




Structural Model of Fundamental Decisions of Parental Involvement and Its Types Based on The Gender (Male and Female) of Elementary School Students

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ABSTRACT

Objective: The current research aimed to construct a structural model of the fundamental decisions of parental involvement and its forms based on the gender (male and female) of elementary school students.

Materials and Methods: The design of this research was correlational, employing modeling methods. The study population consisted of all elementary school students in Tehran for the academic year 2020-21. The sample included 386 parents of these students, selected through random cluster sampling. The data collection tools in this research included 6 scales present in the Hoover-Dempsey and Sandler (2005) model of parental involvement. The data of this research were analyzed using SPSS23 and SMART PLS software, employing structural equation modeling as the statistical analysis method.

Findings: The findings of the research showed that the latent construct of forms of parental involvement has a direct structural effect on the latent construct of school-based behaviors. The latent construct of forms of parental involvement also has a direct structural effect on the latent construct of home-based behaviors. The latent construct of forms of parental involvement with the latent construct of school-based behaviors is significantly moderated by gender. The latent construct of forms of parental involvement with the latent construct of home-based behaviors is also significantly moderated by gender, meaning that gender plays a moderating role between the variables, and parental involvement of sons at home is more than that of daughters.

Conclusion: The study concludes that parental involvement in children's education is significantly influenced by the gender of the child, with sons experiencing more involvement at home compared to daughters. Both home-based and school-based parental behaviors are directly affected by the forms of parental involvement, highlighting the critical role of gender as a moderating factor in these educational dynamics.

Keywords: Dimensions of parental involvement in children's education, forms of parental involvement in children's education, parents, gender of students

(Grover, 2015)

1. Introduction

The interaction between a child's formal learning experiences at school and their informal developmental experiences at home and within the family occurs through a continuous process (Parsakia, 2023). Therefore, if children are to receive the maximum benefits from the curriculum, close collaboration between home and school is essential. Parents also play a special role in creating and fostering a positive spirit in the school so that all members of the community and school can develop a sense of belonging to the school and be interested in its development and progress. The dimensions of parental involvement in their children's education are variables that can have a major impact on the education and training of students. Parental involvement dimensions refer to parents' participation and engagement in their children's education in both home and school environments (Berthelsen & Walker, 2008). Parental involvement is often defined in school-centric terms, such as the frequency of parents visiting the school to volunteer or attend meetings with teachers (Fantuzzo et al., 2004). However, parental involvement in children's education can take various forms, both at home and at school (Grover, 2015). The theory of involvement is based on the principle that community members should be involved in the design, implementation, management, and evaluation of programs. Many researchers have focused on the important role that a strong positive link between home and school plays in the growth and education of children (Henderson & Berla, 1994; Henderson & Mapp, 2002). Theories supported by numerous studies show that good collaboration between schools, homes, and communities can lead to educational advancement and reforms (Jeynes, 2007). Research indicates that successful students benefit from strong educational support from their involved parents. Furthermore, research on significant schools, those where students are learning and succeeding, consistently shows that these schools, often located in socio-economically disadvantaged neighborhoods, have strong and positive home-school relationships (Sanders & Sheldon, 2009). More importantly, these effective schools, with a positive educational environment, have made considerable efforts to connect with their students' families to create good collaboration. Sanders and Sheldon (2009) believe that schools succeed when a strong, positive relationship is established among students, parents, teachers, and the

community. All students are more likely to succeed academically if their home environment is supportive (Sanders & Sheldon, 2009).

Given the significant role of parental involvement dimensions in children's education, one of the important issues is the examination of variables that influence and enhance parental involvement. The most recognized model in terms of how, quality, and effectiveness of parental involvement in children's education and the variables influencing it was developed by Hoover-Dempsey and Sandler (2005), known as the Hoover-Dempsey and Sandler model of parental involvement (engagement) process. This model attempts to explain why parents become involved (engaged) in their children's education and how their involvement influences educational outcomes, which was validated by the United States Department of Education in 2005. Hoover-Dempsey and Sandler in 1995 and 1997 presented their model at five levels. Their model is based on the premise that parents' positive decisions to participate include their chosen methods, which define cognitive mechanisms and, influenced by moderating and mediating variables, ultimately turn the page on children's educational outcomes (Hoover-Dempsey & Sandler, 2005). Researchers have shown that in recent years, students' interest in certain subjects has decreased, and individuals like counselors and parents, feeling a sense of role, have found more motivation for educational participation and are more dynamic in this regard. For instance, Zoghiqui Paidar, Yaghoubi, and Nabizadeh (2014) have shown that knowledge, skills, time and energy, self-efficacy, and motivation are related to parental involvement and, in turn, to children's educational progress (Zoghhipaidar et al., 2014). Others demonstrated that parental educational involvement is related to the level of invitation or receipt of participation messages, and this involvement has been able to affect important educational variables such as motivation and academic anxiety. The third level of the model, the cognitive mechanisms of parents on their participation, creates specific outcomes including modeling, reinforcement, and creation. The underlying thoughts of parents and their goals for participation affect their impact in creating a specific educational and training model, strengthening the existing model, or creating new strategies within the current model. Parental involvement has the greatest impact on children's education when parents, as supporters, have positive perceptions of their children, and supportive parents guide their child towards

independence rather than making decisions for them, ultimately leading to a child with a higher sense of competence. Some believe that regardless of the underlying thought, the first priority is participation, and the result of participation, arising from parents' perspectives or type of involvement, may lead to the upbringing of a creative child, a non-creative but studious and hardworking child, or the like, with all outcomes potentially being desirable (Đurišić & Bunijevac, 2017). The fourth level of the model consists of moderating and mediating variables, including: 1- parents' use of expanding appropriate participation strategies, 2- the alignment of parents' activities with school expectations (Hoover-Dempsey & Sandler, 2005). Research also confirms these effects, and showed that parents with higher educational levels and higher parental expectations increase their involvement in their children's education, which in turn creates a supportive environment for the children and reduces their academic stress. Others has shown that parental educational involvement reduces children's academic stress (Green et al., 2007; Lavenda, 2011; Nezamparast et al., 2023).

Therefore, considering the changes and differences between societies, it can be said that the importance or effectiveness of variables influencing parental involvement in their children's education is also a research gap or issue in our society. Hence, this study will examine the relationships between the construct of forms of parental involvement and variables of motivational beliefs, parents' perception of invitation, and their understanding of the life context. In this study, motivational beliefs, parents' perception of the invitation for involvement, and parents' understanding of their life context will be assumed as variables influencing parental educational involvement. Motivational beliefs consist of two constructs: role and parental self-efficacy. The construct of parents' perception of invitation comprises three variables: invitation from the principal, teacher, and student, and the construct of understanding life context consists of two variables: perception of time and energy and parents' skills and knowledge. Consequently, this research aims to construct a structural model of fundamental decisions of parental involvement and its forms based on the gender (boys and girls) of elementary school students.

2. Methods and Materials

2.1. Study Design and Participants

The design of this research is correlational, conducted using structural equation modeling. The study population

comprised all parents (male and female) of elementary school boys and girls in Tehran for the academic year 2020-21. The sample size was 386 individuals. Sampling was done through random cluster sampling. Considering that the data analysis method was structural equations, Kline (2010) suggests a minimum of 20 samples per variable. There were 13 latent and indicator variables in this study. Based on Kline's suggestion, a sample size of 260 was sufficient for this research, but considering the time, resources, and implementation facilities, a sample size of 400 was chosen. Some questionnaires were not returned, and ultimately, 386 completed questionnaires were obtained.

For data collection, from both girls' and boys' elementary schools in Tehran and from the four geographical areas of north, south, east, and west of the city (the areas are approximate and schools in each area were considered as the elementary school for that geographical direction), one public and one non-profit (private) girls' and boys' school were selected. In total, 8 elementary schools were chosen. One class from each grade was randomly and by lottery selected from each school. In total, 48 classes were chosen for this research. For data collection from the students' parents, considering that part of the research was conducted during the COVID-19 pandemic, the online questionnaire link was sent to parents through virtual teacher groups so that they could respond to the data collection tools online. In total, 463 questionnaires were returned, and after considering several entry criteria, 393 questionnaires were available for statistical analysis. After eliminating some multivariate outliers, a total of 386 analyzable data remained and were considered the final sample of the study. For data collection, in collaboration with teachers, the researcher also joined the virtual parent-teacher groups and, along with the sent link, necessary explanations regarding the importance of the research and how to complete the questionnaires were sent in the form of written or audio messages.

2.2. Measures

2.2.1. Parental Role Construction and Parental Involvement in Children's Education Inventory

This inventory includes multiple scales based on the open model designed by Hoover-Dempsey and Sandler (2005). This tool is actually multi-layered and multi-part that plays the role of several variables in the model of the dimensions of parents' participation in the education of children (their children) and is scored with a 6-point Likert scale. This questionnaire includes 9 scales, which are: activity role

beliefs scale (10 items); parenting self-efficacy scale (7 items); scale of parents' perceptions of invitations to participate in school (6 items); scale of parents' perception of inviting children to participate (6 items); scale of parents' perception of the teacher's invitation to participate (6 items); scale of parents' understanding of personal knowledge and skills (6 items); scale of parents' perception of time and energy for participation (6 items); Scale of participation activities based on home (5 items) and school (4 items) (Hoover-Dempsey & Sandler, 2005). The reliability and validity of the questionnaire was confirmed by many researchers (Nezamparast et al., 2023).

2.3. Data Analysis

For data analysis, SPSS25 and Smart PLS3 software were used for partial least squares structural equation modeling.

3. Findings and Results

The mean, standard deviation, minimum, maximum, forms of parental involvement, parents' motivational beliefs, parents' perception of others' invitations for involvement, parents' perception of the life context, home-based behaviors, and school-based behaviors, based on the gender of the students, were calculated and the results are presented in the Table 1 and Table 2.

Table 1

Descriptive Indices for Scores of Forms of Parental Involvement of Female Students (n=126)

Variable	Minimum	Maximum	Mean	Standard Deviation
Forms of Parental Involvement	179	292	262.39	30.04
Parents' Motivational Beliefs	60	102	88.92	10.61
Construction of Parental Role	35	60	52.86	6.31
Parental Self-efficacy	20	42	36.05	5.23
Home-based Behaviors	11	30	25.21	4.43
School-based Behaviors	17	36	31.13	4.59

Table 2

Descriptive Indices for Scores of Forms of Parental Involvement of Male Students (n=180)

Variable	Minimum	Maximum	Mean	Standard Deviation
Forms of Parental Involvement	201	300	265.66	19.60
Parents' Motivational Beliefs	40	102	88.03	9.00
Construction of Parental Role	27	60	53.18	4.49
Parental Self-efficacy	13	42	34.85	6.15
Home-based Behaviors	5	30	26.64	3.91
School-based Behaviors	16	36	32.27	3.49

For the implementation of statistical methods and the calculation of suitable test statistics and logical inference about the research hypotheses, the most important action before any step is the selection of an appropriate statistical method for the research. For this purpose, knowledge of data distribution has fundamental priority. For this reason, in this

research, the Kolmogorov-Smirnov test was used to check the assumption of normality of the research data. The significance level of the Kolmogorov-Smirnov test for all research indices was greater than 0.05, indicating the normality of the research variables.

Table 3

Correlation Matrix of Research Variables

	1. Forms of Parental Involvement	2. Parents' Motivational Beliefs	3. Parents' Perception of Others' Invitation	4. Parents' Perception of Life Context	5. Home-based Behaviors	6. School-based Behaviors
1	1					
2	0.785**	1				
3	0.778**	0.679**	1			
4	0.770**	0.644**	0.670**	1		
5	0.660**	0.534**	0.579**	0.636**	1	
6	0.689**	0.651**	0.607**	0.561**	0.668**	1

** Correlation is significant at the 0.01 level (2-tailed).

The **Table 3** shows the correlation coefficients between the components of the variables of the current research. As can be seen, the variables of parents' motivational beliefs, parents' perception of others' invitations for involvement, parents' perception of the life context, home-based behaviors, and school-based behaviors are positively and significantly correlated with the forms of parental involvement at the 0.01 level.

Subsequently, using partial least squares structural equation modeling, the conceptual model of the research was examined to analyze the relationships between research variables, reliability and validity coefficients, and model quality. Initially, the model related to path coefficients and subsequently the model related to t-values is reported in **Figure 1**.

Table 4

Results of Beta Coefficients and T-values

Paths	S.E.	β	t	p
Forms of Parental Involvement → School-based Behaviors	0.017	0.521	7.68	0.0001
Forms of Parental Involvement → Home-based Behaviors	0.015	0.625	17.081	0.0001
Moderating Role of Gender on School-based Behaviors	0.030	0.315	3.479	0.005
Moderating Role of Gender on Home-based Behaviors	0.026	0.413	4.486	0.001

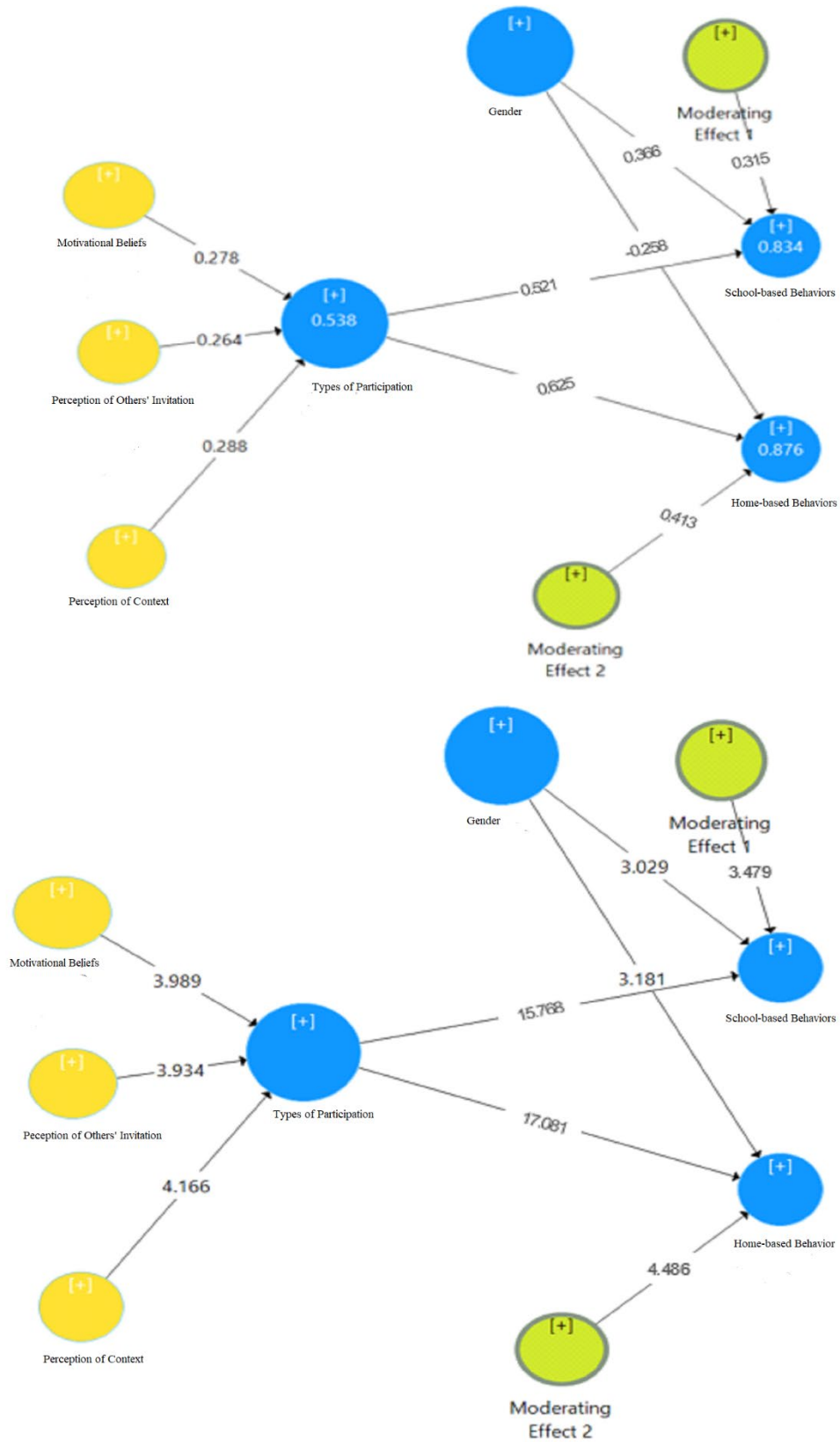
The results of the **Table 4** show that the direct effect of the forms of parental involvement on school-based behaviors ($P < 0.01$, $\beta = 0.521$) is significant. It also shows that the direct effect of the forms of parental involvement on home-based behaviors ($P < 0.01$, $\beta = 0.625$) is significant. It also shows that the moderating role of gender in the relationship between the forms of parental involvement and school-based behaviors ($P < 0.01$, $\beta = 0.315$) is significant.

Additionally, in the Smart PLS model, to examine model fit, SSE (the sum of the squares of the prediction errors) for each block of latent variables and $(1 - SSE/SSO)$ also shows the communal validity index or CV-COM. If the communal validity index of latent variables is positive, the measurement model has appropriate quality. In this research, the communal validity index for all constructs is positive; the GOF value for the model was calculated as 0.405, and the SRMR index (the square root of the average of the standardized residuals) was used, reported as 0.079, which is less than 0.08, indicating that the empirical data supports the overall theoretical model, and the measurement model has appropriate quality. Subsequently, the direct, indirect, and total effects of the research variables on the forms of parental involvement were examined.

This means that gender has a moderating role between variables and parental involvement of daughters in school is more than that of sons. Finally, it shows that the moderating role of gender in the relationship between the forms of parental involvement and home-based behaviors ($P < 0.01$, $\beta = 0.413$) is significant. This means that gender has a moderating role between variables, and parental involvement of sons at home is more than that of daughters.

Figure 1

Model with Standardized Coefficients (Above) and T-values (Below)



4. Discussion and Conclusion

The current research aimed to construct a structural model of the fundamental decisions of parental involvement and its forms based on the gender (male and female) of elementary school students. The results showed that the latent construct of forms of parental involvement has a direct structural effect on the latent construct of home-based behaviors.

The construct of parental role essentially refers to parents' beliefs and convictions about what they can do regarding the education of their children. This finding aligns with the results of previous research (and & Wigfield, 2002; Bai & Wang, 2023; Burić & Kim, 2020; Code, 2020; Gonzalez-DeHass et al., 2005; Green et al., 2007), demonstrating that motivated individuals (those who feel they can play a role in a task) become interested and exert effort in that task. These studies indicated that in recent years, as students' interest in some subjects has decreased, individuals like counselors and parents who feel they have a role have become more motivated to participate in their children's educational involvement. Similarly, studies showed that knowledge, skills, time and energy, self-efficacy, and motivation are related to parental involvement and in turn to their children's educational progress. The construct of role acts as a motivator for parental involvement, as it helps parents envision and expect how they should behave in activities related to their children's educational success (Burić & Kim, 2020; Code, 2020; Nezamparast et al., 2023). In Iran's Fundamental Transformation Document of Education, the role of parents in education and schools is considered essential, and the National Curriculum Document explicitly emphasizes the role of parental participation in clauses six and eleven (Burić & Kim, 2020; Code, 2020; Nezamparast et al., 2023). Code (2020) states that individuals who value a task are more likely to engage in it and are motivated, which is exactly similar to the construct of role, suggesting that if parents feel they can play a role in their children's education, they will be motivated, leading to an increase in home-based or school-based participatory behaviors (Code, 2020).

In addition to the construct of role or parental motivation for involvement and assistance in their children's educational affairs, parental self-efficacy is also significantly loaded in their motivational beliefs and has a significant impact on the forms of parental involvement in their children's education. This result is in line with Zare and Ghorbani (2021), who

showed that self-efficacy leads to helping behavior and problem-solving for others (Zare & Ghorbani, 2021). As Bandura states, self-efficacy means the confidence and trust a person has in their abilities in various individual and social areas (Bandura, 1986; Bandura et al., 1997). Parents with higher self-efficacy have more belief in their impact on their children. This belief and sense of capability can lead to more motivation and belief in creating more opportunities for their children. Therefore, it can be inferred that a sense of self-efficacy plays a significant role in creating motivational belief (Parsakia et al., 2023). This aligns with the previous research (Burić & Kim, 2020). Explaining the significant relationship between parents' sense of self-efficacy and their motivational beliefs for participating in their children's education can be elucidated within the theoretical framework of the expectancy-value theory of motivation. This theory states that people are motivated to perform a task if they have the belief and expectation of success in that action and, in addition to this expectation, the outcomes of that action are considerable and valuable to them (Burić & Kim, 2020). Therefore, it can be inferred that parents who have self-efficacy beliefs about influencing their children's education will develop motivation and motivational belief for this action. Studies also showed that a sense of self-efficacy forms the belief in motivation for effort. Bandura states that self-efficacy is a self-reflective belief in one's ability to succeed and is a fundamental condition for human performance (Bai & Wang, 2023). These beliefs, by affecting the choices people make, the effort they exert, the perseverance they show in the face of difficulties, and the thought patterns and emotional reactions they experience, act as determinants of behavior.

Another finding of the research was that the latent construct of forms of parental involvement has a direct structural effect on the latent construct of school-based behaviors.

Initially, it should be noted that all three indicators – invitation by the child, invitation by the teacher, and invitation by the principal – have significantly loaded on the latent variable of invitation. The order of significance is as follows: invitation by the teacher, invitation by the child, and invitation by the principal. These results could mean that parents take the teacher's invitation most seriously, as teachers are directly and more intimately aware of the student's academic status than anyone else, and any message or invitation from them is deemed of greater importance by parents. This finding aligns with the results of previous studies (Eccles & Harold, 1993; Epstein, 1986; Epstein,

1991; Epstein, 2018; Epstein & Dauber, 1991; Epstein & Van Voorhis, 2001), which showed that invitations from the school are related to parental activity and children's academic progress. However, it does not align with the research of Zoghiqui Paedar, Yaghoubi, and Nabizadeh (2014), which suggested that school invitations did not increase children's academic progress and might not have been taken seriously by parents (Zoghipaidar et al., 2014). This discrepancy could be attributed to differences in the community and samples studied; the aforementioned research focused on parents of children with ADHD, whereas the current research examined regular students and their parents.

To explain the effect of invitations for participation (from the child, teacher, and principal) on parental involvement in their children's education (home-based or school-based), it can be said that invitations from school agents, especially teachers who have the most significant role and familiarity with children's education, send a message of importance to parents. When parents receive this message of importance from the teacher and principal, their level of involvement (both at home and school) in their child's education tends to increase. Besides creating a sense of importance, invitations from school agents also create a sense of responsibility, implying that parents have a responsibility comparable or similar to that of teachers and principals towards their child's learning. This increases the likelihood of home-based or school-based involvement. Especially, these effects (message of importance and creation of responsibility) are stronger when the invitation is multi-faceted (from the teacher, child, or principal). Previous research has shown that invitations (from any source) improve children's academic status, serving as a third factor that increases parental involvement at home or school-based, as improvement in children's academic status acts as a reinforcing factor for parents, encouraging them to continue or increase their involvement. This is explainable in terms of agency in social cognitive theory, as previously mentioned. Code (2020) states that when an individual feels agency in a task, their role, behavior, and behavioral patterns in that area are enhanced and sustained (Code, 2020). Therefore, parents who increase their involvement in their child's education following invitations (from the teacher, principal, and child) and subsequently observe its impact on improving their child's educational status, develop a sense of agency. Invitations from teachers and principals, by creating a positive relationship, intimacy, and common language and goals, affect the increase in parental involvement (home-

based and school-based) (Code, 2020). When school staff invite parents, they often implicitly or explicitly create a school-oriented family and encourage parents to engage with their child's curriculum, offer activities to encourage learning at home, provide information about what children do in class, and how to help them with homework, including: information for families on skills needed for students in all subjects in each class, information on homework policies and how to monitor and discuss school homework at home, and family involvement in setting student goals for each year and planning for them. These activities, following the school's invitation, undoubtedly increase parental involvement (both school-based and home-based).

The third outcome of the research was that the latent construct of forms of parental involvement is significantly moderated by gender with the latent construct of school-based behaviors. Parental perception of life context, with two indicators - perception of their own time and energy and perception of their own skills and knowledge - has a significant and positive effect on the forms of parental involvement in children's education. Furthermore, parents' perception of their skills and knowledge created a greater factor loading, thus having a greater impact on the forms of parental involvement. This finding aligns with the findings of previous studies (Comer & Haynes, 1991; Lavenda, 2011; Zoghipaidar et al., 2014), which state that school invitations to parents create knowledge and skills for parental intervention in children's education, leading to greater parental involvement. This is also consistent with the findings of Green et al. (2007), who showed that parental involvement in children's education is associated with socioeconomic status (which can be equivalent to or overlap with the indicators of parents' time and energy in this study) (Green et al., 2007). It also aligns with the research of Fardini (2021), indicating that parents who have more skills and knowledge in their children's education and teach this to their children have greater involvement in their education (Fridani, 2021). Lavenda (2011) describes a model which assumed that children's learning at school precedes learning at home, and they bring their learnings home, link them to life experiences, explore and inquire in that area, etc., which accelerates learning at home. Some state that in this process, parents play a role, and those who have sufficient knowledge, skills, and opportunity play a more prominent role in this learning model and lead to a connection between parents, schools, and teachers (Lavenda, 2011). According to this model, as teaching surpasses in-class instruction, a joint commitment and responsibility for education is created

for parents. Goodall and Montgomery (2014) state that when parents show skills and expertise in their child's education, this is valued by teachers, and this valuation, in turn, is reciprocated to the parents, leading to synergy and increased parental involvement in their children's education (Goodall & Montgomery, 2014).

5. Limitations & Suggestions

This research also faced limitations. Among these limitations is that only home-based and school-based interventions were examined, and the quality and nature of parental intervention in children's academic affairs were not investigated. This research measured and quantified forms of parental involvement in school, considered as a desirable variable, and was presumed to be influenced by several other variables (predictors in this research). However, one limitation is that the potential and readiness of schools to shape and accept parental involvement was not examined, which could be an obstacle to school-based involvement despite parents' eagerness, readiness, and skills in their children's education. This research did not examine the number of children in the family as a variable influencing the extent of parental involvement. Therefore, families with one child may have different levels of involvement compared to multi-child families, influenced by the number of children. Future research should examine not only the type of intervention (home-based or school-based) but also the quality and method of intervention. It is suggested that the role of schools as a variable influencing the creation, maintenance, and increase of parental involvement in children's education should also be examined. Other intervening variables such as the number of children in families being studied for parental involvement in their child's education should also be considered or controlled. Given the impact of the role construct on forms of parental involvement in children's education, the first recommendation is to initiate efforts in creating a sense of role and self-efficacy in playing a role in children's education for parents, which in turn will increase involvement. In this regard, school calls, parent-teacher meetings, etc., to educate and convey the importance of parental involvement can be helpful. Considering the effect of perception of time and energy on forms of parental involvement, parents should first be cultured to take on a prominent role and

responsibility in their children's education. Parents might have enough time and energy but may lack the belief and conviction that they are contributing to today's participatory education. Therefore, it is suggested that experts, teachers, education departments, etc., initiate efforts to create this attitude, belief, and culture. Following the formation of this belief, parents will allocate time from their daily or weekly schedule for involvement in education (home-based or school-based).

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Declaration of Interest

The authors of this article declared no conflict of interest.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Authors' Contributions

Mahbobe Nezamparast played a crucial role in shaping the research design, gathering data, and conducting data analysis. Siavash Talepasand and Shahab Moradi brought their expertise in modeling methods and statistical analysis, employing structural equation modeling for data interpretation. Together, these authors collaborated effectively to develop a structural model exploring parental involvement and its various forms in relation to the gender of elementary school students.

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