

Demographic determinants and interaction effects on parental involvement: a case study from Kosovo

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ABSTRACT

This study examined parental involvement in education among 1,228 parents in Kosovo whose children attend preschool and primary school, with respect to native language, gender, education level, number of children, and the child's grade level. Findings indicated that the highest parental involvement was in home organization and academic monitoring (HOAM) and the lowest in school-based active participation (SBAP). Multivariate analysis of variance (MANOVA) by native language revealed significant differences across all four dimensions. Discriminant analysis (DA) results showed that SBAP was the strongest discriminator; Albanian-speaking parents scored higher in SBAP and teacher–parent communication (TPC), whereas Turkish-speaking parents scored higher in home-based learning support (HBLS) and HOAM. Interaction analyses showed that language was a stronger discriminator particularly for fathers. The interactions of native language×education level, native language×number of children, and education level×gender were not significant. Overall, the findings demonstrate that the multidimensional structure of parental involvement varies systematically across demographic factors.

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1. INTRODUCTION

Parental involvement is considered a fundamental variable that plays an important role in students' academic achievement, social–emotional development, and school adjustment processes. In the literature, it is emphasized that parental involvement is not a unidimensional construct. Rather, it is a multifaceted and multidimensional structure. It encompasses diverse dimensions such as school-based involvement, teacher–parent communication (TPC), home-based learning support (HBLS), and academic monitoring [1]–[3]. Grounded in Bronfenbrenner [4] ecological systems theory, the developmental synergy between home and school environments demands a nuanced evaluation of parental involvement across diverse demographic strata. Therefore, understanding parental involvement requires examining not only the level of involvement but also the contextual and demographic conditions under which this involvement is shaped. This multidimensional nature also highlights the importance of whether the measurement tools used to assess parental involvement are appropriate for the cultural context. The direct use of scales developed in different cultures may be insufficient to accurately reflect the true structure of parental involvement. For this reason, adapting measurement instruments to local cultures is of great importance for the valid and reliable assessment of parental involvement. Studies conducted in the Kosovo context have shown that parental

involvement scales have been restructured in Turkish and Albanian samples, that their factor structures vary according to the cultural contexts, and that their validity and reliability are high [5], [6].

Parental involvement exhibits a more complex structure, particularly in multilingual and multicultural social contexts. In societies where parents with different native languages participate within the same education system, linguistic differences can significantly affect relationships with schools. These differences also influence modes of communication with teachers and their involvement in their children's educational processes. The mother tongue is more than merely a means of communication. It is closely associated with the cultural capital that parents possess, their sense of school belonging, and the extent to which they feel competent within the school environment [7], [8]. Furthermore, Kosovo's post-war social reconstruction and its unique demographic landscape necessitate a deeper examination of minority-majority dynamics. In this context, dominant linguistic codes do not merely facilitate communication; they function as primary instruments of social power and institutional inclusion. For minority populations, such as the Turkish-speaking community, this dynamic can engender a psychological barrier, intensifying a sense of structural mismatch. Operating outside the prevailing cultural capital, minority parents may perceive the school environment as an ideological extension of majority authority. Consequently, they may retreat to home-based educational support as a safer domain and a compensatory strategy to safeguard and nurture their children's academic development. The intersection of these linguistic nuances with cultural capital suggests a structural mismatch for certain parents. Specifically, those who lack the dominant linguistic codes may encounter this barrier [7], [9]. Consequently, their agency potentially shifts from visible, school-based involvement to 'invisible' yet foundational home-based support.

The unique research context of Kosovo exemplifies this theoretical framework. It is multilingual education system, particularly within the Turkish and Albanian language tracks, reveals distinct patterns of parental involvement. Empirical studies conducted in Kosovo indicate that parents whose native language is Albanian tend to demonstrate more school-based involvement, such as school visits, teacher meetings, and institutional interaction. In contrast, Turkish-speaking parents exhibit more home-based involvement, such as academic monitoring, organization of the learning environment [5], [6]. Such empirical findings reinforce the notion that language is not only a means of communication. Instead, it serves as an indicator of cultural positioning that shapes how parents engage with the education system.

Parental gender emerges as another important variable affecting levels of involvement. Numerous studies reveal that mothers take a more active role in their children's educational processes, whereas fathers tend to display more limited, indirect, and context-sensitive involvement [10]–[12]. Lareau [8] emphasizes that parental involvement is shaped within the framework of gender roles and that home-based academic support is largely carried out by mothers. Sheldon and Epstein [3] argue that mothers exhibit higher levels of educational involvement compared to fathers. They emphasize that even in families with low socioeconomic status or diverse cultural backgrounds, mothers remain the central figures in providing academic support, even when their efforts are not formally recognized by institutions.

Parents' education level is also one of the fundamental factors determining the quality of parental involvement. Specifically, parents with higher educational attainment are more likely to support their children's learning processes consciously. Such parents demonstrate a greater tendency to set clear academic goals and effectively structure the home learning environment [12], [13]. Studies conducted in the context of Turkey and the Balkans indicate that parents' education levels significantly affect both school-based involvement and parental self-efficacy beliefs [14]. Building on Bandura [15] conceptualization of self-efficacy, it can be argued that higher educational attainment empowers parents to act more strategically in structuring the home academic environment and facilitating effective academic socialization [16].

In addition, the number of children in the family, the child's birth order, and the grade level the child attends are among the structural variables influencing parental involvement. While an increase in the number of children may lead parents to divide their time and resources, it is suggested that as a child's grade level rises, parents tend to exhibit involvement that is more focused on monitoring and guidance rather than direct academic support [12]. The inverse relationship between family size and parental involvement can be further elucidated by Downey [17] resource dilution hypothesis. This theory posits that parental material and emotional resources are finite. Consequently, as the number of children increases, the time and energy available per child is partitioned. The division potentially diminishes both the quality and quantity of involvement. Furthermore, parental involvement does not merely dissipate as a child's grade level increases. Instead, it undergoes a qualitative reconfiguration. The involvement shifts from direct, micro-level home support in early years toward more autonomous, guidance-oriented academic monitoring [18].

However, the literature indicates that these variables are typically examined through their independent effects, while studies addressing their interactions remain limited. Parental involvement, however, emerges within a complex structure shaped by multiple interrelated factors, including language, gender, education level, and family structure. Examining these variables in combination, therefore, provides

a more comprehensive and explanatory framework for understanding involvement patterns [5]. While prior research has explored parental involvement from a general perspective, few studies have empirically investigated how native language, ethnicity, and gender intersect within Kosovo's multilingual context. This gap is particularly relevant in a post-conflict setting, where linguistic identity may influence both institutional access and the distribution of social capital. A clearer understanding of these demographic dynamics extends beyond descriptive analysis and may contribute to addressing structural inequalities in education. In particular, examining native language can help identify potential barriers to school engagement across different linguistic groups and support the development of more culturally responsive approaches. In addition to these practical implications, contemporary research offers limited theoretical elaboration on how demographic factors function across diverse cultural and linguistic contexts. The present study addresses this conceptual gap by expanding the theoretical scope and providing a clearer formulation of these variables and their interactions. Specifically, exploring the interaction effects of various demographic factors helps clarify how they operate in relation to broader cultural and linguistic differences.

Building on this double-fold gap (both contextual and theoretical), the present study provides a systematic empirical examination of parental involvement within Kosovo's post-conflict, multi-ethnic, and institutionally bilingual educational context. It employs a robust psychometric framework based on a large-scale sample, moving beyond the predominantly descriptive and unidimensional approaches that characterize much of the existing literature. This approach enables a more nuanced analysis of how linguistic identity intersects with gender in shaping patterns of parental involvement, with particular attention to underrepresented groups such as Turkish-speaking and male participants. By examining these interactions, the study offers findings that may inform the development of more targeted and inclusive educational practices, including bilingual school-home communication strategies and approaches that encourage greater paternal engagement. More broadly, the study contributes to ongoing discussions on parental involvement in multilingual and structurally complex educational systems and may offer insights relevant to other diverse and developing contexts. Against this background, the study is grounded in the multidimensional nature of parental involvement [2], [3], [19]. It aims to examine levels of parental involvement within a holistic framework, considering key demographic variables such as native language, gender, education level, number of children, and the child's grade level. Conducted with parents whose native languages are Turkish and Albanian in the Kosovo context, the study seeks to contribute to the literature by addressing parental involvement not only in terms of level differences but also through the analysis of interaction effects. Accordingly, the following research question guides the study:

- Does parental involvement significantly differ based on parents' native language, gender, education level, number of children, and the child's grade level?
- Do differences in parental involvement between male and female parents differ according to their native language?
- Do differences in parental involvement between native Turkish and Albanian-speaking parents vary according to the number of children?
- Do differences in parental involvement between native Turkish and Albanian-speaking parents vary by their education level?
- Do differences in parental involvement between male and female parents vary by their education level?

2. METHOD

Adopting a quantitative approach, this research investigates parental involvement levels and their variation across diverse demographic factors. The study effectively employs a cross-sectional survey design to examine the distribution patterns of parental involvement among participants. Simultaneously, a causal-comparative framework is utilized to analyze potential significant differences based on native language, gender, educational level, number of children, and the child's grade level.

2.1. Participant

This study investigated the parental involvement levels of parents whose children attend primary education in Kosovo, a cycle that encompasses preschool and grades 1–5 within the same institutional structure. The focus on this specific developmental span is grounded in the well-documented “gradual decline” in parental involvement as children mature [16], [20], making these formative years a “critical threshold” for shaping academic self-efficacy and study habits. The study employed a purposive two-stage cluster sampling design, in which primary schools were selected based on specific linguistic and urban criteria, and all parents within these clusters were invited to participate. In the first stage, primary schools providing instruction in both Turkish and Albanian languages—where students receive education in their respective native language streams within the same school environment—were identified as the primary

clusters. This selection was limited to urban and town centers, as rural areas typically exhibit lower population density and lack schools with dual-language instruction. In such rural contexts, schools exclusively offer instruction in either Turkish or Albanian, which did not align with the bilingual institutional criteria required for this research. This purposive selection ensured the representation of the study's central cultural and linguistic variables. In the second stage, all parents within these clusters were invited to participate.

Data collection was conducted using a rigorous “sealed envelope” procedure during the spring semester of the 2025 academic year. A total of 1,302 survey packages—containing the questionnaire, informed consent forms, and official permissions—were distributed to students by classroom teachers. Parents were asked to return the completed surveys in the same sealed envelopes. This process resulted in a final sample of 1,228 valid responses (a 94.4% response rate). A crucial inclusion criterion was the exact alignment of the parents' native language with the child's language of instruction. Furthermore, parental education level was utilized as the primary socioeconomic indicator, as it provides a more stable measure of cultural capital in the Kosovo context. Detailed data on specific household income or occupations were not collected, as these metrics often do not correlate directly with actual quality of life or social influence in transitional economies, due to non-monetary resources such as home ownership and subsistence farming [21], [22]. Focusing on education ensured a more reliable and consistent dimension of parental demographics that directly shapes involvement behaviors [23]. While this cluster-based strategy allowed for a large-scale reach and a high response rate, the reliance on voluntary participation within these specific schools is a potential limitation, as it may introduce a self-selection bias. For detailed demographic information, including parental employment and urban/rural residence, as shown in Table 1.

As for the linguistic distribution of the sample, 493 (40.1%) participants were native Turkish speakers and 735 (59.9%) were native Albanian speakers. The sample was predominantly female ($n=1,018$, 82.9%), while males accounted for 17.1% ($n=210$) of the group. Regarding educational attainment, high school graduates represented the largest segment ($n=491$, 40.0%), followed by university graduates ($n=342$, 27.8%). The education level of children was distributed across the preschool and primary grades, with the highest concentrations in grade 3 (19.5%) and grade 4 (18.6%). Finally, the participants reported a mean age of 36.56 years ($SD=6.37$), with ages ranging from 22 to 63 years.

Table 1. Demographic characteristics of the participants

Variables	Categories	Language		Total N (%)
		Turkish N (%)	Albanian N (%)	
Gender	Female	408 (82.8)	610 (83.0)	1,018 (82.9)
	Male	85 (17.2)	125 (17.0)	210 (17.1)
Parent education level	Primary school	64 (13.0)	111 (15.1)	175 (14.3)
	High school	195 (39.6)	296 (40.3)	491 (40.0)
	Vocational school	55 (11.2)	64 (8.7)	119 (9.7)
	University (graduate)	149 (30.2)	193 (26.3)	342 (27.8)
	Postgraduate	30 (6.1)	71 (9.7)	101 (8.2)
Number of children in the family	Only child	53 (10.8)	56 (7.6)	109 (8.9)
	Two children	244 (49.5)	346 (47.1)	590 (48.0)
	Three children	159 (32.3)	249 (33.9)	408 (33.2)
	Four or more children	37 (7.5)	84 (11.4)	121 (9.9)
Child's grade level	Preschool	69 (14.0)	117 (15.9)	186 (15.1)
	Primary School Grade 1	72 (14.6)	147 (20.0)	219 (17.8)
	Primary School Grade 2	111 (22.5)	95 (12.9)	206 (16.8)
	Primary School Grade 3	77 (15.6)	162 (22.0)	239 (19.5)
	Primary School Grade 4	70 (14.2)	159 (21.6)	229 (18.7)
	Primary School Grade 5	94 (19.1)	55 (7.5)	149 (12.1)

2.2. Data collection tools

The research data were collected using a 25-item scale originally developed by Fantuzzo *et al.* [24] and adapted into Albanian and Turkish by Yıldırım *et al.* [6]. In its original form, the scale developed by Fantuzzo *et al.* [24] consisted of three factors and 33 items. However, during its adaptation into Turkish and Albanian within the Kosovo sample, the scale was restructured, and it was determined that 25 items functioned within a 4-factor structure. The scale comprises four factors: school-based active participation (SBAP) (9 items), TPC (6 items), HBLS (5 items), and home organization and academic monitoring (HOAM) (5 items). The scale was rated on a 5-point Likert scale as: 5=always, 4=often, 3=sometimes, 2=rarely, and 1=never.

In the present study, the Cronbach's alpha reliability coefficients obtained from the scale were .795 for SBAP, .841 for TPC, .788 for HBLS, and .713 for HOAM. The overall reliability of the scale was found to be .860. For the Turkish native language sample, Cronbach's alpha values ranged from a low of .657 for

the HOAM dimension to a high of .842 for the HBLS dimension. In the Albanian language sample, similar results were obtained, with the lowest reliability coefficient being .738 for HOAM and the highest being .842 for HBLS, indicating values close to those obtained in the Turkish sample. To provide further evidence for construct validity, a confirmatory factor analysis (CFA) was conducted on the data obtained from 1,228 parents. The results robustly supported the four-factor model consisting of 25 items, as the complete set of model fit indices fell within good and acceptable ranges (Chi-square (χ^2)=999.48, degrees of freedom (df)=300, χ^2 /df=3.33, root mean square error of approximation (RMSEA)=.048 [90% confidence interval (CI)=.045, .051], standardized root mean square residual (SRMR)=.061, comparative fit index (CFI)=.921, Tucker–Lewis index (TLI)=.910, non-normed fit index (NNFI)=.910, incremental fit index (IFI)=.921, goodness-of-fit index (GFI)=.990). Specifically, given that the χ^2 fit test is highly sensitive to large sample sizes, a χ^2 /df ratio between 3.0 and 5.0 is considered indicative of an acceptable model fit [25]; thus, the current ratio of 3.33 reflects a satisfactory alignment. In contrast, to overcome the sample-size limitations of the χ^2 test, evaluating alternative fit indices that are robust against sample size is widely recommended [25], [26]. In this regard, an RMSEA value below .05 and an SRMR below .08 demonstrate a good to excellent model fit, reflecting the true structural integrity of the model independently of the large sample size.

Furthermore, the upper bound of the 90% CI for RMSEA (.051) is substantially below the strict .08 threshold, demonstrating that the model exhibits a highly stable and reliable fit [26]. Simultaneously, although the incremental fit indices (CFI, TLI, NNFI, and IFI) are not exceptionally high, the fact that they are all well above the .90 threshold confirms that the measurement model demonstrates an acceptable and satisfactory fit with the empirical data [25], [27]. Although the GFI (GFI=.990)—which reflects the proportion of variance and covariance accounted for by the model—can be sensitive to sample size, it is exceptional value, evaluated alongside robust metrics like RMSEA, CFI, and the other incremental fit indices collectively demonstrates that the measurement model comprehensively explains the empirical data [25], [26]. These findings demonstrate that the scale’s factor structure possesses strong construct validity and structural integrity for the present study’s population, fully meeting the requirements for rigorous psychometric evaluation.

2.3. Data analysis

First, descriptive analyses were conducted to determine parents’ levels of school involvement. For the descriptive analyses, the mean and standard deviation were calculated. To examine whether parents’ school involvement differed in terms of language, gender, number of children, and education level, a multivariate analysis of variance (MANOVA) was performed. Before conducting MANOVA, the assumptions were checked. First, correlation analyses were performed to determine whether there was multicollinearity among the family involvement scale dimensions [25]. The analysis showed that the highest correlation ($r=.586$, $p<.05$) was between HOAM and HBLS, while the lowest correlation ($r=.273$) was between HOAM and SBAP. Correlations among the other variables ranged between .308 and .460. In addition, scatterplots for variable pairs were examined [26], and the relationships among variables were evaluated as linear. Furthermore, Bartlett’s test of sphericity (approx. $\chi^2=1024.094$, $df=6$, $p=.000$) was found to be significant, indicating correlations among the independent variables [27], [28]. To assess whether the measurements met the assumption of multivariate normality, Q–Q plots and Mahalanobis distance were examined. Box plots were also reviewed for each level of the independent variables to detect outliers.

The skewness values of all dependent variables ranged between $-.473$ and $-.156$ (Std. Error=.070), and kurtosis values ranged between $-.772$ and $-.389$ (Std. Error=.140). For each level of the independent variables (language, gender, education level, and number of children), skewness values ranged between $-.565$ and $.340$, and kurtosis values ranged between $-.791$ and $-.393$ [26], [29]. Skewness and kurtosis values were close to zero, providing evidence for normality. In addition, the sample size was sufficiently large ($n=1,228$), violations of multivariate normality were found to have only a small effect on Type I error, and the F test is robust to deviations from normality; therefore, multivariate normality was assumed. To examine the equality of covariance matrices, Box’s M results were analyzed. When Box’s $M>.05$, Wilks’ Lambda (λ) was used; when Box’s $M<.05$, Pillai’s Trace was applied [27]. Levene’s test results were also examined for each variable to assess the homogeneity of variances. Although there is a disparity in the sample sizes of female ($n=1,018$) and male ($n=210$) participants, the large overall sample size and the satisfactory results of Box’s M and Levene’s tests mitigate potential statistical concerns regarding the homogeneity of covariance matrices. Thus, the robustness of the MANOVA procedure allows for a valid comparison between groups. In addition to statistical significance, partial eta-squared (η_p^2) was calculated to determine the effect size and evaluate the practical magnitude of the findings. When significant differences were found among independent variables, the Tukey test was conducted to determine the source of the differences. In addition, discriminant analysis (DA) results were reported. When interaction effects (e.g., gender $\times$ language; language $\times$ child’s grade level) were found to be significant, these interaction effects were reported. If the interaction was significant, simple effects analyses were conducted by running separate

one-way DAs for each level of the factor of interest [30]. To determine which dependent variables (DVs) contributed to group differences on the significant function(s), structure coefficients and standardized function coefficients were examined [31].

3. RESULTS

3.1. Descriptive analysis

To assess the level of parental involvement across multiple dimensions, the baseline characteristics of the dataset were examined. Descriptive analyses were conducted to identify patterns of parental involvement across participants' linguistic, demographic, and educational characteristics. These analyses outline variation in involvement across subgroups. The results are presented in Table 2.

Analysis revealed that the highest mean regarding parental involvement was observed in the HOAM dimension ($M=4.06$, $SD=.67$). This was followed by HBLS ($M=4.00$, $SD=.75$) and TPC ($M=3.79$, $SD=.85$), respectively. The lowest mean ($M=3.49$, $SD=.81$) was observed in the SBAP dimension. When examined by language, the highest mean ($M=4.18$, $SD=.64$) in the HOAM dimension belonged to parents whose native language is Turkish. The lowest mean ($M=3.26$, $SD=.78$) in the SBAP dimension also belonged to Turkish native-speaking parents. In terms of gender, the highest mean ($M=4.19$, $SD=.60$) in the HOAM dimension was observed among females, whereas the lowest mean ($M=2.96$, $SD=.75$) in the SBAP dimension was observed among males. When examined by number of children, the highest mean ($M=4.23$, $SD=.65$) in the HBLS dimension belonged to parents with only one child, while the lowest mean ($M=3.44$, $SD=.79$) in the SBAP dimension belonged to parents with four children. Regarding parents' education level, the highest mean ($M=4.19$, $SD=.65$) in the HOAM dimension was observed among those with a bachelor's degree, whereas the lowest mean ($M=3.41$, $SD=.79$) in the SBAP dimension was observed among parents with postgraduate education. In terms of the child's grade level, the highest mean ($M=4.34$, $SD=.65$) in the HOAM dimension belonged to parents whose children were in preschool, while the lowest mean ($M=3.17$, $SD=.80$) in the SBAP dimension belonged to parents whose children were in fifth grade.

Table 2. Descriptive statistics of parental involvement dimensions by demographic variables

Variables	Categories	N	SBAP	TPC	HBLS	HOAM
			M (SD)	M (SD)	M (SD)	M (SD)
Language	Turkish	493	3.26 (.79)	3.70 (.87)	4.09 (.74)	4.18 (.64)
	Albanian	735	3.65 (.78)	3.84 (.84)	3.93 (.75)	3.98 (.69)
Gender	Female	1,018	3.60 (.78)	3.88 (.83)	4.16 (.66)	4.19 (.60)
	Male	210	2.96 (.75)	3.33 (.84)	3.22 (.69)	3.41 (.62)
Number of children	Only child	109	3.73 (.81)	4.08 (.80)	4.28 (.69)	4.23 (.65)
	Two children	590	3.51 (.78)	3.86 (.81)	4.04 (.73)	4.13 (.63)
	Three children	408	3.42 (.84)	3.65 (.89)	3.92 (.76)	4.01 (.69)
	Four or more children	121	3.44 (.79)	3.61 (.87)	3.77 (.74)	3.72 (.71)
Education level	Primary education	175	3.50 (.90)	3.72 (.92)	3.89 (.76)	4.00 (.69)
	High school	491	3.45 (.79)	3.72 (.86)	3.96 (.75)	4.04 (.66)
	Associate degree	119	3.49 (.82)	3.84 (.86)	3.84 (.80)	3.92 (.69)
	Bachelor's degree	342	3.58 (.78)	3.91 (.81)	4.15 (.71)	4.19 (.65)
	Postgraduate degree	101	3.41 (.79)	3.71 (.82)	4.02 (.75)	3.99 (.69)
The child's grade level	Preschool	186	3.94 (.74)	4.26 (.79)	4.33 (.67)	4.34 (.65)
	Grade 1	219	3.54 (.81)	3.86 (.79)	4.15 (.71)	4.15 (.65)
	Grade 2	206	3.35 (.77)	3.77 (.82)	4.05 (.70)	4.01 (.62)
	Grade 3	239	3.48 (.80)	3.66 (.85)	3.97 (.76)	4.02 (.68)
	Grade 4	229	3.44 (.76)	3.65 (.82)	3.77 (.76)	3.95 (.66)
	Grade 5	149	3.17 (.80)	3.51 (.89)	3.67 (.72)	3.89 (.69)
Overall		1,228	3.49 (.81)	3.79 (.85)	4.00 (.75)	4.06 (.67)

3.2. Analysis with respect to language

MANOVA was conducted to examine whether parental involvement differed by native language. Prior to the main analysis, the necessary assumptions were tested; the results confirmed the equality of covariance matrices (Box's $M=16.281$, $p>.05$) and the homogeneity of variances across all dimensions, including SBAP ($F=.013$, $p>.05$), TPC ($F=.632$, $p>.05$), HBLS ($F=.558$, $p>.05$), and HOAM ($F=2.803$, $p>.05$). Given these results, multivariate significance was assessed through Wilks' Lambda. This indicated that the combined dependent variables (DVs) were significantly affected by language ($\lambda=.898$, $F_{(4, 1223)}=34.813$, $p=.000$, $\eta_p^2=.10$). To determine which dimensions accounted for the differences, follow-up univariate F tests and DA were conducted. The results of the univariate tests and DA are presented in Table 3.

The analysis revealed that native language had a significant effect on the dimensions of SBAP ($F_{(1, 1226)}=71.059, p=.001$), TPC ($F_{(1, 1226)}=7.510, p=.006$), HBLS ($F_{(1, 1226)}=13.065, p=.002$), and HOAM ($F_{(1, 1226)}=24.318, p=.007$), as shown in Table 3. In the SBAP and TPC dimensions, parents whose native language is Albanian had higher mean scores, whereas in the HBLS and HOAM dimensions, parents whose native language is Turkish had higher mean scores as shown in Table 1. However, based on the effect size (η_p^2) values, while native language had a moderate practical effect on SBAP ($\eta_p^2=.055$), its impact on remaining dimensions was relatively small (ranging from .006 to .019). The analysis utilized standardized canonical discriminant function and structure matrix (SM) coefficients for a detailed exploration of native language differences across all scale dimensions.

The DA results indicated that only one function ($\lambda=.898$) was produced and that it was significant ($p<.05$). When the absolute values of the standardized canonical discriminant function coefficients (SCDF) coefficients—indicating the relative importance of the independent variable in predicting native language—were examined, SBAP (.915) emerged as the most influential variable. This suggests that SBAP made the strongest contribution to distinguishing between Turkish- and Albanian-speaking parents. HOAM followed as the second most influential dimension. Considering its SCDF=−.561 and SM=.417 together, this dimension contributed to group separation but did not play a dominant role. Turkish parents showed a higher profile in the HBLS and HOAM dimensions, whereas Albanian parents demonstrated a higher profile in SBAP and, although the between-group difference was small, in the TPC dimension. Furthermore, when the square of the canonical correlation (CC) (.320) was converted to a percentage, Function 1 was found to explain approximately 10% of the variance between native language groups. The absolute magnitude of these indicators was highest for the SBAP dimension, confirming that it made the greatest contribution to discrimination between native language groups.

Table 3. F test and DA results

DV's	Mean square	F(1, 1226)	Sig.	η_p^2	SCDF	SM	CC	Group centroid	
								Turkish	Albanian
SBAP	44.447	71.059	.000*	.055	.915	.713	.320	-.412	.320
TPC	5.507	7.510	.006*	.006	.109	.232			
HBLS	7.783	13.065	.000*	.011	-.288	-.306			
HOAM	10.984	24.318	.000*	.019	-.561	-.417			

* $p<.017$

3.3. Analysis with respect to gender

MANOVA was conducted to determine whether parental involvement in education differed by gender. Preliminary analyses confirmed the equality of covariance matrices (Box's $M=13.342, F=1.325, p>.05$), and homogeneity of variances across all dimension, including, SBAP ($F=.539, p>.05$), TPC ($F=.015, p>.05$), HBLS ($F=.495, p>.05$), and HOAM ($F=2.574, p>.05$). Following the satisfaction of these assumptions, Wilks' Lambda (λ) test was used to evaluate the multivariate effect. The analysis revealed that gender has a significant effect on the combined DVs ($\lambda=.718, F_{(4, 1223)}=120.379, p=.000, \eta_p^2=.28$). To identify which dimensions accounted for these differences, follow-up univariate F tests and DA were followed to further explore these effects, as shown in Table 4.

Table 4. F test and DA results

DV's	Mean Square	F(1, 1226)	Sig.	η_p^2	SCDF	SM	CC	Group centroid	
								Female	Male
SBAP	72.696	120.667	.000*	.090	.354	.500	.532	.285	-1.380
TPC	53.561	77.176	.000*	.059	-.001	.400			
HBLS	152.213	340.562	.000*	.217	.579	.840			
HOAM	105.885	282.907	.000*	.187	.440	.766			

* $p<.017$

The analysis revealed that gender had a significant effect on the SBAP ($F_{(1, 1226)}=120.667, p=.001$), TPC ($F_{(1, 1226)}=77.176, p=.022$), HBLS ($F_{(1, 1226)}=340.562, p=.002$), and HOAM ($F_{(1, 1226)}=282.907, p=.007$) dimensions as shown in Table 4. In all dimensions, females had higher mean scores than males as shown in Table 1. Evaluation of effect sizes (η_p^2) indicated that gender exerted a large practical impact on HBLS ($\eta_p^2=.217$) and HOAM ($\eta_p^2=.187$). Moderate effects emerged for SBAP ($\eta_p^2=.090$) and TCP ($\eta_p^2=.059$). These findings underscore gender as a substantial determinant, especially for home-based parental involvement activities. To examine gender differences across all dimensions of the family

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involvement scale in greater detail, the SCDF and SM coefficients were analyzed. The DA results indicated that only one function (Function 1) ($\lambda=.718$) was significant ($p<.05$). When the absolute values of the SCDF coefficients—indicating the relative importance of the independent variable in predicting gender—were examined, HBLS (.579) emerged as the most influential variable. This suggests that HBLS made the greatest contribution to distinguishing between females and males. It was followed by HOAM (.579) in second place and SBAP (.354) in third. These three variables played important roles in differentiating between female and male parents. However, the TPC dimension was not effective in distinguishing between female and male parents. Furthermore, when the square of the CC (.532) was converted into a percentage, Function 1 was found to explain approximately 28% of the variance between gender groups. Examination of the group centroids (group mean = -1.380 and +.285; midpoint = .547) confirmed a strong gender-based differentiation in parental involvement. The absolute magnitude of the indicators was highest for the HBLS dimension, confirming that it made the greatest contribution to discrimination between genders.

3.4. Analysis with respect to parent education level

MANOVA was conducted to examine whether parental involvement in education significantly differed by education level. Regarding the underlying assumptions, the equality of covariance matrices was satisfied (Box's $M=53.056$, $F=1.313$, $p>.05$). Furthermore, Levene's tests confirmed that variances were homogeneous across all dimensions: SBAP ($F=2.139$, $p>.05$), TPC ($F=1.442$, $p>.05$), HBLS ($F=1.464$, $p>.05$), and HOAM ($F=.836$, $p>.05$). Using Wilks' criterion, the combined DVs were significantly affected by education level ($\lambda=.968$, $F_{(16, 3727.799)}=2.467$, $p=.001$, $\eta_p^2=.008$). To determine which dimensions accounted for the differences (cell differences), follow-up univariate tests and Tukey post hoc analyses were conducted. In addition, to control for Type I error, Bonferroni correction was applied using a critical value of .0125 (.05/4), and several follow-up contrasts were performed. The results of the follow-up tests (Tukey and DA) are presented in Table 5.

Table 5. F test and DA results

DVs	Mean square	F(4, 1223)	Sig.	η_p^2	Tukey	SCDF1 (SM1)	SCDF2 (SM2)	SCDF3 (SM3)	SCDF4 (SM4)	CC
SBAP	1.137	1.723	.142	.005	-	.042 (.373)	.386 (.597)	.536 (.275)	.926 (.656)	.151
TPC	2.174	2.968	.019	.010	d>b	.147 (.498)	.798 (.793)	-.653 (-.305)	-.536 (-.176)	.076
HBLS	3.339	5.946	.000*	.019	d>a,b,c	.585 (.900)	-.559 (-.245)	-.282 (.216)	.225 (.214)	.056
HOAM	2.418	5.328	.000*	.017	d>a,b,c	.453 (.850)	-.045 (.004)	.984 (.437)	-.629 (-.294)	.015

* $p<.0125$

The analysis revealed that education level had a significant effect on the TPC ($F_{(4, 1223)}=2.968$, $p=.019$), HBLS ($F_{(4, 1223)}=5.946$, $p=.001$), and HOAM ($F_{(4, 1223)}=.328$, $p=.001$) dimensions. However, upon applying the Bonferroni correction, the effect on the TPC dimension was no longer statistically significant. Regarding the HBLS and HOAM dimensions, post-hoc comparisons indicated that parents with a bachelor's degree scored significantly higher than those with primary, high school, or associate-level education as shown in Table 1. However, despite these significant differences, the effect sizes (η_p^2 ranging from .019 to .005) remained small according to Cohen's criteria. This suggests that, although education level is statistically significant, its practical contribution to variance in parental involvement within this sample is limited.

No significant difference was observed in the SBAP dimension ($p>.05$). Although a significant difference initially appeared in the TPC dimension, this difference did not remain significant after the Bonferroni correction ($p>.05/4=.0125$). Therefore, parents' school involvement in the TPC dimension does not appear to be clearly differentiated by education level. The DA results revealed that only one function ("1 through 4") ($\lambda=.968$) was significant ($p<.05$). To further evaluate the differences, the SCDF and SM were examined as shown in Table 5. The relative absolute value of the SCDF indicates the relative importance of the independent variable in predicting education level. Accordingly, for Function 1, the best predictors among the dependent variables were HBLS (.585/.900), followed by HOAM (.466/.859). When the square of the CC for Function 1 ($rc^2=.151$) was converted into a percentage, it was observed that the function explained approximately 2% of the variance.

3.5. Analysis based on the number of children in the family

MANOVA was conducted to determine whether parental involvement significantly differed based on the number of children in the family. Initial assessments confirmed the equality of covariance matrices (Box's $M=39.552$, $F=1.305$, $p>.05$). Levene's tests also indicated that the variances were homogeneous across all dimensions: SBAP ($F=1.413$, $p>.05$), TPC ($F=1.860$, $p>.05$), HBLS ($F=1.443$, $p>.05$), and HOAM

($F=2.125$, $p>.05$). Consequently, Wilks' Lambda (λ) was employed as the test statistic. The results revealed a significant effect of the number of children on the combined dependent variables ($\lambda=.939$, $F_{(12, 3230.75)}=6.495$, $p=.000$, $\eta_p^2=.021$). To further explore these differences, follow-up univariate ANOVAs and Tukey post hoc analyses were performed. For control of Type I error, a Bonferroni correction was applied with an adjusted alpha level of .0125 (.05/4). Detailed results of these follow-up F tests and DA are summarized in Table 6.

Table 6. F test and DA results

DVs	Mean square	F(3, 1224)	Sig.	η_p^2	Tukey	SCDF1 (SM1)	SCDF2 (SM2)	SCDF3 (SM3)	CC
SBAP	2.834	4.320	.005*	.010	a>b,c,d	-.039(.374)	.427(.523)	.515(.245)	.217
TPC	8.027	11.161	.000*	.027	a>b>c,d	.445(.699)	.428(.455)	-.965(-.539)	.114
HBLS	6.147	11.036	.000*	.026	a>b,c,d	.274(.722)	.594(.245)	.677(.525)	.044
HOAM	7.268	16.384	.000*	.039	a,b>c>d	.579(.874)	-1.016(-.430)	-.009(.182)	

* $p<.0125$

The analysis revealed that the number of children had a significant effect on the SBAP ($F_{(3, 1224)}=4.320$, $p=.005$), TPC ($F_{(3, 1224)}=11.161$, $p=.000$), HBLS ($F_{(3, 1224)}=11.036$, $p=.000$), and HOAM ($F_{(3, 1224)}=16.384$, $p=.000$) dimensions. After applying the Bonferroni correction, the differences in all dimensions remained significant. In the SBAP and HBLS dimensions, parents with only one child had higher mean scores than the other groups. In the TPC dimension, parents with one child had higher mean scores than those with two children, and both groups had higher scores than parents with three and four children. In the HOAM dimension, parents with one and two children had higher mean scores than those with three children, and all three groups had higher scores than parents with four children. However, it should be noted that the practical significance of these findings regarding the number of children is limited, as the effect sizes (η_p^2 ranging from .010 to .039) are considered small. This indicates that the observed differences among groups based on the number of children, while statistically reliable, have a minimal practical effect on the overall parental involvement profile. The DA results produced three functions; among them, Function 1 ("1 through 3") ($\lambda=.939$) and Function 2 ("2 through 3") ($\lambda=.985$) were significant ($p<.05$), whereas Function 3 was not significant ($p>.05$). To further evaluate the differences, the SCDF and SM were examined as shown in Table 6. The relative absolute value of the SCDF indicates the relative importance of the independent variable in predicting the number of children.

Accordingly, for Function 1, the strongest predictor among the dependent variables was HOAM (.579/.874), followed by HBLS (.274/.722) and TPC (.445/.699), all of which made strong positive contributions. For Function 2, HOAM (-1.016/-.430) was the strongest negative discriminator, while SBAP (.427/.523) and TPC (.428/.455) showed moderate positive contributions, and HBLS (.594/.245) had a low-correlated unique effect. When the squared CC were converted to percentages, Function 1 ($rc^2=.217$) explained approximately 5% of the variance, and Function 2 ($rc^2=.114$) explained approximately 2%. The first function primarily highlights home-based involvement, whereas the second function emphasizes school-based, and thus institutional, involvement.

3.6. Grade level of children

MANOVA was conducted to determine whether parental involvement significantly differed based on children's grade level. Initial analyses showed that the assumption of equal covariance matrices was met (Box's $M=61.742$, $F=1.224$, $p>.05$). Furthermore, Levene's test confirmed the homogeneity of variances across all dimensions: SBAP ($F=.769$, $p>.05$), TPC ($F=.994$, $p>.05$), HBLS ($F=2.132$, $p>.05$), and HOAM ($F=.649$, $p>.05$). Given that these assumptions were satisfied, multivariate effects were assessed using Wilks' Lambda (λ), which revealed a significant main effect of grade level ($\lambda=.856$, $F_{(20, 4043.92)}=9.723$, $p=.000$, $\eta_p^2=.037$). To determine which dimensions accounted for the differences (cell differences), follow-up univariate tests and Tukey post hoc analyses were conducted. In addition, to control for Type I error, a Bonferroni correction was applied using a critical value of .0125 (.05/4), and several follow-up contrasts were performed. The results of the follow-up tests (Tukey and DA) are presented in Table 7.

The analysis revealed that the child's grade level had a significant effect on all dimensions—SBAP ($F_{(5, 1222)}=18.470$, $p=.000$), TPC ($F_{(5, 1222)}=17.803$, $p=.000$), HBLS ($F_{(5, 1222)}=20.612$, $p=.000$), and HOAM ($F_{(5, 1222)}=10.960$, $p=.000$)—and these differences remained significant after the Bonferroni correction as shown in Table 1. However, it is noteworthy that the effect size values were quite low. Tukey test results indicated that parents whose children were in preschool and Grade 1 had higher mean scores across all dimensions than parents whose children were in Grades 4 and 5. As the child's grade level increased, parental involvement decreased. Despite the high statistical significance of these trends, the effect sizes (η_p^2 ranging from .005 to .017) indicate that the child's grade level has a negligible to small practical impact

on the variance of parental involvement. This suggests that while the ‘gradual decline’ in involvement is observable, its overall magnitude remains limited within the practical context of this sample. To examine differences across all dimensions of the family involvement scale in greater detail by the child’s grade level, the SCDF and SM coefficients were analyzed. The DA results produced four functions, of which only two—Function 1 (“1 through 4”) ($\lambda=.856$) and Function 2 (“2 through 4”) ($\lambda=.972$)—were significant ($p<.05$). To further evaluate the differences, the SCDF and SM were examined as shown in Table 7. The relative absolute value of the SCDF indicates the relative importance of the independent variable in predicting the child’s grade level.

Table 7. F test and DA results

DVs	Mean square	F(4, 1223)	Sig.	(η_p^2)	Tukey	SCDF1 (SM1)	SCDF2 (SM2)	SCDF3 (SM3)	SCDF4 (SM4)	CC
SBAP	11.401	18.470	.000*	.005	a>b,c,d>e,f	.411(.704)	.746(.594)	-.671(-.305)	-.260(-.242)	.346
TPC	12.281	17.803	.000*	.010	a>b>c,d,e,f	.385(.717)	-.103(.119)	.999(.653)	-.395(-.214)	.144
HBLs	10.891	20.612	.000*	.019	a,b>d>e,f	.529(.754)	-.964(-.556)	-.479(-.251)	-.224(-.244)	.078
HOAM	4.848	10.960	.000*	.017	a>b>e,f	.064(.569)	.484(.069)	.207(.437)	1.117(.812)	.032

* $p<.0125$

Accordingly, for Function 1, the strongest positive discriminators were HBLs (.529/.754) and TPC (.385/.717), showing the highest correlations. SBAP (.411/.704) served as a strong supporting contributor, while HOAM had a moderate effect. HBLs and TPC were more effective in distinguishing the groups. This finding indicates that as the child’s grade level increases, HBLs decreases, and communication with the teacher becomes less frequent. When the squared CC for Function 1 ($rc^2=.346$) was converted to a percentage, it explained approximately 12% of the variance. For Function 2, the squared CC ($rc^2=.144$) explained approximately 2% of the variance. In Function 2, SBAP was the strongest positive discriminator, whereas HBLs was the strongest negative discriminator. The contrast between HBLs and SBAP suggests that parents of preschool and primary school children tend to provide home-based support, but as the child’s grade level increases, parents withdraw micro-level home support and shift toward more school-focused monitoring.

3.7. Analysis with respect to the mutual effect of both native language and gender

Factorial MANOVA was conducted to determine whether the joint effect of parents’ native language and gender (two native languages $\times$ two genders) significantly influenced parental involvement. Preliminary tests supported the required assumptions, showing equal covariance matrices (Box’s $M=35.10$, $F=1.174$, $p>.05$). Furthermore, the homogeneity of variances was supported across all dimensions, as indicated by Levene’s Test for SBAP ($F=2.292$, $p>.05$), TPC ($F=.158$, $p>.05$), HBLs ($F=2.463$, $p>.05$), and HOAM ($F=1.181$, $p>.05$). Given these results, Wilks’ Lambda (λ) was used to assess multivariate effects. Significant main effects were found both native language ($\lambda=.903$, $F_{(4, 1221)}=32.638$, $p=.000$, $\eta_p^2=.10$), gender ($\lambda=.726$, $F_{(4, 1221)}=115.162$, $p=.000$, $\eta_p^2=.27$). These effects were accompanied by a significant native language and gender ($\lambda=.984$, $F_{(4, 1221)}=4.931$, $p=.001$, $\eta_p^2=.02$). Using native language as the sole independent variable, separate one-way discriminant function analyses (DFA) were conducted for females and males. The results are presented in Table 8.

Table 8. DA for female and male

Gender	f	SCDF (SM)				CC	Group centroids	
		SBAP	TPC	HBLs	HOAM		Turkish	Albanian
Female	1	.914(.740)	-.023(.149)	-.357(-.377)	-.411(-.436)	.285	-.363	.243
Male	1	.682(.693)	.422(.419)	-.024(-.242)	-.705(-.488)	.524	-.743	.505

f=function

For females, the DA produced only one function ($\lambda=.919$), and for males also only one function ($\lambda=.725$); the function was significant for both groups ($p<.05$). When the squared CC was converted into percentages, native language explained approximately 8% of the variance for females ($rc^2=.285$), indicating a low level, and approximately 27% for males ($rc^2=.524$), indicating a higher level. When the standardized coefficients and SM were examined together, SBAP (.914) emerged as the discriminating variable for female parents. Among females, the SBAP dimension was found to dominate the differentiation by native language. This indicates that scores on this factor made the greatest contribution to distinguishing between Turkish- and

Albanian-speaking female parents. Examination of the group centroids showed that Turkish female parents ($-.363$) had lower mean scores on SBAP (negative direction), whereas Albanian-speaking female parents had higher mean scores (positive direction). Considering the negative SCDF and SM coefficients for HBLS ($-.357/-377$) and HOAM ($-.411/-436$), it was determined that Turkish females had higher mean scores in these dimensions. The TPC dimension was not found to be an effective discriminator between Turkish and Albanian female parents. For male parents, the HOAM ($-.705/-488$) dimension was the strongest negative discriminator. Considering that Turkish males had a group centroid of $-.743$, they had higher mean scores on this dimension. SBAP ($.682/.693$) showed a strong positive effect, and TPC ($.422/.419$) also had a positive effect. Albanian male parents showed higher profiles in SBAP and TPC but lower in HOAM, whereas Turkish male parents were distinguished by higher profiles in HOAM. HBLS ($-.024/-242$) provided a negative but very weak and non-significant contribution.

3.8. Analysis with respect to the mutual effect of both Language and the number of children

MANOVA was conducted to determine whether parental involvement differed in terms of the joint effect of native language and number of children. Box's M test results (Box's $M=78.247$, $F=1.096$, $p>.05$) confirmed that the covariance matrices were homogeneous across groups. According to Levene's test, variances were distributed homogeneously in the SBAP ($F=1.543$, $p>.05$), TPC ($F=1.385$, $p>.05$), and HBLS ($F=1.425$, $p>.05$) dimensions; however, this assumption was violated for the HOAM dimension ($F=3.046$, $p<.05$). Given the violation in HOAM despite the homogeneity of covariance matrices, the more robust Pillai's Trace criterion was preferred for the multivariate analysis. The results indicated that the combined DVs were significantly affected by both native language (Pillai's Trace=.065, $F_{(4, 1217)}=21.240$, $p=.000$, $\eta_p^2=.027$) and number of children (Pillai's Trace=.067, $F_{(12, 3657)}=6.948$, $p=.000$, $\eta_p^2=.022$). However, the interaction between native language and number of children was not significant (Pillai's Trace=.012, $F_{(12, 3657)}=1.232$, $p=.191$). Since no significant interaction effect was found between parents' native language and number of children, no follow-up test was conducted.

3.9. Analysis with respect to the mutual effect of both native language and education level

MANOVA was conducted to determine whether parents' involvement in education differed in terms of the joint effect of native language and education level. Box's M test results (Box's $M=112.574$, $F=1.225$, $p>.05$) indicated that the covariance matrices were homogeneous across groups. Similarly, Levene's test indicates that variances were distributed homogeneously across the SBAP ($F=1.097$, $p>.05$), TPC ($F=1.662$, $p>.05$), HBLS ($F=1.103$, $p>.05$), and HOAM ($F=1.204$, $p>.05$) dimensions. Given that all assumptions were met, the multivariate significance was evaluated using Wilks' Lambda (λ). The analysis revealed that the combined DVs were significantly affected by native language ($\lambda=.916$, $F_{(16, 1215)}=27.839$, $p=.000$, $\eta_p^2=.08$) and education level ($\lambda=.965$, $F_{(16, 3712.52)}=2.734$, $p=.000$, $\eta_p^2=.09$). However, the interaction between these two factors did not reach statistical significance ($\lambda=.983$, $F_{(16, 3712.52)}=1.250$, $p=.191$). Consequently, no follow-up test was performed for the interaction effect.

3.10. Analysis with respect to the mutual effect of both gender and education level

MANOVA was conducted to determine whether parental involvement differed in terms of the joint effect of education level and gender. Box's M test results (Box's $M=116.063$, $F=1.249$, $p>.05$) confirmed that the covariance matrices were homogeneous across groups. Similarly, Levene's test demonstrated equal variances across the dimensions of SBAP ($F=1.012$, $p>.05$), TPC ($F=.977$, $p>.05$), HBLS ($F=1.833$, $p>.05$), and HOAM ($F=1.280$, $p>.05$), thereby satisfying the assumption of homogeneity of variance. Given that all multivariate assumptions were met, the significance of the main and interaction effects was evaluated using Wilks' Lambda (λ). The analysis revealed that the combined dependent variables were significantly influenced by gender ($\lambda=.758$, $F_{(4, 1215)}=96.865$, $p=.000$, $\eta_p^2=.24$) but not by education level ($\lambda=.985$, $F_{(16, 3712.52)}=1.189$, $p=.268$, $\eta_p^2=.004$). Furthermore, the interaction between gender and education level failed to reach statistical significance ($\lambda=.983$, $F_{(16, 3712.52)}=1.321$, $p=.174$, $\eta_p^2=.004$), suggesting that the impact of education level on parental involvement did not vary significantly between genders.

4. DISCUSSION

In this study, parents' involvement was examined across native language, gender, education level, number of children, and the child's grade level among 1,228 parents in Kosovo. The highest mean for parental involvement was observed in the HOAM dimension, whereas the lowest mean was observed in the SBAP dimension. Overall, parents' views on school involvement were positive. However, Turkish parents' views regarding SBAP were observed to be relatively negative. In addition, males reported less favorable views across all dimensions of the family involvement scale. The MANOVA results by native language

showed significant differences across all dimensions of the scale. Albanian-speaking parents scored higher in SBAP and TPC, whereas Turkish-speaking parents scored higher in HBLS and HOAM. While Turkish-speaking parents provided relatively stronger support in home-based learning, Albanian-speaking parents were more dominant in SBAP and TPC activities. Native language differences also partly reflect ethnic identity. From this perspective, Turkish-speaking parents display a more home-monitoring-oriented profile.

While the literature on ethnic and linguistic differences shows mixed results [1], [5], [32]–[35], the present findings align with Lareau [8], who notes that minority parents often perceive the school as an authority and prefer to support education from home. The results are also consistent with the home-based involvement model proposed by Hoover-Dempsey and Sandler [16]. Linguistic differences are among the most important factors affecting the nature of parents' relationships with the school system. Language functions not only as a communication tool but also as a key to cultural inclusion [8]; therefore, linguistic distances between home and school may act as a barrier to involvement [36], often leading to a sense of alienation among parents [37]. Kao and Turney [38], in their research in the United States (US), identified linguistic differences as a barrier to school involvement among parents whose native language was not English. Within the same country, parents who perceive themselves as linguistic minorities may shape their school involvement through a lens of linguistic and cultural distance.

Bourdieu [39] argued that parents who can use the school's dominant language and cultural norms tend to participate more actively as partners in schooling. From this perspective, lower levels of SBAP may be influenced by linguistic barriers and fears of alienation. The differences observed between Turkish- and Albanian-speaking parents in school involvement may also be interpreted within the framework of the cultural capital theory of Bourdieu and Passeron [40], suggesting that not possessing the forms of capital valued by schools may play a significant role. Accordingly, the cultural mismatch theory [41] helps explain why, as the gap between school institutional culture and home culture widens, parental involvement may remain "confined to the home." This perspective provides a plausible explanation for why Turkish-speaking parents appear more home-focused and less visibly school-oriented. Conversely, the higher SBAP and TPC scores of Albanian-speaking parents indicate that they are culturally more aligned with an active and proactive parent model.

On the other hand, the high scores of Turkish-speaking parents in learning support and academic monitoring indicate, from the perspective of Moll *et al.* [42] that they take education seriously and support their children within a secure home environment. Hill and Tyson [12] noted that involvement does not have to be physical and that physical presence is not necessarily the strongest form of parental involvement. Turkish-speaking parents in Kosovo constitute a minority group. Their preference for "invisible" or home-focused involvement contrasts with the more "visible" involvement of Albanian-speaking parents [16]. These behavioral patterns may not reflect disengagement [11]. Instead, they appear to align with the "accomplishment of natural growth" model [8]. Indeed, the findings also support Valdés [43] theory that minority parents' support for education is primarily centered on home-based involvement. In this respect, the linguistic differences between Turkish- and Albanian-speaking parents in Kosovo should not be interpreted as a deficit but rather as a resource—namely linguistic capital. These parents appear to play an important role in fostering students' academic self-discipline and preserving cultural identity; at a minimum, they undertake close monitoring processes that schools might otherwise need to provide individually.

The study also revealed significant differences between female and male parents. Women had higher mean scores than men. Moreover, the effect sizes were quite large in the HBLS and HOAM dimensions and moderate in the SBAP dimension. The DA results provide an in-depth explanation of the sources and differentiating capacity of gender differences. Although women scored higher across all dimensions, the fact that the group centroid was positive for women and negative for men confirms the direction of group differentiation, suggesting that home-based academic support (e.g., helping with homework, academic monitoring, and organizing the learning environment) is largely carried out by mothers and is perceived as women's work. The findings support Antony-Newman [44] argument that gender roles create a division between the public sphere (school) and the private sphere (home), in which men tend to be more visible in public spaces while remaining relatively less involved than women in the private domain of the home. The results are consistent with many studies in the literature [11], [45]–[48]. Crucially, the large effect sizes observed in this study (ranging from .187 to .217) elevate gender from being a mere statistical variable to the most substantial determinant of parental involvement within the private sphere. While other demographic factors showed statistical significance, their minimal practical impact suggests that the gendered division of labor remains the primary engine driving involvement patterns in this context. These results align with broader meta-analytic evidence suggesting that home-based involvement remains a primarily maternal responsibility [12]. Regional data from the UNICEF Kosovo Office further confirms that cultural expectations continue to position fathers as less active participants in home learning activities [49].

Beyond individual preference, these results align with the ‘gendered division of labor’ [50] and Lareau [8] model, confirming that while paternal involvement may be increasing [51], educational support remains deeply tied to socially imposed gender roles. In the specific context of the Balkans, the results are consistent with traditional family roles that have been reinforced during post-war social reconstruction. For instance, the UNICEF [52] report highlights that women in Kosovo bear a significantly disproportionate share of unpaid domestic work, childcare, and educational responsibilities compared to men. The gender differences observed in this study can also be interpreted through gender theory [53]: women may be biologically or socially conditioned toward caregiving roles, whereas men are often socialized as breadwinners, rule-setters, and observers.

Thus, gender roles within parental involvement remain unequally distributed. Such an imbalance is evident in the current findings. It is also plausible that fathers’ lower involvement is influenced by economic factors, maternal employment status, and the presence of extended family members (e.g., grandparents). In some cultural contexts, fathers’ primary responsibility for household income and mothers’ responsibility for childcare may shape both the level and form of parental involvement. There was also a significant difference in terms of the interaction between native language and gender. Although the effect size was not large, differences were observed between both Turkish- and Albanian-speaking women and Turkish- and Albanian-speaking men. The strength of the CC for males (.524) was approximately twice that of females (.285), indicating that the language variable plays a more critical role in fathers’ involvement. Among Albanian-speaking fathers, SBAP and TPC emerged as the strongest positive variables. This finding suggests that Albanian-speaking fathers are more dominant than Turkish-speaking fathers in school-based involvement and teacher communication. In the HOAM dimension, Turkish-speaking fathers showed a more pronounced role. The HBLS dimension for males and the TPC dimension for females were not found to be strong discriminators.

It was observed that Albanian-speaking mothers tended to exhibit more school-based involvement, whereas Turkish-speaking mothers demonstrated more home-based involvement. Overall, both Albanian-speaking mothers and fathers displayed a more “external” involvement profile (e.g., meeting teachers, visiting school), while Turkish-speaking mothers showed a more home-focused profile (e.g., academic monitoring). The stronger differentiation of Turkish-speaking fathers in home-based involvement may reflect fathers’ supervisory and responsible role in education. Grolnick and Slowiaczek [11] emphasized the significant role of parental involvement in children’s achievement. Even if Turkish-speaking fathers are less visible at school, the findings indicate that they support educational processes at home. The lower CC for females (.285) compared with males suggests that motherhood roles—centered on care and support—may function as more universal patterns relatively independent of culture, whereas fatherhood appears more sensitive to social, cultural, and linguistic expectations. These gendered patterns of involvement across native language groups support Pleck [51] social and cultural norms theory. For Albanian-speaking parents, maintaining close relationships with schools and teachers appears to function as a dominant social control mechanism [54] to support children’s achievement. In contrast, Turkish-speaking mothers and fathers appear to prefer a home-based monitoring approach [16] rather than visible school presence.

Nevertheless, in both language groups, mothers tend to work directly with children on studying, whereas fathers tend to monitor whether homework is completed rather than actively assisting. Thus, Turkish-speaking parents appear to adopt a home-focused academic monitoring approach, while Albanian-speaking parents adopt a more school-focused and communication-oriented approach. Previous studies conducted in different cultural contexts [55]–[57] have also identified gender differences across ethnic and language groups. White *et al.* [58] reported that Asian-origin parents emphasize home learning support, and Huntsinger and Jose [59] found similar gendered patterns among Chinese American and European American parents. The divergence between Turkish-speaking and Albanian-speaking parents aligns with international research on minority groups in multicultural societies. Specifically, similar to the findings of Kao and Turney [38] in the US context and Georgiou [60] in Cyprus, minority parents often compensate for linguistic or cultural barriers at school by intensifying their ‘invisible’ support at home. This global pattern suggests that while visible involvement varies with the school’s linguistic climate, the home-based educational labor remains a resilient cultural strategy for fostering children’s success across different ethnic identities. Hofferth [61] likewise highlighted ethnic differences in fathering roles. Consistent with the literature, the present study shows that the interaction of gender and native language produces meaningful differences in both the level and form of parental involvement. Moreover, the findings align with recent cross-cultural evidence [62]–[64] suggesting that in multi-ethnic societies, minority parents often prioritize ‘cognitive stimulation’ at home to offset school exclusion. Similar to observations in diverse cultural contexts [64]–[66], our results confirm that when the school environment reflects the dominant culture, minority families—such as the Turkish-speaking group in this study—may adopt more intensive home-based monitoring as a

protective educational strategy. This reinforces the global trend where parental involvement is not uniform but shaped by the intersection of ethnic identity and gendered roles.

These findings suggest that education level primarily shapes home-based support rather than school-based involvement. This is evidenced by the DA, where HBLS and HOAM emerged as the only dimensions with substantial predictive power in the SM. In contrast, SBAP and TPC (the latter becoming non-significant after the Bonferroni correction) showed a negligible role in distinguishing between education groups. Ultimately, while parents with bachelor's degrees differ significantly in their home-based efforts, the small effect sizes indicate that the practical impact of education level remains limited. Parents with lower education levels showed lower involvement, whereas university-educated parents demonstrated significantly higher involvement. These findings are consistent with several studies [13], [67]–[69]. However, some studies [70], [71] have reported no relationship between parental education and involvement. As Epstein [20] suggested, when schools establish strong communication channels, variables such as parents' socioeconomic or educational levels may have limited impact on communication; the present findings show partial alignment with this view.

Similar to Desimone [72], the results indicate that highly educated parents tend to act more strategically in structuring the academic environment at home rather than merely increasing school contact. The higher HOAM and HBLS scores of highly educated parents align closely with Hill and Tyson [12] concept of academic socialization. Importantly, the findings also suggest that in Kosovo, parents with lower education levels are not disconnected from teachers or school administration. Antony-Newman [44] meta-analysis similarly identified parental education as a key driver of academic socialization and home-based involvement. Highly educated parents appear better able to provide academic support, interpret school expectations, and engage strategically. Kay *et al.* [73] likewise reported that parents' perceptions of their own educational inadequacy can reduce their level of involvement. However, the joint effect of parents' native language and education level was not found to be significant. The significant advantage in favor of parents with a bachelor's degree suggests that these parents likely have higher self-efficacy perceptions regarding their involvement in their children's education. Bandura *et al.* [74] noted that as parental education increases, the level of academic support they provide also rises. Nevertheless, the non-significant interaction effect indicates that independent barriers may overshadow one another. Hoover-Dempsey and Sandler [16] attribute this to three key conditions: school climate, parental self-efficacy, and resources (such as language). Even when parents with a different native language possess high self-efficacy, language barriers may prevent them from translating this into action. In other words, higher education does not necessarily compensate for linguistic differences.

Thus, the advantages associated with higher education do not eliminate language-based disparities. The benefits favoring bachelor's degree holders and the language-based differentiation (school-based advantage for Albanian-speaking parents and home-based advantage for Turkish-speaking parents) remain intact. Language and education each independently influence the system, but do not jointly neutralize disadvantages. In particular, the advantage observed for bachelor's degree holders does not produce a similar rate of increase for both Albanian- and Turkish-speaking parents. Lareau [55] argument that middle-class parents employ concerted cultivation strategies—but that these strategies require shared institutional linguistic and cultural codes—helps explain these findings. While having a bachelor's degree increases parents' willingness and capacity to support their children at home, native language differences may hinder the transfer of this potential into school-based engagement. Native language is structural, whereas education level functions as cultural capital. The non-significant interaction suggests that these two factors do not create a synergistic effect in parental involvement. The common assumption that educated parents will always participate more is therefore not universally valid; when language barriers exist, academic attainment alone may not function as a sufficient structural lever. Consistent with Bourdieu [7], although native language operates as social capital, differences between the dominant school language and parents' language may prevent the effective conversion of educational capital into involvement. Thus, the findings support Epstein [75] view that education alone does not always overcome parental involvement barriers.

The joint effect of parental education level and gender on involvement was also not significant. The non-significant interaction indicates that the differences associated with education level operate similarly for both mothers and fathers. In other words, as education level increases—especially at the bachelor's level—involvement rises in parallel for both genders. This suggests that the impact of education on parental involvement functions as a competence-related factor independent of gender roles. Although some studies [76], [77] report that fathers' education level has a stronger effect while mothers maintain high involvement regardless of education, the present findings do not support that pattern. In this study, education appears to function as a similar catalyst for both women and men. Even though mothers' overall involvement scores are higher, the rate of increase associated with higher education shows parallel trends across genders. Therefore, education does not eliminate gender-based differences in involvement levels, but its consciousness-raising

effect operates similarly for both mothers and fathers. The findings suggest that the egalitarian and transformative potential of education [78] is visible in this context: education does not equalize involvement levels completely, but it enhances involvement capacity for both genders in comparable ways. Another key finding is that the number of children in the family significantly affects parental involvement. As the number of children increases, the level of involvement decreases. Parents with only one child demonstrate higher involvement across all dimensions compared with parents with three or four children. There is thus an inverse relationship between family size and parental involvement. As family size grows, parents' time, financial resources, and energy available per child diminish. The study's findings closely align with Downey [17] resource dilution hypothesis. Consistent with Black [79] observations, the finite nature of parental resources—both material (e.g., time, money) and emotional (e.g., attention, care)—implies that the share available per child inevitably declines as family size increases.

In this study, HOAM and HBLS contributed strongly to the first function, indicating that single-child parents devote more time to home-based support. In contrast, TPC and SBAP emerged in the second function. The pattern across functions shows that family size differentiates not only the quantity but also the quality of parental involvement. As the number of children increases, academic support processes decline. The decrease in school-based involvement is also noteworthy. Parents appear to experience greater difficulty engaging in behavioral forms of involvement, such as attending meetings or visiting schools [11], likely due to divided time and resources. Hoover-Dempsey and Sandler [16] similarly identify limited parental resources—exacerbated by larger family size—as a major barrier to involvement. Reduced parental involvement with increasing family size may pose risks for children's academic achievement as well as cognitive and social development [13], [80]. A substantial body of research [81]–[85] demonstrates the strong link between parental involvement and student success. Accordingly, the findings suggest that as the number of children rises, parental support per child may decline, potentially limiting developmental benefits.

Finally, the joint effect of native language and number of children was not significant. Despite their independent effects, the absence of interaction indicates that linguistic barriers operate regardless of family size and that both Turkish- and Albanian-speaking parents show similar patterns across different numbers of children. Native language remains a dominant independent factor in involvement. Parents' linguistic capital is a key mechanism in school communication and interaction [39]. However, the non-significant interaction likely reflects the qualitative nature of language versus the quantitative nature of family size; these factors influence parental involvement through different, non-synergistic pathways. In Kosovo, parental involvement differs according to the grade level of the child. Parents whose children attend preschool and grade 1 show higher levels of involvement, and this involvement decreases as the child's grade level increases. The analysis results are consistent with the “gradual decline” pattern reported in the literature. Children in the preschool period are more dependent on their parents.

Moreover, as they separate from their parents and spend a significant part of the day in a different social environment, they require greater parental support to adapt. Therefore, it is understandable that parents provide more support during the early years of schooling. Epstein [20] noted that parental involvement tends to decrease as children grow older. The idea that children should gain independence supports the observed decline in involvement at higher grade levels. However, this pattern may constitute a disadvantage and potential risk for students in upper grades, where academic demands become more critical. While parents are more actively engaged at home (high HBLS) during preschool and grade 1—such as directly helping with lessons—the focus gradually shifts toward school-oriented involvement (SBAP), such as attending meetings, in later grades. This shift in involvement can be interpreted as an indicator of academic socialization [12]. Thus, parental involvement does not disappear; rather, it changes form. In the lower grades, involvement is more visible and intensive, whereas in higher grades, it transforms into guidance-oriented behaviors such as monitoring, motivating, and emphasizing the importance of education. As grade level increases, involvement decreases, suggesting that grade level functions as a negative predictor of parental involvement. As children advance in school, parents appear to move away from direct instructional roles, and their institutional communication and connection with the school may also weaken.

At the same time, the findings support Hoover-Dempsey and Sandler [16] argument that as grade level increases and curricula become more demanding and complex, parents tend to adopt a more passive involvement role. The results of this study are consistent with Hill and Tyson [12] meta-analysis of 50 empirical studies examining the relationship between educational level and parental involvement. Similar studies [86]–[88] report declining involvement as children progress through grades, while others studies [56], [70], [85] find no such difference. Beyond these trends, this study reveals a nuanced interplay between gender and cultural identity. While maternal involvement appears to be a universal caregiving role transcending cultural boundaries, paternal involvement is more sensitive to socio-cultural contingencies such as ethnicity, language, and minority–majority status [89], [90]. These patterns are best explained through Bronfenbrenner [4] ecological systems theory. The frameworks developed by Fantuzzo *et al.* [24] and Perry *et al.* [91] demonstrate that parental roles in Kosovo are not mere personal choices but are negotiated

within a specific ecological niche. This is particularly evident in the “invisible” home-based support provided by fathers and Turkish-speaking parents. However, the limited representation of male participants and the exclusion of other linguistic groups in Kosovo remain limitations. Future research should expand to these groups to further validate the ecological framework. Furthermore, since this study focused on internal parental factors, integrating external determinants such as school leadership and teacher practices [92] would provide a more holistic explanation. Ultimately, recognizing linguistic and cultural diversity as a systemic asset—rather than a deficit—is essential to prevent a persistent school–parent disconnect.

5. CONCLUSION

The research findings indicate that Turkish-speaking parents tend to position themselves not merely as supporters of education but as direct implementers—supervisors and regulators—of the learning process. In contrast, Albanian-speaking parents appear to adopt a more supportive and visibly school-oriented form of involvement. While maternal involvement is shaped by a universal caregiving role that operates beyond specific cultural norms, paternal involvement was found to be more sensitive to socio-cultural dynamics such as ethnicity, culture, language, economic conditions, and minority–majority status. The most striking finding of this study is that gender is the most decisive variable with the highest practical significance for parental involvement. The large effect sizes associated with gender, particularly in HBLS and HOAM dimensions, demonstrate that the dynamics of parental involvement cannot be considered independently of gender roles. Conversely, while native language showed a moderate effect on SBAP, other demographic variables—such as education level, number of children, and grade level—exhibited limited practical impact despite their statistical significance. This reflects two important factors: large sample size and high female concentration (82.9%). These created homogeneity, narrowing variance and increasing intergroup score transition (overlap), which suppressed other effect sizes. Notably, this underscores mothers’ dominant role in involvement, while also suggesting that schools target paternal involvement for balanced partnerships.

In addition, the limited explained variance of the dependent variables by factors such as education level, number of children, and grade level suggests that excluded external factors may play a more dominant role in the dependent variables. Finally, the high within-group standard deviations of the dependent variables (SBAP, TPC, HBLS, and HOAM) are considered to have caused high intergroup score transition (overlap) despite differences in group means, thereby resulting in a weak discriminative effect between groups. Consistent with international research in multicultural contexts, these findings underscore that while school-based involvement is sensitive to the linguistic climate, home-based academic labor remains a universal engine of success. This suggests that interventions and education policies should center on the distribution of roles and shared responsibilities within the home rather than these demographic variables, thereby ensuring accessible and equitable involvement for all families. The framework based on ecological systems theory meaningfully illuminates the home-based contributions of fathers and Turkish-speaking parents, as well as the variability in their involvement models. However, the limited number of male participants and the absence of other language groups should be noted as areas for future research.

Despite its comprehensive scope, the study has several limitations. First, the data were gathered on a voluntary basis. The lower representation of fathers compared to mothers may introduce sample bias. This disparity limits the generalizability of the findings to fathers. It also restricts the detection of subtle differences across other variables due to the high degree of homogeneity. Second, despite the sample size ($n=1,228$), the findings primarily reflect the socio-cultural dynamics of Kosovo and may not be fully generalizable to other Balkan contexts without further cross-cultural validation. Third, the study did not account for socio-economic status (SES) or occupational variables, which are major demographic factors that can influence both the time and resources available for involvement. Fourth, relying on self-report scales may introduce social desirability bias. Future research should employ qualitative methods to explore the underlying reasons for the gendered division of educational labor and incorporate SES as a primary variable to provide a more nuanced understanding of involvement patterns across different social strata.

The findings offer critical insights for fostering more inclusive parental engagement in Kosovo’s multi-ethnic education system. Given that gender emerged as the most substantial determinant with a large practical impact, school policies must move beyond “gender-neutral” invitations. Our findings suggest that even the smaller variances captured in demographic interactions (2–7%) offer highly malleable entry points for institutional intervention if targeted correctly. Therefore, instead of generic outreach, schools should specifically target father involvement through tailored programs—such as language-specific “fathers’ clubs” for minority groups, weekend excursions, and sports activities scheduled outside traditional working hours—to effectively accommodate the practical constraints of the breadwinner role. Furthermore, paternal involvement should be systematically incentivized by fostering co-parenting practices through joint mother–father family dinners and child-centered school events. Specifically, high-engagement activities where

children actively perform—such as school plays, theatrical performances, and talent shows—can serve as powerful emotional catalysts, ensuring the active presence of both parents and fostering a genuine sense of belonging in a traditionally female-dominated sphere.

To mitigate the linguistic barriers identified in school-based involvement and TPC, schools should adopt a “multilingual school climate” where materials and meetings are accessible in both Turkish and Albanian. Practically, this bilingualism should be embedded into digital communication tools; school websites, official e-school portals, and instant messaging channels (such as Viber or WhatsApp parent groups) should systematically deliver announcements and SMS notifications in both languages simultaneously to ensure barrier-free access to information. Additionally, appointing multilingual parent liaisons can bridge communication gaps. For instance, schools can structurally operationalize this by establishing a formal “Parent Ambassador Program,” where active, bilingual parents from the Turkish-speaking community are trained to act as trusted liaisons. These ambassadors can conduct peer-to-peer outreach in their native language, guiding less involved minority parents through school procedures and reducing institutional alienation. This approach would transform native language from a barrier into linguistic capital, encouraging minority parents to mobilize their “invisible support” from home to school. Furthermore, the limited impact of education level suggests that schools can successfully engage all parents, regardless of their education level, provided that the involvement models are culturally and linguistically sensitive. Integrating these factors into future cross-cultural and ethnic analyses will significantly contribute to elucidating whether differences in involvement are driven by cultural preferences, gendered norms, or the practical constraints of social and economic capital.

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Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
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Soner Yıldırım	✓	✓		✓		✓	✓	✓	✓	✓		✓	✓	
Erdoğan Tezci		✓	✓	✓	✓		✓	✓		✓				
Taleh Khalilov	✓			✓		✓		✓	✓		✓			✓

C : **C**onceptualization

M : **M**ethodology

So : **S**oftware

Va : **V**alidation

Fo : **F**ormal analysis

I : **I**nvestigation

R : **R**esources

D : **D**ata Curation

O : Writing – **O**riginal Draft

E : Writing – Review & **E**ding

Vi : **V**isualization

Su : **S**upervision

P : **P**roject administration

Fu : **F**unding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

INFORMED CONSENT

Informed consent was obtained from all individual participants (parents) enrolled in the study.

ETHICAL APPROVAL

The research involving human participants was conducted in accordance with all relevant national regulations and institutional policies, in line with the tenets of the Helsinki Declaration. Since there is no centralized official national ethics committee for social sciences in Kosovo, the study underwent a formal institutional approval process. Official permission to conduct the research was granted by the University of Prizren “Ukshin Hoti,” and all necessary administrative approvals were obtained from the relevant institutional authorities prior to the data collection process.

DATA AVAILABILITY

The data that supports the findings of this study are available from the first author, [SY], upon reasonable request.

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