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Determinants of Parental Engagement in Education Within the Chilean Psychosocial Family Context

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Abstract: Background/Objectives: Parental engagement is critical to child development and well-being, as it influences children's health, learning and key life decisions. This engagement is strengthened through trusting relationships between families and professionals and is enhanced by interventions such as home visits and co-occurring therapies. However, factors such as household structure, educational level, school-family communication and social conditions such as migration can affect its level. This study analyzes how these variables are related to the degree of parental engagement in the educational process. **Methods**: This study analyzes 1432 responses from adults in Chile on the International COVID-19 Impact on Parental Engagement Study, using univariate and multivariate analysis to psychometrically validate the scale used, and identifying significant relationships between parental engagement factors and sample characteristics using nonparametric statistical methods. **Results**: A factor analysis was performed that identified two dimensions (social learning for parenting and parenting in homeschooling) from 8 valid items, with good fit and validity indicators, revealing significant associations between social learning for parenting and variables such as family structure and school-home communication on the learning plan, and parental engagement and the variables child´s age, school-home communication on the learning plan and parental engagement time **Conclusions**: This study demonstrates that parental involvement in learning at home is a relational social process conditioned by school-family communication, which requires co-responsible and inclusive educational approaches to promote equity.

Keywords: parental engagement; school-family communication; digital social learning; family structure; educational equity

1. Introduction

Parental engagement is fundamental to achieving good outcomes in child support, child welfare and education programs. This engagement is based on a collaborative relationship between parents and professionals, such as home visitors, social workers or educators, and is built on trust, open communication and mutual respect. In home visiting programs, for example, home visitors learn about the culture and needs of families, adapting their approach to each situation [1,2]. In the field of child well-being, the creation of a supportive and trusting environment is crucial, especially in sensitive situations such as child protection assessments, as negative attitudes or lack of trust can

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hinder the process [3]. In the educational context, engagement can be more challenging for parents of children with disabilities, such as autism, due to marginalization and lack of support, highlighting the importance of creating inclusive and collaborative environments [4]. In summary, successful interventions depend on a relationship based on trust, understanding and effective communication [5].

Parental engagement also has a profound impact on child development, spanning key areas such as health and important decision-making. Studies show that parental involvement is essential for child well-being. In Japan, excessive screen time in children was found to be related to parental internet use and lack of clear rules, highlighting the importance of being involved in regulating this behavior [6]. In the United States, open communication between parents and children about substance use reduces risks, although it has declined, especially in low-income families, highlighting the need to promote more conversations about substance use [7]. In school eye health programs, parental involvement is crucial to educate about eye care, benefiting children's health and academic performance [8]. In India, parental involvement in issues such as their adolescent daughters' school performance and personal relationships helped delay marriage, allowing girls to choose their husbands, showing how parental involvement supports important decisions [9]. Finally, in studies on child development, the participation of parents, although not always accurate, was fundamental and complemented by expert verification [10]. In conclusion, parental involvement is essential for the holistic development and future well-being of children.

In addition, parental involvement is key to the development and success of children, both in the therapeutic and educational settings. In interventions such as Parent-Child Interaction Therapy (PCIT), it has been shown that therapists' interaction with parents influences children's progress. Those parents who received more responsive feedback acquired skills faster and were less likely to drop out of treatment [11]. This support was also critical in the educational context during the COVID-19 pandemic, when parental involvement in learning at home improved school performance, being mediated by factors such as parental psychological control [12]. In therapies such as DIR/Floortime for children with autism spectrum disorder (ASD), parental engagement to the implementation of therapy at home favored child development [13]. However, parents of children with ASD face additional challenges, such as isolation in schools, which makes it more necessary to strengthen partnerships with educators for effective parental involvement [4]. Thus, parental involvement is essential to the well-being and success of children in any context.

Parental involvement in their children's education is essential to their academic success, but factors such as immigration status and English proficiency often hinder their involvement, especially in low-income Hispanic families. Despite the barriers, these parents see their role as crucial, focusing on helping their children learn and guiding them in respect and behavior [14]. Programs such as Head Start show that the relationship between the race and ethnicity of the teacher and child can improve parental involvement, reduce absences and encourage greater engagement [15]. In addition, it is important that teachers establish close relationships with families and recognize their diversity, as reflected in educational policies [16]. This joint effort is crucial in difficult contexts, such as in schools for children with special needs, where family support significantly impacts learning outcomes [17]. In crisis situations, such as the COVID-19 pandemic, parental involvement becomes even more important, as seen in Uganda, where actively involved families helped their children to continue learning, even in resource-poor rural areas [18]. This underscores that, despite the challenges, parental involvement remains key to educational success.

Parental engagement is essential for children's well-being and development, and one of the most effective approaches to fostering it is social learning for parenting. This model is based on active collaboration between parents and professionals, such as home visitors or therapists, where not only resources are provided, but also learning about family needs and dynamics. For example, in home visiting programs, professionals adapt their approach according to what they observe in each family, which allows for the creation of a relationship of trust and mutual support [1,2]. This type of interaction helps parents acquire new skills, enhancing their ability to positively influence their

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children's development. In addition, in therapeutic interventions such as Parent-Child Interaction Therapy (PCIT), responsive feedback and a collaborative approach between parents and therapists have been shown to accelerate children's progress [11]. Thus, social learning for parenting not only strengthens family bonds, but also creates a more inclusive and effective environment for children's comprehensive development [4,5].

Finally, parental involvement in home education is crucial for children's academic and emotional development. By collaborating closely with educators, parents create an environment of trust that is conducive to learning, as evidenced during the COVID-19 pandemic, active involvement improved school performance [12]. However, barriers such as immigration status and linguistic difficulties can hinder this participation, highlighting the need for inclusive policies [14,15]. Support programs such as home visiting and collaborative therapies, such as Parent-Child Interaction Therapy (PCIT), also show how support for parents improves children's development [1,2,11]. Thus, active parental engagement is essential for the success and well-being of children, both in their education and in their emotional development [4,5].

In view of the above, this paper aims to analyze the degree of relationship between Parental Engagement and the sociodemographic characteristics of parents or caregivers (Family profile), composition and dynamics of the nuclear family (Household structure) and the interaction and link between the home and the school environment (School-family communication). To answer the following research questions: How is the level of Parental Engagement related to the socio-demographic characteristics of the parents or caregivers, such as educational level, occupation and income, and how does the structure of the home and the quality of communication between the school and the family influence the degree of parental engagement in the educational process?

2. Materials and Methods

This study considers a dataset with 1432 responses to the International COVID-19 Impact on Parental Engagement Study (ICIPES), obtained in adult population (25 to 64 years old) from Chile published by Osorio-Saez et al [19]. The data set has been analyzed at univariate and multivariate levels, for establishing psychometric validity by means of structural evidence [20]. In univariate terms, the presence of variance (>0), and the limitation of skewness and kurtosis in each item ($|\leq 1|$, both), have been of interest, using SPSS 23 software (IBM, New York, NY, USA) [21]. And at the multivariate level it has included exploratory and confirmatory factor analysis, using sequentially SPSS 23 software and FACTOR Software, to perform an exploratory retesting of the factors in this specific sample and confirmation of the factors present in the measurement [22].

To report the exploratory factor analysis in measuring confidence levels, the authors applied the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. In addition, the authors used Bartlett's test of sphericity to identify items that belonged to factors within the scale as a form of exploratory factor analysis (EFA) with the extraction method, unweighted least squares (ULS), rotation method and Oblimin with Kaiser normalization [21], including high communalities, high factor loadings to support the sample size and minimum items per factor (MIF)[23,24,25].

For confirmatory factor analysis, the measure of sampling adequacy (MSA) was initially considered [26], and reported as indicators: Chi-square/degree of freedom ($\chi 2/df$), root mean square error of approximation (RMSEA), adjusted goodness-of-fit index (AGFI), goodness-of-fit index (GFI), comparative fit index (CFI), non-normalized fit index (NNFI) and root mean square root of residuals (RMSR) [27,28,29] (See Table 1).

The resulting factors were subsequently examined through cross-tabulation with the variables characterizing the sample. Due to the predominance of ordinal and categorical data, nonparametric statistical methods were employed. The analysis was conducted using SPSS version 23, applying Symmetric Measures (specifically Kendall's tau-c and Gamma) as well as the Chi-square (χ^2) test of association. Statistical significance was determined at the 0.05 level, with stronger effects ideally observed at the 0.01 level. Additionally for Kendall's tau-c and Gamma, higher absolute values

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indicated stronger ordinal associations (e.g., values around 0.1 are considered weak, ~0.3 moderate, and ≥0.5 strong), with positive or negative signs reflecting the direction of the relationship. [30-32].

Table 1. Validation and reliability reported in previous articles and parameters.

Article	Sample	Method	MIF	χ2/df	RMSEA	AGFI	GFI	CFI	NNFI	RMSR
Schermelleh-Engel et al. [46]	≥ 200	Good fit	NR	≥ 0 ≤ 2	≤ .05	≥ .90 ≤ 1.00	≥ .95 ≤ 1.00	≥ .97 ≤ 1.00	≥ .97 ≤ 1.00	< .05+
		Acceptable fit	≥ 3	> 2 ≤ 3	> .05 ≤ .08	≥ .85 < .90	≥ .90 < .95	≥ .95 < .97	≥ .95 < .97	≥ .05 ≤ .08++

NR: not reported. ** Good fit; * acceptable fit. + indicated in Kalkan et al. [47].

The dataset includes 1432 responses in Chile to the International COVID-19 Impact on Parental Engagement Study (ICIPES), selected from the international dataset published by Osorio-Saez et al [19]. The dataset considered is characterized in Table 2.

Table 2. Set of variables characterizing the sample.

Name (ID)	Categories	Value	N
Parent/carer gender (PGEN) N = 1432	Mother, Stepmother, Grandmother, adoptive/foster mother or female guardian	0	1171
	Father, Stepfather, Grandfather, adoptive/foster father or male guardian	1	261
Parent/carer years of schooling (PYS) N = 1432		8	12
		9	0
		10	55
		11	0
		12	29
		13	104
		14	33
		15	689
		16	0
		17	428
		18	0
		19	81
		20	0
		21	1
Parent/carer Age (PAG) N = 1432	25-34 years old	2	191
	35-44 years old	3	674
	45-54 years old	4	469
	55-64 years old	5	98
Family structure/composition (FAMC) N = 1283	Living with the father/mother of the child	0	913
	Living with a partner who is not the father/mother of the child	1	113
	Raising a child without a partner	2	257
Child's age (CHAG) N = 1432	6-year-old	0	204
	7-year-old	1	129
	8-year-old	2	149
	9-year-old	3	114
	10-year-old	4	128
	11-year-old	5	116
	12-year-old	6	137
	13-year-old	7	96
	14-year-old	8	96

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	15-year-old	9	84
	16-year-old	10	179
Children in the household (CHH) (Number of siblings) N = 1432		0	453
		1	609
		2	275
		3	67
		4	20
		5	5
		6	2
		7	1
School Home communication: Learning Plan (SHC_LP) N = 1432	Yes	0	1335
	No	1	97
School Home communication (SHC_FLP) N = 1335	Everyday	0	640
	Between two to three times per week	1	207
	Once per week	2	350
	Fortnight / every two weeks	3	103
	Once per month	4	35
Parental engagement: homeschooling (PEHS) N = 1432	Yes	0	1115
	No	1	317
Parental engagement: time (PETT) N = 1115	Less than 10 hours per week	0	793
	Between 11 and 20 hours per week	1	279
	Between 21 and 30 hours per week	2	35
	More than 31 hours per week	3	8

3. Results

3.1. Factorial Analysis

As a first step, the univariate analysis of the items has generated the elimination of items with bias and/or kurtosis limiting the study to 11 out of a total of 26 items (PE_1, PE_4, PE_5, PEIS, PUTBC_1, PUTR_1, PUTS_1, PUTS_2, and SHS) (See details in Appendix A, Table A1). Then using SPSS an exploratory factor analysis (EFA) was performed with a KMO of 0.751 and Bartlett's Test of Sphericity with significance of 0.000 (Approx. Chi-Square 3645.099, and df 55), supporting 9 items in 2 factors as shown in Table 3.

Table 3. Pattern Matrix Exploratory Factor Analysis.

Item ID	Questions	Factor 1	Factor 2	Factor Name
PUTS_1	Follow on social media what other parents do and try to do exactly the same.	.885		
PUTS_2	Follow on social media what other parents do and use it as an inspiration.	.845		
PUTBC_1	Look for ideas on the internet using different websites.	.487		F1: Social Learning for Parenting
PE_1	Follow my ideas about what my children need to learn.	.474		
SHS	I ask my older child(ren) to be in charge of homeschooling the little one(s).	.450		
PEIS	I try to replicate the way I was taught when I was at school.	.441		
PE_4	My children and I have a set homeschooling timetable.		.578	F2: Parenting in Homeschooling

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PUTR_1	Check the school's emails, blog, and website to follow the activities they suggest for the children.	.549	
PE_5	I develop with my children spontaneous learning activities not necessarily school-related such as cooking, woodwork, online games, physical activities, etc.	.445	
Rotation Sums of Squared Loadings [a]		2.539	1.295
Factor Correlation	Factor 1	1.000	.129
	Factor 2	.129	1.000

Extraction Method: Unweighted Least Squares. Rotation Method: Oblimin with Kaiser Normalization. Rotation converged in 8 iterations. [a] When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Then, for the 9 items that present response variability, using FACTOR Software a confirmatory factor analysis (CFA) has been performed for 2 factors, the Measure of Sampling Adequacy (MSA) does not propose to eliminate any item, the Hull method for selecting the number of common factors Advised the 2 factors, KMO of 0.771 with ic at 90% (0.743, 0.784), and Bartlett's Test of Sphericity with significance of 0.000 (Approx. Chi-Square 4477.4, and df 36), supporting 8 items (see Table 4).

Table 4. Pattern Matrix Confirmatory Factor Analysis.

Item ID	Factor 1	Factor 2	Factor
PUTS_1	.989 (0.956; 1.015) [a]		
PUTS_2	.909 (0.876; 0.939)		F1: Social Learning for Parenting
SHS	.473 (0.409; 0.529)		
PUTBC_1	.444 (0.398; 0.485)		
PE_1	.439 (0.396; 0.490)		
PE_4		.720 (0.660; 0.777)	
PUTR_1		.649 (0.582; 0.725)	F2: Parenting in Homeschooling
PE_5		.538 (0.481; 0.595)	
Eigenvalues of the Reduced Correlation Matrix	2.972	1.137	Sum: 4.109
Weighted Eigenvalues	0.723	0.277	
Factor Correlation	1.000	.344 (0.290; 0.397)	Factor 1
	.344 (0.290; 0.397)	1.000	Factor 2

[a] Bias-Corrected and accelerated (BCa) bootstrap 90% confidence intervals.

Finally, the validation and reliability statistics of the proposed model are reported in Table 5. According to the parameters, the values of robust goodness of fit AGFI, GFI, CFI, CFI, NNFI and fitted residuals RMSR present a good fit, the robust goodness of fit statistic RMSEA presents an acceptable parameter, in the case of $\chi 2/df$ the result is 3.6, being above the acceptable parameter of 3.

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But the FACTOR software reports that the Minimum Fit Function Chi Square with 19 degrees of freedom is equal to 68.605 and a p-value equal to 0.000000.

Table 5. Validation and reliability reported and parameters.

Article	Sample	Fit	MIF	χ2/df	RMSEA	AGFI	GFI	CFI	NNFI	RMSR
Schermelleh-Engel et al. [45]	≥ 200	Good	NR	≥ 0 ≤ 2	≤ .05	≥ .90 ≤ 1.00	≥ .95 ≤ 1.00	≥ .97 ≤ 1.00	≥ .97 ≤ 1.00	< .05+
		Acceptable	≥ 3	> 2 ≤ 3	> .05 ≤ .08	≥ .85 < .90	≥ .90 < .95	≥ .95 < .97	≥ .95 < .97	≥ .05 ≤ .08++
Proposed Model	1406		3	3.611	.054* (.030; .061)	.989** (.986; .995)	.994** (.993; .998)	.986** (.982; .996)	.973** (.966; .992)	.037** (.024; .041)

NR: not reported. ** Good fit; * acceptable fit. + indicated in Kalkan et al. [47].

Based on the above evidence, we can understand that the data effectively measures a factor F1 Social Learning for Parenting, and a factor F2 Parenting in Homeschooling, whose FT Parental Engagement is the product of the linear combination of F1 and F2 by the weighted eigenvalues we have reported in Table 4.

$$F1 = RND\ (MEAN\ (PUTS\_1, PUTS\_2, SHS, PUTBC\_1, PE\_1)), \quad (1)$$

$$F2 = RND\ (MEAN\ (PE\_4, PUTR\_1, PE\_5)), \quad (2)$$

$$FT = 0.723*F1 + 0.277*F2 \quad (3)$$

Once these factors were established, we performed non-parametric cross tables using non-metric measures with the set of variables characterizing the sample.

As Table 6 shows, based on the Symmetric Measures, Kendall's tau-c and Gamma, the variables Family structure/composition (FAMC) and School Home communication: Learning Plan (SHC_LP) correlate significantly with the factor Social Learning for Parenting (F1), but despite the high weighting of F1 in the aggregation of FT, no significant correlations are found for FT. The correlations for F1 are shown in the set of Figures 1a and 1b.

Table 6. Cross-table, Symmetric Measures.

Name (ID)		F1				F2				FT			
		Val.	Asym. Std. Error	Approx. T	Approx. Sig.	Val.	Asym. Std. Error	Approx. T	Approx. Sig.	Val.	Asym. Std. Error	Approx. T	Approx. Sig.
Parent/carer gender (PGEN) N = 1432	Kendall's tau-c	.031	.023	1.382	.167	.022	.023	.962	.336	.033	.022	1.492	.136
	Gamma	.075	.054	1.382	.167	.052	.054	.962	.336	.085	.057	1.492	.136
Parent/carer years of schooling (PYS) N = 1432	Kendall's tau-c	-.006	.019	-.338	.736	.011	.019	.591	.554	-.010	.019	-.544	.587
	Gamma	-.011	.033	-.338	.736	.019	.032	.591	.554	-.019	.034	-.544	.587

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Parent/carer Age (PAG) N = 1432	Kendall's tau-c	.038	.021	1.863	.062	.014	.020	.676	.499	.025	.020	1.246	.213
	Gamma	.063	.034	1.863	.062	.022	.033	.676	.499	.045	.036	1.246	.213
Family structure/composition (FAMC) N = 1283	Kendall's tau-c	-.045	.021	-2.117	.034*	-.016	.021	-.755	.450	-.029	.020	-1.450	.147
	Gamma	-.094	.044	-2.117	.034*	-.033	.044	-.755	.450	-.068	.046	-1.450	.147
Child's age (CHAG) N = 1432	Kendall's tau-c	.034	.021	1.622	.105	.008	.022	.367	.714	.025	.020	1.233	.218
	Gamma	.042	.026	1.622	.105	.010	.027	.367	.714	.034	.028	1.233	.218
Children in the household (CHH) (Number of siblings) N = 1432	Kendall's tau-c	.015	.020	.764	.445	-.006	.020	-,314	.753	-.005	.019	-.255	.799
	Gamma	.025	.033	.764	.445	-.010	.032	-.314	.753	-.009	.034	-.255	.799
School Home communication: Learning Plan (SHC_LP) N = 1432	Kendall's tau-c	-.032	.015	-2.084	.037*	.005	.016	.327	.744	-.016	.016	-1.036	.300
	Gamma	-.177	.082	-2.084	.037*	.028	.084	.327	.744	-.095	.090	1.036	.300
School Home communication (SHC_FLP) N = 1335	Kendall's tau-c	.012	.020	.614	.539	-.018	.020	-.882	.378	.009	.020	.447	.655
	Gamma	.021	.034	.614	.539	-.030	.034	-.882	.378	.017	.037	.447	.655
Parental engagement: homeschooling (PEHS) N = 1432	Kendall's tau-c	-.005	.025	-.191	.849	-.014	.025	-.544	.586	.001	.024	.039	.969
	Gamma	-.010	.050	-.191	.849	-.027	.050	-.544	.586	.002	.053	.039	.969
Parental engagement: time (PETT) N = 1115	Kendall's tau-c	-.018	.020	-.887	.375	-.033	.020	-1.624	.104	-.031	.019	-1.581	.114
	Gamma	-.044	.050	-.887	.375	-.081	.050	-1.624	.104	-.083	.052	-1.581	.114

* statistical significance.

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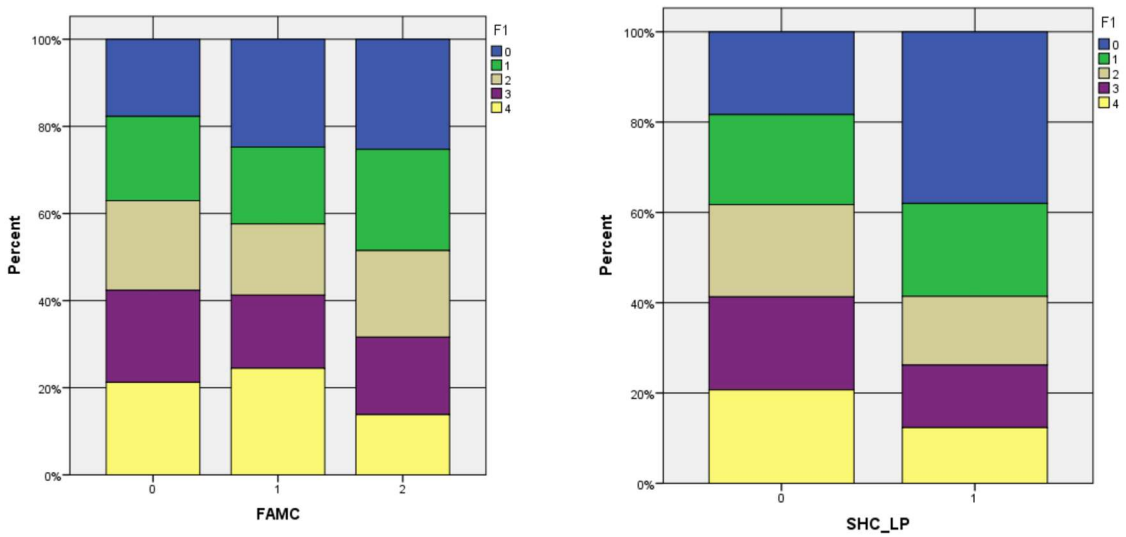

F1 – FAMC (1a) F1 – SHC_LP (1b)

Figure 1. Correlation between Family structure/composition (FAMC) y School Home communication: Learning Plan (SHC_LP) with the factor Social Learning for Parenting (F1).

As a way of obtaining further evidence, we have also performed non-parametric cross tables by means of chi-square test between the factors and the set of variables of characterization of the sample.

As Table 7 shows, based on the Chi-Square Test, the variable Child's age (CHAG) correlates with high significance with the factors Social Learning for Parenting (F1), Parenting in Homeschooling (F2), and Parental Engagement. The variable School Home communication: Learning Plan (SHC_LP) correlates significantly with the factors Social Learning for Parenting (F1) and Parental Engagement. And finally, the variable Parental engagement - time (PETT) correlates significantly with the factors Parenting in Homeschooling (F2), and Parental Engagement (FT). This is represented in Figure 2 set.

Table 7. Cross-table, Chi-Square Tests.

Name (ID)	F1		F2		FT	
	Value	Asymptotic Significance (2 - sided)	Value	Asymptotic Significance (2 - sided)	Value	Asymptotic Significance (2 - sided)
Parent/carer gender (PGEN) N = 1432	2.672	.614	8.304	.081	5.545	.236
Parent/carer years of schooling (PYS) N = 1432	23.346	.867	21.851	.911	27.375	.700
Parent/carer Age (PAG) N = 1432	14.795	.253	6.050	.914	7.907	.792
Family structure/composition (FAMC) N = 1283	9.230	.323	6.818	.556	12.660	.124
Child's age (CHAG) N = 1432	70.192	.002**	85.920	.000**	95.144	.000**
Children in the household (CHH) (Number of siblings) N = 1432	27.141	.511	21.278	.814	30.729	.329
School Home communication: Learning Plan (SHC_LP) N = 1432	10.208	.037*	7.045	.134	12.447	.014*
School Home communication (SHC_FLP) N = 1335	20.963	.180	13.756	.617	21.616	.156

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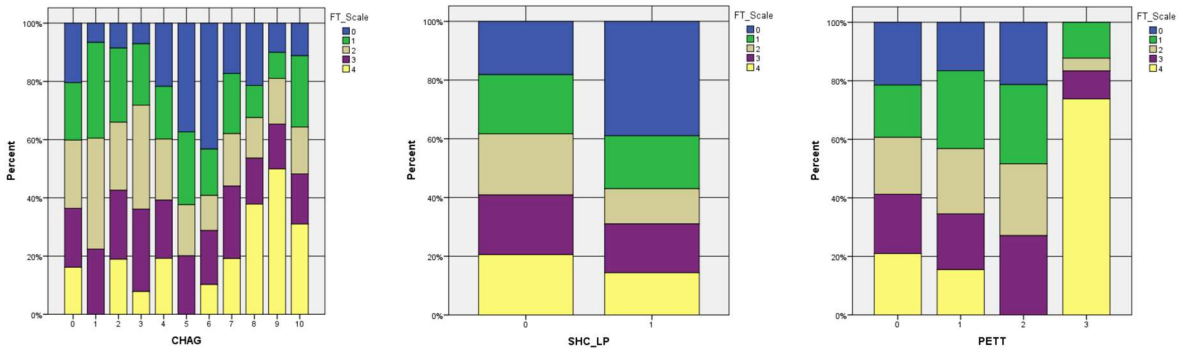
Parental engagement: homeschooling (PEHS) N = 1432	5.032	.284	4.560	.336	2.631	.621
Parental engagement: time (PETT) N = 1115	19.649	.074	21.912	.039*	21.972	.038*

* Statistical significance, ** high statistical significance.



FT – CHAG (2a) FT – SHC_LP (2b) FT – PETT (2c)

Figure 2. Correlations between Child's age (CHAG), School Home communication: Learning Plan (SHC_LP) y Parental engagement – time (PETT) with the resulting factor Parental Engagement (FT).

4. Discussion

The correlation observed between Social Learning for Parenting and family structure, or composition suggests that alternative or non-traditional parenting models rely more heavily on digital social learning to resolve doubts or to structure educational practices [33,34]. Parents who parent without a partner tend to rely more frequently on social networks and online resources as compensatory strategies in the absence of a co-parenting figure to provide support or advice [35,36]. Likewise, those who live with a partner who is not the child's biological parent may seek external models to validate or complement their parental decisions, especially in contexts characterized by insecurity or the absence of clearly socially defined parental roles [37].

In contrast, traditional nuclear families tend to have more stable parenting, which reduces the need to externalize pedagogical or formative decision making [38]. The correlation between Social Learning for Parenting and the existence of formal communication with the school regarding the learning plan (SHC_LP) provides an additional relevant perspective. In homes where there is no clear and structured communication with the school, parents are more likely to resort to social networks or digital sources to fill this communication gap [39,40].

Thus, structured and effective communication between school and family emerges as a crucial facilitator of parental engagement. According to Epstein [39], this communication is one of the essential dimensions to strengthen educational collaboration between both actors. In this study, it is evident that parents who have access to clear and timely information about the learning plan develop a more active and focused involvement. In contrast, the absence of such communication encourages parents to adopt informal strategies, such as consulting social networks or digital resources, which can generate inequalities in the quality of the support offered [41]. These dynamics highlight the role of the mesosystem in Bronfenbrenner's ecological framework [38], underscoring the need for inclusive school practices that promote educational equity.

This situation presents ambivalent implications. On the one hand, it evidences the caregivers' capacity for agency and adaptability by actively seeking resources that allow them to accompany their children's learning [42]. On the other hand, it may reflect a gap in educational co-responsibility, where the school fails to sufficiently guide families, which could generate a dependence on sources of information that are not always reliable or appropriate to the specific context [35].

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These findings reinforce the idea that parental social learning is a contextual and adaptive phenomenon, influenced by both the family configuration and the degree of institutional support received [36,37]. Consequently, the importance of designing more inclusive and empathetic school communication strategies that consider the diversity of family structures and their varied ways of accessing educational knowledge is emphasized [39,40]. In addition, a methodological and practical challenge arises to distinguish when social learning acts as an enriching resource and when, on the other hand, it constitutes a response to institutional neglect or isolation, a situation that could negatively affect pedagogical decision making in the domestic sphere.

In relation to parental engagement, the pattern of variation according to the child's age is in line with previous research indicating a higher involvement in early stages, followed by a decrease during adolescence [43]. Bronfenbrenner [38] argues that the family microsystem evolves in tandem with the child's development, modifying the forms and intensity of parental engagement. This phenomenon can also be understood from the stage-environment fit model proposed by Eccles et al. [44], which argues that the demands and expectations of the environment are adjusted to the developmental needs of the adolescent, conditioning the type of support he or she receives.

Finally, the time devoted by parents to support learning reflects not only their intrinsic motivation, but also their perception of self-efficacy and the explicit invitations they receive from both the school and their children [45]. The data confirm that a greater number of weekly hours devoted to educational support is associated with greater diversity and quality in parental engagement strategies. However, this resource is mediated by structural conditions, such as employment status, family composition, and support networks, which may limit effective engagement [46]. Therefore, the time available also functions as an indicator of social and economic capital, which highlights the importance of educational policies aimed at overcoming material barriers to effective parental engagement [46].

5. Conclusions

The findings of this research provide solid empirical evidence regarding the centrality of the family environment and the school-family relationship in the configuration of support practices for children's learning at home. Far from being an individual phenomenon or exclusively linked to the educational capital of the caregivers, parental engagement is shown to be a structured and relational social process, conditioned by variables such as the age of the child, the frequency of parental involvement and, most notably, the existence of fluid and significant communication between the educational establishment and the home.

This result is in line with widely recognized conceptual frameworks, such as Bronfenbrenner's ecological theory of human development, which places the child in a network of interdependent systems [38], and the school partnership models developed by Epstein, which understand parental involvement as a multifaceted phenomenon, sensitive to the institutional and family context [39]. The study confirms that the presence or absence of effective educational communication not only affects the amount of support provided by caregivers, but also affects perceived confidence, alignment with the curriculum and willingness to resort to external or institutional sources in the resolution of academic difficulties.

From the point of view of educational policy, these findings reinforce the need to move from focused and compensatory intervention models to systemic approaches of co-responsibility. School institutions should be considered co-constructors of parental involvement, through the generation of intentional communication and collaboration strategies, especially in contexts marked by structural inequality. Thus, a clear recommendation emerges: to strengthen the initial and continuous training of teachers in socio-educational linkage and intercultural communication tools, together with the design of stable institutional mechanisms that encourage dialogue and the participation of families in pedagogical processes.

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However, it is necessary to recognize some limitations of the study. The cross-sectional nature of the design prevents the analysis of the evolutionary dynamics of parental involvement, limiting the understanding of its transformation over time. Likewise, the sample does not allow us to explore in depth the differences by socioeconomic level, gender or ethno-cultural affiliation, factors that could influence the forms and levels of family involvement. The use of self-reported data also introduces a possible social desirability bias that could affect the interpretation of certain results.

Considering these limitations, lines of research are open that could enrich and deepen the findings obtained. Future research could adopt longitudinal approaches to observe how parental support practices evolve in post-pandemic scenarios or in the face of active bonding policies promoted by the educational system. Likewise, it is suggested that qualitative or mixed methodologies be incorporated to understand the meanings, tensions and strategies involved in parental engagement in different sociocultural groups and territories. Emerging issues such as the role of digital technologies, coeducation in diverse families or the emotional impact of educational accompaniment at home deserve to be investigated in greater depth.

In sum, this study contributes to the strengthening of the empirical and theoretical field on parental involvement, offering evidence that supports the need to understand it as a dialogical, situated and politically relevant process. By positioning the school-family link as a strategic axis for educational equity, the results presented here invite us to rethink the ways in which school systems recognize and articulate family knowledge, moving towards a more inclusive, co-responsible and territorially situated education.

Supplementary Materials: The following supporting information can be downloaded at the website of this paper posted on Preprints.org. Table S1: ParEng.csv.

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Abbreviations

The following abbreviations are used in this manuscript:

AGFI	Adjusted Goodness-of-Fit Index
ASD	Autism Spectrum Disorder
CFI	Comparative Fit Index
EFA	Exploratory Factor Analysis
GFI	Goodness-of-Fit Index

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ICIPES	International COVID-19 Impact on Parental Engagement Study
KMO	Kaiser-Meyer-Olkin
MIF	Minimum Items Per Factor
MSA	Measure Of Sampling Adequacy
NNFI	Non-Normalized Fit Index
PCIT	Parent-Child Interaction Therapy
RMSEA	Root Mean Square Error of Approximation
RMSR	Root Mean Square Root of Residuals
ULS	Unweighted Least Squares
χ2/df	Chi-Square/Degree of Freedom

Appendix A

The appendix shows a univariate analysis of the items.

Table A1. Descriptive Statistics.

Item (Variable)	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PUTR_1	1432	.00	4.00	1.2346	1.34460	.837	.065	-.527	.129
PE_1	1432	.00	4.00	1.7430	1.25321	.268	.065	-.927	.129
PE_2 *	1432	.00	4.00	1.7374	1.32156	.320	.065	**-1.029**	.129
PUTS_1	1432	.00	4.00	2.7982	1.29199	-.760	.065	-.611	.129
PUTS_2	1432	.00	4.00	2.6662	1.30324	-.607	.065	-.781	.129
PUTS_3 *	1432	.00	4.00	2.3624	1.29475	-.239	.065	**-1.048**	.129
PUTBC_1	1432	.00	4.00	1.7605	1.29905	.324	.065	-.938	.129
PEIS	1406	.00	4.00	2.0149	1.21048	.032	.065	-.889	.130
PE_3 *	1432	.00	4.00	2.0321	1.37323	.018	.065	**-1.221**	.129
PE_4	1432	.00	4.00	1.5126	1.33380	.545	.065	-.858	.129
WHSB_1 *	1432	.00	4.00	1.7123	1.41111	.323	.065	**-1.189**	.129
WHSB_2 *	1432	.00	4.00	2.5279	1.38750	-.408	.065	**-1.151**	.129
PE_5	1432	.00	4.00	1.3645	1.17917	.635	.065	-.394	.129
SHS	1432	.00	4.00	2.9183	1.37651	-.949	.065	-.482	.129
PUTR_2 *	1432	.00	4.00	2.0077	1.37282	-.149	.065	**-1.240**	.129
PUTBC_2	1432	.00	4.00	1.3568	1.26299	.529	.065	-.823	.129
PUTBC_3 *	1432	.00	4.00	1.5992	1.33436	.298	.065	**-1.108**	.129
PUTBC_4 *	1432	.00	4.00	2.0985	1.39959	-.199	.065	**-1.242**	.129
PUTR_3 *	1432	.00	4.00	1.8443	1.33968	.068	.065	**-1.164**	.129
PUTBC_5 *	1432	.00	4.00	1.8596	1.36462	.080	.065	**-1.200**	.129
PUTBC_6 *	1432	.00	4.00	1.9406	1.33017	-.043	.065	**-1.163**	.129
PUTBC_7 *	1432	.00	4.00	1.8059	1.32967	.075	.065	**-1.161**	.129
PUTBC_8 *	1432	.00	4.00	1.9309	1.34537	-.022	.065	**-1.170**	.129
PUTBC_9 *	1432	.00	4.00	1.8855	1.32155	.044	.065	**-1.099**	.129
PUTBC_10 *	1432	.00	4.00	1.8366	1.31427	.070	.065	**-1.108**	.129
PUTS_4	1432	.00	4.00	1.1697	1.08279	.731	.065	.044	.129
Valid N (listwise)	1406								

* Items eliminated due to skewness or kurtosis problems.

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