Building a truly welcoming school stems from valuing diversity and having the courage to break down the walls of indifference. As researchers like Boonk and Gijsselaers (2022), Minke and Beveridge (2023), and Epstein (2023) have argued, trust is not an automatic outcome, but rather a bond that is nurtured daily when teachers see families as valuable partners, not just passive observers. This connection deepens through genuine, non-judgmental dialogue, where validating family concerns becomes the bridge that unites both worlds for the benefit of children's well-being. When institutions foster an authentic collaborative structure, the school ceases to be a cold building and transforms into a supportive community where every family feels their voice carries real weight in school life.

This social fabric requires an ethical sensitivity that recognizes the richness of diverse family realities. Along these lines, authors such as Khalifa et al. (2024), Souto-Manning (2022), and Ishimaru (2024) emphasize that true inclusion arises when educators embrace flexible pedagogy and relational leadership that balances power imbalances. By adopting a reflective approach and avoiding rigid parenting models, teachers cultivate an environment of justice and respect. Within this framework, it is important to emphasize the need to strengthen teacher training in communication and empathy skills, as current evidence suggests. This is the key strategy to ensure that the school-family relationship is a sustainable space for dialogue, where human warmth and professional ethics always go hand in hand.

Teacher's perspective on the use of digital tools.

The integration of technology in early childhood centers goes beyond the technical dimension, becoming a bridge that humanizes early learning and strengthens the emotional connection between the child and their surrounding environment. According to authors such as Koehler and Mishra (2009), Tondeur (2018), and Schindler (2017), true quality at this stage arises from the harmony between play, educational content, and digital resources, where the teacher acts as an architect of flexible spaces that follow the rhythms of development. This approach, further developed by Redeker (2019) and Falloon (2020), uses digital tools to personalize educational support and maintain an empathetic presence that celebrates the diversity of each child. Thus, technology does not replace hugs or physical contact, but rather enhances them, allowing early childhood educators to strengthen their professional identity through networks that promote equality and active learning for every child.

In the long term, the digital transformation of early childhood education makes sense when it becomes a strategic ally in breaking down the barriers between preschool and home and fostering genuine co-responsibility in parenting and pedagogy. The ethical use of digital tools, as demonstrated by Instefjord and Munthe (2017), Trust (2018), and Bond et al. (2020), transforms

virtual communication into a space of tenderness and trust, where families feel like essential partners in the educational process. The challenge for early childhood educators is not only digital but also deeply connected: it involves building communities where transparency and the validation of family feelings ensure holistic well-being.

The role of the family in supporting learning.

Currently, reflecting on the relationship between family and school is crucial, especially given the growing concern among many families about supporting their children's learning. Family realities are diverse and, in many cases, complex. As Petit (2022) points out, when the struggle for survival, work demands, depression, or displacement occupy the daily lives of parents, especially mothers, providing educational support becomes a difficult task to sustain.

The relationship between family environment and academic performance has been extensively studied, demonstrating that a stable, affectionate, and supportive family climate contributes significantly to students' academic success (González-Pienda et al., 2002). However, this support cannot be understood as an isolated responsibility of the family, but rather as a process conditioned by the life circumstances they experience.

In conclusion, family support in children's learning will be more effective to the extent that families are able to cope with, or receive support in overcoming, the personal, social, or emotional difficulties they face. Only then, with serenity of heart and clarity of reason, can they contribute significantly to their children's emotional and intellectual development.

Being a teacher today: perspectives that influence learning

Family involvement is a fundamental pillar in children's development and learning, especially during early childhood, when early educational experiences lay the foundation for holistic development. Various studies have indicated that this involvement is not limited to isolated or one-off actions, but rather is built upon constant and meaningful interaction between home and school. Within this framework, collaboration between families and teachers plays a central role in the quality of educational processes.

Coba-Rodríguez et al. (2020) characterize family participation as a complex construct that integrates both the support provided at home, such as shared reading or assistance with homework, and direct involvement in school through attendance at meetings, events, and educational activities. Likewise, collaboration between teachers and parents is recognized as an essential characteristic of quality early childhood education and care (ECEC), as it fosters coherence among the educational contexts surrounding the child (Siraj et al., 2003).

In summary, family involvement is a multidimensional phenomenon that combines support at home with active participation in school life. Effective collaboration between teachers and families thus emerges as a key component for ensuring quality early childhood education and care, promoting more coherent, inclusive learning environments focused on the child's overall well-being.

Institutional resources with a family perspective

Institutional resources are a key element in the relationship between families and educational and intervention systems, especially when analyzed from the perspective of those who use them directly. Recent research highlights that these resources acquire true meaning not only through their formal existence but also through how they translate into everyday, family-centered practices based on trust, communication, and ongoing professional support.

Along these lines, Guillot-Valdés et al. (2025) point out that institutional resources are valued by families when they are implemented through practices that promote a close and collaborative relationship with professionals. Similarly, Montaña-Merchán et al. (2025) demonstrate that these resources are more effective when family-centered practices are developed in natural environments, fostering active participation and meaningful learning in everyday life. Likewise, Bagur et al. (2024) highlight that families identify as key institutional resources those services that respond in a coordinated, accessible, and sensitive manner to the specific needs of their children, strengthening inclusion and trust in the educational and social system.

Taken together, the reviewed studies demonstrate that institutional resources are valued positively by families when they are presented in a consistent, accessible manner, tailored to their specific circumstances, and when they promote active participation in everyday contexts. This family-centered approach not only strengthens inclusion processes but also builds trust in institutions, fostering more coherent, sustainable, and humanized educational and social interventions.

The teacher and their perspective in the construction of learning

The teacher's perspective is an essential component for understanding the quality of educational processes, given that their daily practice is shaped by the curriculum, their level of professional development, and the available institutional support. In this context, recent research underscores the close relationship between the actual conditions of curriculum implementation, educational inclusion, and ongoing professional development as key factors in teachers' work. In this regard, Reid and O'Leary (2025) point out that curriculum quality, from a teacher's perspective, depends not only on the materials themselves, but also on the conditions that allow for their faithful and pedagogically sound application. Similarly, Darwish (2025) emphasizes that inclusion processes are strengthened or weakened in the classroom depending on the teacher's level of preparation and the available institutional support, such as resources, training, and practical guidance. For their part, Bayraktaroğlu and Cevher Kalburan (2025) demonstrate that when continuing professional development is directly linked to daily practice, teachers redefine their professional role and transform creativity into an intentional pedagogical strategy, rather than simply viewing it as a spontaneous talent.

In summary, the studies analyzed demonstrate that the effectiveness of teaching practice depends on the coherence between a relevant curriculum, adequate institutional support, and ongoing professional development processes aligned with classroom realities. When teachers have access to resources, guidance, and professional development opportunities, they can strengthen inclusive and high-quality practices, contributing significantly to the improvement of educational processes.

Method

This study employs a quantitative, non-experimental, cross-sectional, and correlational design to analyze the hierarchical structure of family-school engagement in early childhood education. It follows the structural equation modeling (SEM) approach, based on the guidelines of Kline (2023), Ramírez-Montoya (2021), Byrne (2022), Hair et al. (2021), Schumacker and Lomax (2022), and Brown (2023), who all emphasize the potential of SEM to validate complex theoretical models in educational contexts. This approach allows for testing relationships between observed dimensions and second-order latent factors, thus strengthening the analysis of engagement as a multidimensional construct.

Participants and sampling

The sample consisted of 607 participants: 299 teachers and 308 family members from early childhood education institutions in urban settings. A non-probability convenience sampling method was used, based on institutional access and the voluntary participation of the participants. Heterogeneity was ensured with respect to type of institution, educational level, and teaching or parental experience.

Tools

A Likert-type questionnaire, ad hoc for both teachers and parents, was used to measure five dimensions of engagement: COM: Communication-Participation; CLI: Trust-Inclusion; APA: Learning Support; RSI: Institutional Resources; and DIG: Digital Mediation. A 5-point Likert scale questionnaire (1 = strongly disagree, 5 = strongly agree) was used, composed of five subscales derived from a previous theoretical model of family-school engagement. Each subscale included between 4 and 6 items. The instrument's construction considered recent psychometric recommendations (Zinbarg et al., 2022) and was validated through expert review. Internal consistency was assessed using Cronbach's alpha coefficient, yielding values greater than $\alpha = .85$ for all subscales. In addition, exploratory factorial validity tests (EFA) were applied with maximum likelihood extraction and varimax rotation, confirming the five-dimensional structure with loadings $> .40$.

The instrument was validated using confirmatory factor analysis (CFA) and showed high internal consistency (Cronbach's alpha $\alpha \geq .90$). Each item was formulated using inclusive language and adapted to childhood contexts.

Procedure

After obtaining institutional permissions, the questionnaires were administered in both digital and paper formats, at times convenient for each group. The data were coded and analyzed using SPSS. Additionally, the Python programming language (version 3.11) was used for visualizing results, creating statistical graphs (correlation matrices, SEM models, and radial maps), and automated data processing. Specialized libraries such as pandas, seaborn, matplotlib, and semopy were used, enabling clear, reproducible, and high-resolution representation of the figures, aligned with the editorial standards of indexed scientific journals. Confirmatory factor analysis (CFA) was applied prior to SEM, followed by a second-order hierarchical model with robust maximum likelihood estimation (MLR).

Data analysis

The analyses included descriptive statistics, Pearson correlations, internal consistency (Cronbach's alpha), and SEM modeling. The following fit indices were reported: CFI, TLI,

RMSEA, and 90% CI, following the recommendations of Hu and Bentler (1999). All tests were bicaudal with a significance level of $p < .05$. Following the recommendations of Tabachnick and Fidell (2019) for exploratory studies with psychometric scales

Ethical issues

This study was conducted in accordance with ethical principles of confidentiality, informed consent, and data protection. Participation was voluntary and unpaid, and data anonymity was guaranteed. The instruments did not collect sensitive information, and contact channels were provided to address any questions or withdraw participation at any time. The survey was administered digitally with prior informed consent. The study's objective, the confidentiality of responses, and the anonymous nature of the data processing were explained. Items were grouped into dimensions a priori using semantic and conceptual criteria, and no factor analysis was performed at this stage. Data collection was conducted in a single session for each participant.

Results

Los resultados se organizan para proporcionar un relato empírico coherente de la participación familiar y escolar en la educación de la primera infancia desde las perspectivas de las familias y los maestros. En primer lugar, se comparan las percepciones de las partes interesadas a través de las cinco dimensiones de acoplamiento (Fig. 1). En segundo lugar, se examinan las asociaciones entre las variables sociodemográficas y las dimensiones de acoplamiento (Fig. 2). En tercer lugar, la estructura interna de la construcción se explora a través de correlaciones interdimensionales para familias y maestros por separado (Figs. 3–4). Finalmente, se estima que un modelo jerárquico de segundo orden sintetiza estas relaciones y representa el compromiso como una construcción latente integrada (Fig. 5).

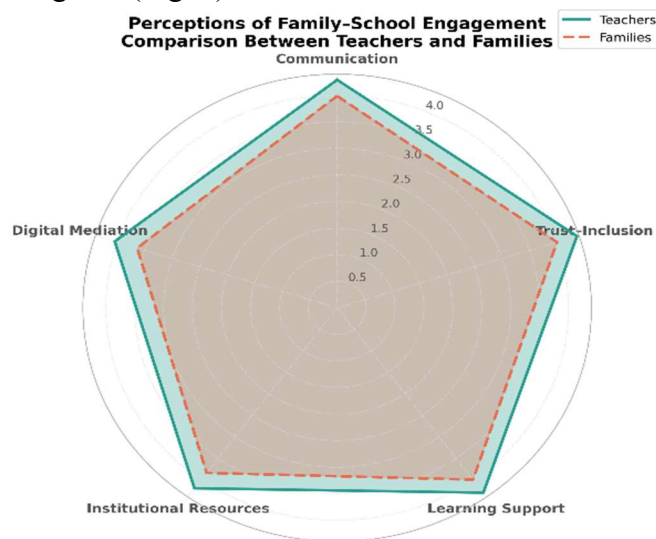


Fig.1 *Perceptions of family-school engagement among teachers and families*

The perception of engagement varies depending on the role of the educational stakeholder, with families exhibiting a more unified and cohesive conceptualization compared to teachers. This trend is visually evident in the radar chart, where families' scores show less dispersion across the

five dimensions, suggesting a more integrated representation of school involvement. Sheridan et al. (2021) argue that families tend to conceive of engagement holistically, while teachers fragment it into operational tasks. Similarly, Knopf and Swick (2022) highlight that parental involvement is mediated by lived and affective experiences, unlike the institutionalized view that predominates among educational professionals. This visualization reveals how divergent mental models of engagement coexist and underscores the need for training programs that align both perspectives to strengthen school-family collaboration.

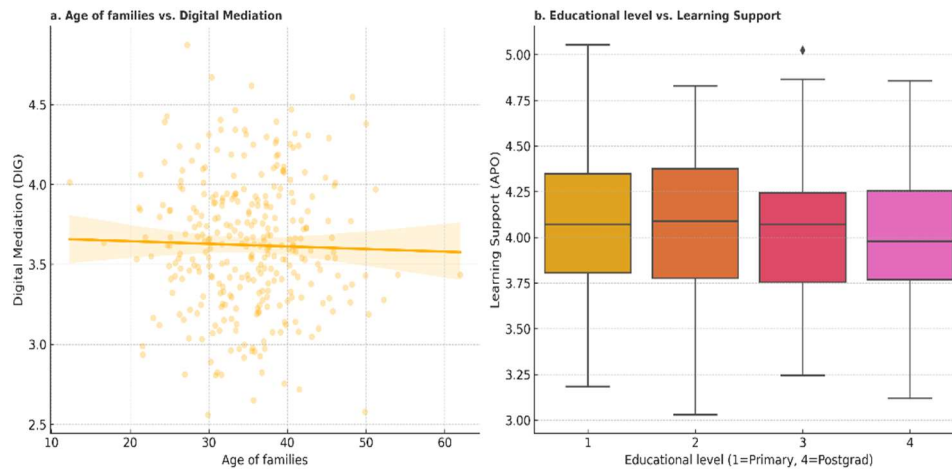


Fig. 2 Relationships between sociodemographic variables and engagement dimensions.

Sociodemographic variables show differentiated effects on the dimensions of engagement, revealing subtle yet relevant patterns. On one hand, the age of families exhibits a weak negative trend with digital mediation, suggesting that older participants report lower confidence or use of educational technologies. This finding is depicted in the scatterplot (panel a), where the regression line shows a slight downward slope. Rodríguez et al. (2023) and Kim et al. (2021) argue that generational gaps influence technology adoption, which may limit digitally mediated parental engagement. On the other hand, educational level appears positively associated with learning support, as shown in the boxplot (panel b), where families with university or postgraduate education report higher involvement. This pattern aligns with previous studies indicating that parents with greater cultural capital tend to engage more actively in schooling processes (Fan & Yan, 2022; Castro et al., 2021). These findings call for differentiated strategies based on sociodemographic profiles to promote equity in family engagement opportunities.

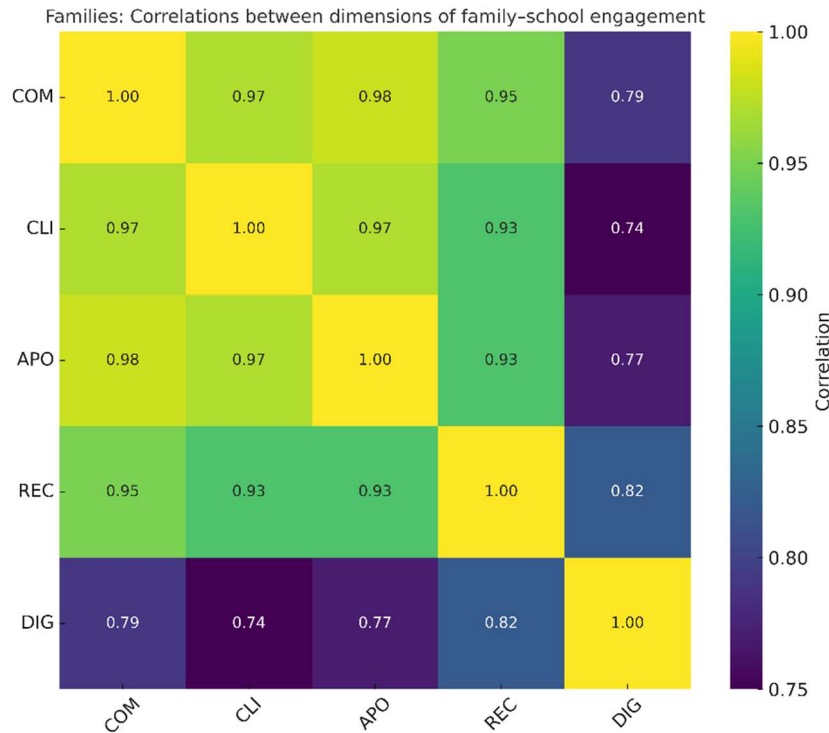


Fig. 3 Families: Correlations between dimensions of family-school engagement.

Families perceive school engagement as a highly integrated construct, where relational-communicative and pedagogical-institutional dimensions are strongly interconnected. This finding is supported by the very high correlations between Communication-Participation, Trust-Inclusion, and Learning Support ($r \geq .97$), indicating a coherent and cohesive response pattern. This relational structure is aligned with theoretical models such as Hoover-Dempsey et al. (2022), who argue that the effectiveness of family participation depends on the interplay between school environment, openness to collaboration, and mutual respect. Recent studies have also shown that institutional trust acts as a key mediator in strengthening home-based learning support (Zhang & Grolnick, 2023; Bakker & Denessen, 2021). In this context, families seem to experience engagement holistically, viewing communication channels, trust, institutional backing, and learning monitoring as interdependent. This supports the use of a hierarchical engagement model.

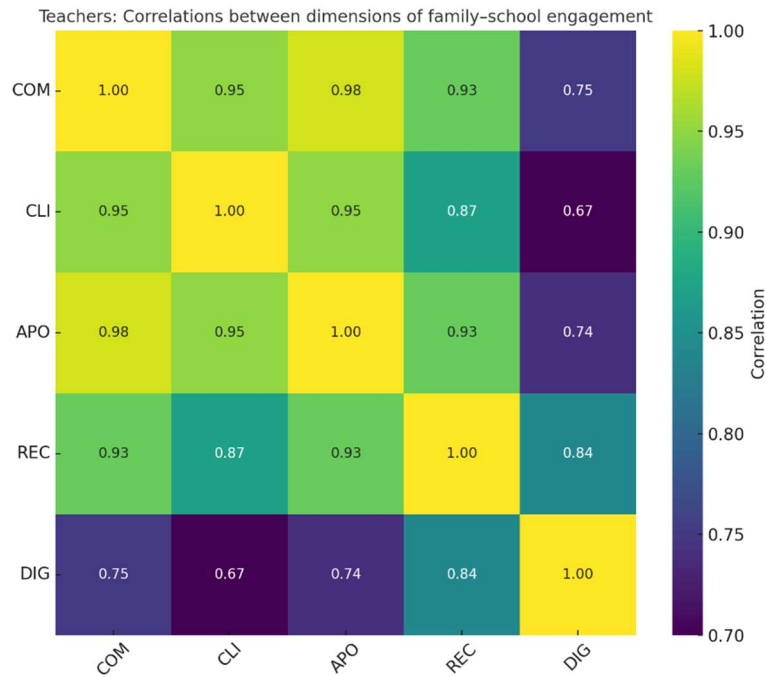


Fig. 4 Teachers: Correlations between dimensions of family-school engagement

Figure 4 reveals strong interrelationships among the dimensions of family-school engagement from the teachers' perspective. The highest correlation was observed between Communication-Participation and Learning Support ($r = .98$), indicating that active communication is closely associated with monitoring children's learning. Similarly, Trust-Inclusion showed high correlations with both dimensions ($r = .95$), reaffirming the central role of mutual trust in educational collaboration. However, Digital Mediation showed lower correlations—particularly with Trust-Inclusion ($r = .67$)—suggesting that technological integration has not yet become established as a key component in building pedagogical relationships. These findings align with research highlighting the emerging nature of digital inclusion in early childhood education (Ritzhaupt et al., 2022; García-Martín & Cantón-Mayo, 2023). Overall, the teaching staff conceives of the commitment as a hierarchical structure centered on communication and learning, with digital aspects still in the process of integration.

Hierarchical model of family-school commitment.



Fig 5. Hierarchical model of family-school commitment.

A hierarchical (second-order) model is proposed in which a general family–school engagement factor explains the covariation among five specific components: (1) COM, (2) CLI, (3) APO, (4) REC, and (5) DIG. Functionally, COM enables agreements and feedback; CLI operates as a relational condition (welcoming, respect, and inclusion); APO links the home–school alliance to learning; REC translates institutional policy into concrete support; and DIG extends continuity and access through technological tools.

The structural analysis reveals that family–school engagement functions as a second-order hierarchical construct, supported by two integrative axes: one relational–communicative and the other pedagogical–institutional. This finding is reflected in the high factor loadings linking the general engagement factor to Communication–Participation ($\lambda = .87$) and Learning Support ($\lambda = .87$), indicating that these components not only reflect engagement but structurally shape it. The validity of the proposed model is theoretically grounded in Hair et al. (2021), who emphasize the utility of hierarchical SEM in identifying higher-order latent factors that organize interdependent dimensions. Likewise, Ramírez-Montoya (2021) and Byrne (2022) argue that such modeling approaches capture the complexity of educational phenomena by accounting for both structural elements and contextual interactions. The resulting model contributes to the field by offering an integrated, precise, and empirically validated representation of family–school engagement, suitable for institutional diagnosis and the design of evidence-based interventions.

Discussion

Understanding family-school engagement as a hierarchical and integrated system is a key contribution, allowing us to conceive of this construct not as a set of isolated dimensions, but as a functional structure that articulates multiple components. Correlations between dimensions of engagement, as perceived by teachers, show how teachers strongly associate Communication–Participation with Learning Support, within a coherent structure that families perceive as even more cohesive. This configuration aligns with Epstein (2022), who argues that the school-family relationship should be understood as a systemic process expressed through interrelated channels.

Along the same lines, Mapp (2022), Goodall (2022), and Kim (2025) emphasize that the effectiveness of engagement lies in its structural coherence. These findings underscore the need to design engagement strategies based on a holistic and continuous logic, moving beyond fragmented approaches or isolated events.

The incorporation of digital mediation as a structural dimension of the hierarchical model presents an emerging challenge, given its partial integration into the dynamics of trust and collaboration. Furthermore, correlations between dimensions of engagement across families show that this dimension exhibits lower correlations, especially among teachers, suggesting that technology is not yet fully integrated into engagement practices. Recent studies reinforce this interpretation: Ritzhaupt et al. (2022), Baughan et al. (2024), and Erdem (2021) point to persistent barriers to educational digitalization in early childhood, including gaps in access, cultural understanding, and relational dynamics. This finding implies that the digital dimension must be cultivated intentionally, with strategies focused on equity, inclusion, and contextual relevance.

The dual perceptions of teachers and families constitute another relevant contribution. The Family-School Engagement Model from a dual perspective reveals that families tend to report more cohesive and less fragmented perceptions than teachers. This gap has been documented by Paccaud et al. (2021), who identify differences in expectations according to role; Fan and Williams (2023), who emphasize the influence of prior experiences of participation; and Santos Urbina et al. (2025), who highlight cultural and emotional factors that shape these perspectives. These findings encourage the development of multivocal assessment frameworks that value interpretive diversity and promote collaborative improvement processes.

The empirical validation of the hierarchical model using SEM represents a valuable methodological and applied contribution. The hierarchical SEM model of family-school engagement allows for the operationalization of engagement as a second-order construct, consistent with the approaches of Hair et al. (2021), Ramírez-Montoya (2021), and Byrne (2022), who advocate structural modeling as a way to address complex educational phenomena. This model not only provides analytical rigor but also practical value: it enables more precise institutional diagnoses and guides interventions focused on areas of weakness. In short, the model offers a validated and useful framework for educational decision-making, school improvement, and evidence-based teacher training.

Conclusion

This study addressed the objective of proposing and empirically validating a hierarchical model of family-school engagement in early childhood education, structured around five key dimensions: (a) Communication-Participation, (b) Trust-Inclusion, (c) Learning Support, (d) Institutional Resources, and (e) Digital Mediation. The results support the existence of a second-order factor integrating these dimensions, as evidenced by high interdimensional correlations and robust factor loadings in the structural analysis. Furthermore, families exhibited a more cohesive perception of engagement compared to teachers, reinforcing the need for dual and multivocal approaches in evaluating school-home interventions. This finding expands the field by demonstrating that engagement can not only be measured as a complex construct but also functionally modeled based on empirical data and solid psychometric criteria.

From an applied perspective, the findings inform the design of school improvement strategies and teacher training programs grounded in evidence. The integration of emerging dimensions such as digital mediation creates opportunities to modernize participation frameworks, while also posing challenges related to technological equity and the cultural meaning of digital practices. Consequently, the proposed model provides a valuable tool for institutional diagnosis, the planning of targeted interventions, and the formulation of more inclusive public policies. In research, this model opens new lines of inquiry into contextual factors that enhance or weaken engagement, as well as its relationship with educational outcomes, child well-being, and school cohesion.

Finally, this work contributes both theoretically and methodologically to the study of educational engagement in early childhood. By incorporating dual perspectives and a hierarchical structure validated through SEM, it offers an empirically grounded representation of the phenomenon, aligned with international trends in comprehensive educational assessment. Future research may build on this framework through longitudinal studies, multicultural comparative designs, and mixed-methods approaches that include the voices of diverse stakeholders. Likewise, the model can be adapted to other educational levels and school contexts to explore its generalizability and its potential as a transformative tool in fostering meaningful family–school partnerships.

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