Education and Information Technologies (2025) 30:10411–10442
https://doi.org/10.1007/s10639-024-13194-w

Investigating the relationship between Iranian parents' demographic factors and their mediation of children's digital gameplay at home

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Received: 8 January 2024 / Accepted: 25 November 2024 / Published online: 18 December 2024
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Abstract

Previous studies have shown that demographic factors can influence parental mediation strategies during children's digital gameplay. However, little is known about maternal and paternal mediation in Iranian families. This study examined the relationship between maternal and paternal mediation (restrictive, active, viewing, technical, and laissez-faire) and demographic profiles (gender, age, socioeconomic status (SES), and education level) during the digital gameplay of children aged 6–10 years. Understanding this relationship is key to developing age-appropriate, culturally sensitive strategies to guide children's digital interactions. A sequential mixed-methods study involving 210 Iranian parents (167 mothers and 43 fathers) was conducted, including a survey and follow-up interviews with 10 parents (8 mothers and 2 fathers), to explore their role in mediating children's digital gameplay. The quantitative results showed a strong positive relationship between mothers' technical and active mediation and education level, and between fathers' education, viewing, and restrictive mediation. However, a negative correlation was found between fathers' education and laissez-faire mediation. Qualitative interviews revealed that both mothers and fathers tend to mediate children's digital playtime towards more educational games, using primarily restrictive and active co-playing mediation strategies. Iranian parents, particularly fathers, may benefit from adopting more technical and active co-playing mediation to further support their children's digital gameplay at home. Sociocultural norms, especially Islamic-Iranian norms, may influence parental mediation of children's digital gameplay.

Keywords Parental mediation · Digital gameplay · Digital learning · Iranian parents · Iranian children

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1 Introduction

Earlier research work has acknowledged the importance of children's digital literacy practices as an essential skill not only for educational purposes but also for navigating different tasks in their daily lives, such as effective communication with their relatives and finding relevant information to answer their questions, among others (Scott, 2022; Soyoof et al., 2024a, c). For example, a study in the U.K. showed that children use YouTube at home as a social media platform to improve their language and literacy (Marsh, 2017). Further, children in Iran use digital technologies for entertainment purposes, which can enhance their language and literacy (Soyoof et al., 2024c). Digital literacy skills refer to "the practices of reading, writing, and communication made possible by digital media" (Hafner et al., 2015, p.1). However, people's engagement with digital technologies, such as computers and tablets, varies based on their demographic backgrounds. These distinct interactions, based on their sociocultural influences, are called digital literacy practices (Soyoof et al., 2024b).

Research has shown that parents play an indispensable role in their children's digital literacy practices (Scott, 2022; Soyoof et al., 2024b, c). For instance, parents, based on their personal perspectives, decide with whom, where, when, and how their children can use digital technologies in the home context (Soyoof et al., 2024b). Furthermore, mothers decide on their children's experiences through digital technologies in the home context. For example, one group of mothers preferred a segmented experience of digital technologies at home for their children, that is, engaging with "one type of technology during specific activities and moments of the day" (Poveda et al., 2020, p. 12). However, other mothers selected an "organic experience" of digital technologies for their children in the home, or "mov[ing] fluidly across devices and activities throughout the day in a setting" (Poveda et al., 2020, p. 12). Moreover, previous studies (Flewitt & Clark, 2020; Soyoof et al., 2024b, c) have emphasized the significant role of parents' interactions with their children's language and literacy development. Overall, parents' roles are critical in shaping their digital literacy practices through using different parental mediation strategies.

Parental mediation is defined as "any strategy parents use to control, supervise, or interpret media content for children and adolescents" (Warren, 2001, p. 212). In this study, the first type of parental mediation is restrictive mediation, which limits or controls children's use of digital technologies (Gözüm & Kandır, 2020). The second type of parental mediation is active co-playing mediation, involving discussing potential risks of digital technologies with children (Vaterlaus, 2019; Zaman et al., 2016). An example of this is when parents co-use digital media with their children, explaining that the content can be either dangerous or educationally beneficial (Gözüm & Kandır, 2020; Vaterlaus, 2019). The third type of parental mediation is viewing mediation or distant mediation, in which children can use specific digital technologies or resources, such as certain websites, only under their parents' direct supervision (Gözüm & Kandır, 2020; Zaman et al., 2016). For instance, while engaged in their tasks, parents might occasionally monitor their children's digital use from a close distance, rather than employing restrictive strategies (Zaman et al., 2016). Technical mediation is the fourth parental mediation, where parents provide technical instructions to their children on digital technology use. For example, parents might teach

their children how to protect their privacy on social media platforms (Kumpulainen et al., 2020). Alternatively, some parents might not use any specific mediation strategy and allow their children free use of digital technologies, which is called "laissez-faire mediation" (Gözüm & Kandır, 2020, p. 3296). It is important to note that previous studies indicated that parents' gender, level of education, and SES of their families might affect parents' mediation of children's digital literacy practices (Boniel-Nissim et al., 2020; Dong et al., 2022; Soyoof, 2022a; Soyoof et al., 2024b).

The research literature acknowledges that parents' gender can influence their mediation strategies of their children's digital literacy practices. Specifically, a quantitative study found that fathers in the USA often provide more technical instructions, like ensuring security and privacy when using digital devices, while mothers tend to discuss the potential risks associated with digital technologies (Drouin et al., 2020). Using a qualitative approach, Boniel-Nissim et al. (2020) in Israel found that while fathers tended to engage in less effective communication regarding pornography watched by their children, mothers were generally less involved in managing their children's exposure to it. More recently, using a qualitative research design, Balleys (2022) reported that in Switzerland, compared to fathers, mothers spend more time mediating their children's digital use due to sociocultural norms and the nature of their part-time professions. Taken together, these findings suggest that parents' gender is one factor that can affect their mediation.

Aside from the gender of parents, a number of previous studies attested to the role of parents' level of education in their mediation. In particular, Soyoof (2022a) conducted a qualitative study showing that in Iran, parents' level of education influenced their approaches to parental mediation of their children's digital literacy practices involving digital games. Furthermore, using a quantitative research design, Barrios (2022) reported that the level of education of Spanish parents can be a factor in their mediation strategies. Consistent with the aforementioned studies, using a mixed-methods study, Gözüm and Kandır (2020) found that the level of education of parents may contribute to the parental mediation strategies of both fathers and mothers in Turkey. Overall, while it seems that both the gender and level of education of parents can contribute to their parental mediation, other demographic factors such as the SES of families can also be important.

Previous studies indicated that SES of families can also influence their mediation. For example, a qualitative study conducted in Canada by Teichert (2021) revealed that parents' mediation can be influenced by their SES by adopting more restrictive mediation strategies. Similar findings were reported by Poveda et al. (2020) in a qualitative study conducted in the U.K., Spain, and Sweden, which demonstrated that SES played a crucial role in parents' mediation, particularly in adopting restrictive mediation practices to safeguard children from the potential risks of digital technologies. For example, parents set time limits for their children's use of digital technologies at home (Poveda et al., 2020). Contrary to these findings, Dong et al. (2022) through a quantitative study, found that in Chinese families, parental mediation is influenced by several factors, including SES, children's age, geographic location, access to digital resources, and parental beliefs. Moreover, a number of other factors, such as the age of the children, parents' level of education, religion, gender, the sociocultural norms of society, and the family's SES, can influence parents' media-

tion (Drouin et al., 2020 Gözüm, 2022; Livingstone et al., 2015; Nikken & Jansz, 2014; Soyoof, 2022a; Soyoof et al., 2024b). This shows that parental mediation is influenced by different demographic factors (e.g., parent gender, culture, education) in addition to SES.

To date, the relationships between parents' demographic factors and their mediation of children's digital technology use have been investigated in the contexts of Türkiye (Gözüm & Kandır, 2020), Greece (Papadakis et al., 2022), Germany (Schaan & Melze, 2015), Belgium (Zaman et al., 2016), and Singapore (Jiow et al., 2017). It is important to note that the majority of these studies were either qualitative or quantitative, and there is a scarcity of a mixed-methods study. However, the mediation strategies of Iranian parents, especially considering their demographic profiles (e.g., the gender and level of education of parents and the SES of their family), have not yet been fully explored, especially using a mixed-methods research design. Considering the different socio-political context of Iran compared to the above-mentioned countries and the research designs of previous studies in the literature, an exploration of the relationship between maternal and paternal mediation and their demographic profiles is needed to extend current research in this field. For instance, understanding Iranian parents' mediation is especially important, as Iran is a sanctioned country, and the access of people and the way they use digital technologies and resources seem to vary from previously investigated contexts (Soyoof, 2022b; Soyoof, 2022c). Furthermore, examining Iranian parents' mediation strategies can offer Iranian stakeholders policy-making, enhanced parental engagement, and industry-specific perspectives. Guided by the above-mentioned points, this study aims to answer the following research questions:

1. What is the relationship between Iranian parents' mediation strategies and their level of education, gender, and socioeconomic status (SES)?

    1.1. What is the relationship between Iranian parents' viewing mediation and their level of education, gender, and SES of their families?
    1.2. What is the relationship between Iranian parents' laissez-faire mediation and their level of education, gender, and SES of their families?
    1.3. What is the relationship between Iranian parents' technical mediation and their level of education, gender, and SES of their families?
    1.4. What is the relationship between Iranian parents' active co-playing mediation and their level of education, gender, and SES of their families?
    1.5. What is the relationship between Iranian parents' restrictive mediation and their level of education, gender, and SES of their families?

2. How do Iranian parents adopt viewing, laissez-faire, technical, active co-playing, and restrictive mediation during their children's digital games to support their digital literacy practices?

2 Literature review

In line with the focus of this study, in the first section, the theoretical framework of this study will be discussed, followed by the role of parental mediation in children's digital literacy practices. Afterward, the role of digital games (e.g., applications and social media platforms) on different digital devices such as computers, tablets, or smartphones and their values for children's digital literacy practices will be discussed.

2.1 Theoretical framework

This study is underpinned by Bronfenbrenner's ecological theory, which emphasises how children's experiences, attitudes, and behavior can be shaped by their interactions with family, community, culture, and various other factors (Bronfenbrenner & Morris, 2007; Soyoof et al., 2024a). Bronfenbrenner's perspective proposes that children's environment encompasses a number of interconnected systems, including the microsystem, mesosystem, exosystem, and macrosystem (Bronfenbrenner & Morris, 2007; Soyoof et al., 2024a). Among these various systems, children can obtain different skills (Bronfenbrenner & Morris, 2007). For example, the immediate environment that children are exposed to is referred to as their microsystem. This includes their interactions with family members, friends, and teachers (Bronfenbrenner & Morris, 2007; Soyoof et al., 2024a). The mesosystem encompasses the interplay between the microsystem, which involves the relationships between children and their parents, including the techniques and behaviours parents employ when making decisions about their children's preschool education. This interaction can have an impact on the early academic experiences of children (Soyoof et al., 2024a). Concerning the exosystem, the parents' profession and their workplace can indirectly or directly affect their lived experiences. It is important to note that these experiences of parents can affect parents' mediation of their children, which can in turn influence their learning or particular behaviors (Soyoof et al., 2024a, b). The macrosystem, which encompasses culture, values, and economic situations, might influence children's lives by shaping their acquisition of specific behaviors or skills (Soyoof et al., 2024a, b, c). Taken together, children's learning and behavior can be shaped by their environments, particularly the people they often engage with, such as close friends and direct family members (Soyoof et al., 2024a, b, c).

One of the most significant environments that can affect children's learning is their proximal contexts, including their interactions with family members and friends. For instance, Flewitt and Clark (2020) reported that interactions between children and their proximal contexts (e.g., mothers) can impact their digital literacy practices. In other studies, Soyoof et al. (2024b, c) found that the role of parents, especially in the proximal context, is instrumental in shaping children's home digital literacy practices. It is noteworthy that the role of parents in children's proximal context is not limited to how they use digital technologies but how they shape their mindset in their early stages of life through interaction with their mothers and other family members (Soyoof et al., 2024a). Overall, drawing on Bronfenbrenner's ecological theory, the literature attests to the centrality of parental mediation in shaping children's digital literacy practices.

2.2 Parental mediation roles in children's digital literacy practices

Research has shown that the role parents play in their children's proximal context is critical in shaping their digital literacy practices (Ozturk & Ohi, 2022; Scott, 2022; Soyoof, 2022b; Soyoof et al., 2024b). Parents, influenced by their personal perspectives, determine with whom, where, when, and how their children engage with digital technologies at home (Neumann, 2018). For example, parents in the U.K., Spain, and Sweden decide the duration and specific locations for their children's use of digital technologies at home (Poveda et al., 2020). In Iran, parents determine what digital technologies children should use and what digital content is appropriate for them (Soyoof, 2022b). Parents also play a critical role in selecting social media platforms for their children and guiding their usage for communication purposes with relatives (Flewitt & Clark, 2020). More recently, Soyoof et al. (2024b, c) reported that the role of parents, particularly in the proximal context, is essential not only in shaping children's digital literacy practices at home but also in influencing their mindset in early life, including how they act, feel, and think. Overall, as digital technologies evolve within children's digital literacy practices, the role of parents is gaining increasing significance.

A recent review of the literature covering the past decade has attested to the ever-increasing role of parents in deploying new mediation strategies to support their children's learning (Soyoof et al., 2024b). Specifically, Scott (2022) reported that parents in the U.K. adopted new mediation strategies to support their children, namely relating and extending mediation. Regarding the extension of mediation, this approach is based on children's interests in both digital and non-digital media, where parents encourage their children to engage in new media forms (Scott, 2022). For instance, one mother extended her child's dancing from one context (i.e., dancing in front of the television) to another by showing her hip-hop music on YouTube via her smartphone (Scott, 2022). Parents establish a connection between children's interest in new media and various other digital and non-digital activities (Scott, 2022). To illustrate this concept, consider a child who may not grasp the underlying message in the narrative of Mumble the penguin, who feels 'different' in an animation. A mother used her child's interest in this animation to show that all children, like those in her school, have unique talents (Scott, 2022).

The employment of the aforementioned parental mediation strategies depends on various factors, namely the perspectives of the parents, children's age, and the digital resources (e.g., digital games, applications, websites, and animations) that children engage with on their digital devices (e.g., smartphones, tablets, and gaming consoles). With this understanding, the subsequent section explains the role of these digital resources and their significance in enhancing children's digital literacy practices.

2.3 Digital gameplay and their roles in children's digital literacy practices

The literature highlights the significant role of various digital resources in children's digital literacy practices and their development in Science, Technology, Engineering, and mathematics (STEM), as well as their first and second language and literacy skills (Flewitt & Clark, 2020; Kervin et al., 2019; Ozturk & Ohi, 2022; Scholes et

al., 2022; Scott, 2022; Soyoof, 2022b; Soyoof et al., 2024b). Digital literacy practices can significantly enhance children's STEM, first language, and second language skills, as well as their overall literacy, especially when they engage in these activities together with their parents. For instance, in the U.K., using social media platforms such as *WhatsApp* and *Skype* with parental support enhances children's digital literacy practices and their first language and literacy skills (Flewitt & Clark, 2020). Similarly, Ozturk and Ohi (2022) reported that shared reading of electronic books as a digital resource can promote both children's digital literacy practices and their second language and literacy. Furthermore, co-using English-language animations at home can promote children's digital literacy practices as well as their first language and literacy skills (Scott, 2022). The shared use of digital games as a digital resource can also foster digital literacy practices and first language and literacy in children (Flewitt & Clark, 2020; Scott, 2022). It is important to note that co-playing or shared use of digital games can enhance parent-child bonding and improve the socio-emotional skills of children (Flewitt & Clark, 2020; Scott, 2022). The significance of digital games as a digital literacy practice lies in their uniqueness and frequency as an interactive activity between parents and children, which significantly contributes to children's learning (Nichols & Selim, 2022). In Iran, mothers who played digital games with their children helped them develop skills, including STEM, second language and literacy, and digital literacy practices (Soyoof, 2022a, b). In the context of Türkiye, the shared use of digital games by parents and children helped children to obtain STEM, and second language, and literacy skills (Gözüm & Kandır, 2020). Previous studies in Australia also showed that shared use of digital games can foster digital competence and digital literacy skills in children (Kervin et al., 2019; Scholes et al., 2022). Recent studies have demonstrated that educational digital games can improve children's language and literacy, especially when the games are selected by their mothers and children interact with their parents about what they have learned through these games (Soyoof et al., 2024b, c). However it is important to consider the use of digital games in the home context with caution, as not all digital games are well-designed or effective in fostering children's skills.

According to scholars, several important aspects of digital games for enhancing children's digital literacy skills at home need consideration (Beavis et al., 2017; Kervin et al., 2019; Soyoof et al., 2024b). For instance, educational digital games can offer benefits such as providing an engaging environment, enhancing digital literacy skills, and improving language and literacy potential. In contrast, commercial arcade digital games can sometimes be distracting and violent (Beavis et al., 2017; Soyoof et al., 2024b). Kervin et al. (2019) emphasized that an effective game should possess three key aspects to enhance both language and digital literacy skills. The first aspect is that digital games cannot replace language and literacy and other curriculum learning, especially STEM materials; instead, they can serve as supplementary resources for promoting different skills in children, such as digital literacy practices, language and literacy, and socio-emotional skills. Enhancing socio-emotional skills allows children to express their emotions effectively and appropriately (Soyoof et al., 2024b). In addition, children should not use digital games without supervision; they should play under the guidance of parents or teachers. Finally, when choosing digital games, it is crucial to consider their content and pedagogic intention (Kervin et al.,

2019). Thus, understanding how parents employ mediation strategies during their children's use of digital games at home is essential.

While previous studies in Iran have examined parental mediation during children's digital media use at home (e.g., Kordrostami et al., 2018; Kousari & Mehrabi, 2017), these studies have not investigated the influence of demographic profiles of Iranian parents, children, and their families on parent mediation. More importantly, previous studies in the context of Iran were limited to qualitative research designs (e.g., Kordrostami et al., 2018) or focused on only one state, such as Tehran (Kousari & Mehrabi, 2017). This study addresses these limitations by using a mixed-methods design across different states in Iran. Understanding these demographic profiles through a mixed-methods study can enable stakeholders to create, implement, and advocate for strategies that are culturally sensitive, relevant, and effective. With this knowledge in mind, we undertook this study to explore the role of parental mediation during digital gameplay by Iranian children. Informing Iranian stakeholders about the beneficial experiences of children is important, as this knowledge can be leveraged to enhance Iranian children's digital literacy and language literacy skills within classrooms.

3 Methodology

In this section, we offer information relevant to the methodology, including research design, data collection, and analysis.

3.1 Research design

Drawing on the research design proposed by Creswell (2013), we employed a sequential explanatory mixed-methods design for our study. For the quantitative phase of data collection, we used a survey scale developed by Gözüm and Kandır (2020). We conducted semi-structured interviews in the qualitative phase to better understand the perspectives of both mothers and fathers on parental mediation during their children's digital gameplay. Figure 1 shows the research design of this study.

3.2 Participants

Prior to data collection, the participants were given consent forms that explained the aim of the study. We ensured the anonymity and confidentiality of the participants' data by assigning unique identification codes to each participant and securing storage of the data without any personally identifiable information. In the quantitative phase, we recruited 210 Iranian parents (167 mothers and 43 fathers) through convenience sampling, a type of non-probability sampling where researchers collect data from a pool of samples who are more accessible to them (Creswell, 2013). All participants were native Persian speakers, aged between 30 and 56 years (M=39 years). Further information about the participants is offered in Table 1, including their level of education, gender, and SES. The information about family SES is based on the national income definition for Iranian families, where a monthly income of 307 USD classifies a family as middle SES. Families earning below or above this amount are consid-

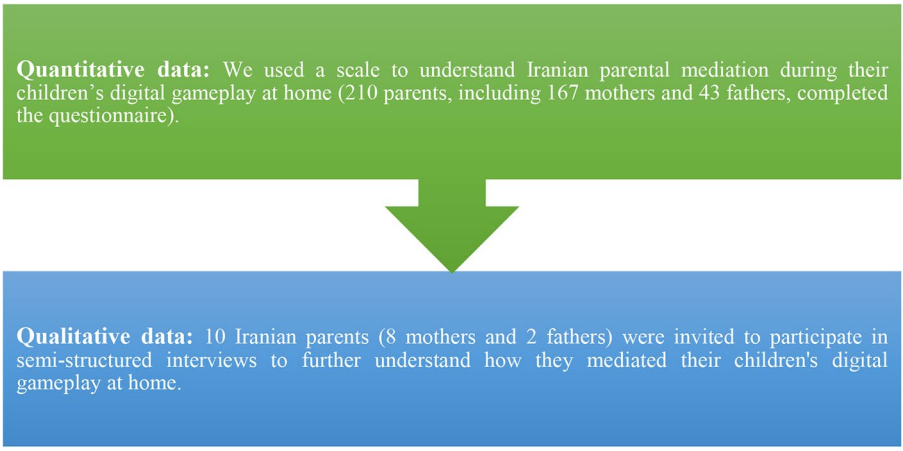


Fig. 1 A sequential explanatory mixed-methods design in this study

Table 1 The demographic profile of mothers and fathers (numbers of participants, percentage)

Demographic factors		
Level of Education	**Gender**	**SES**
Bachelors (83, 39.52%)	Male (43, 20.48%)	Low (21, 10%)
Masters (118, 56.19%)	Female (167, 79.52%)	Medium 168 (168, 80%)
PhDs (9, 4.29%)		High (21, 10%)

ered low SES and high SES, respectively. For the qualitative phase of the study, we adopted purposive sampling (Creswell, 2013) to recruit 10 Iranian parents (2 males and 8 females) aged 33–45 years. Six of these parents had PhDs, while the remaining four held Master's degrees. All of these parents reported that they had a medium SES. According to Merriam and Tisdell (2015), in purposive sampling, researchers select participants based on a few pre-determined criteria. In this study, we aimed to select parents with children aged 6 to 8 years for interviews, representing different socio-economic statuses and levels of education. We prioritized this age group since 156 out of 210 (74.28%) of the participating parents had children aged 6 to 8 years. Out of the total participants (210), 168 reported their family's SES as medium, while 21 participants categorized their family's SES as high, and another 21 classified it as low.

3.3 Instruments

For this study, we employed two instruments: a survey scale and a semi-structured interview.

3.3.1 Parent survey scale

The scale used in this study (Appendix A) was adapted from Gözüm and Kandır (2020). They calculated the Cronbach's alpha reliability of the scale ($\alpha = 0.89$). Sub-

sequently, they assessed the content validity of the scale in the context of Türkiye by consulting with experts in early childhood. We also asked two experts in early childhood to confirm and revise the scale, and upon their confirmation, we used the scale for this study. The scale contains 40 items (13 items about viewing mediation, 10 items regarding laissez-faire mediation, 4 items concerning technical mediation, 9 items about restrictive mediation, and 4 items related to active co-playing mediation). The response options for these items ranged from "always" with a value of 5 to "never" with a value of 1. The scale was then translated from English into Persian and double-checked by three proficient translators who translated it back from Persian to English. Any potential issues were resolved through discussions until all the translators agreed upon the final version. To assess the reliability of the scale in Iran, it was administered to 30 parents whose backgrounds were similar to the participants in this study. The scale's reliability, as determined by Cronbach's alpha, was 0.81, exceeding the minimum reliability threshold of 0.7 (Pallant, 2020). We distributed the scale through various social media platforms, especially *WhatsApp* and *Telegram*, by sharing the *Google Forms* link with parents. These platforms reached parents from diverse regions of Iran, not confined to any specific state or territory. A total of 210 Iranian parents completed the scale.

3.3.2 Semi-structured interview

We invited 10 Iranian parents (2 males and 8 females) aged 33–45 years to participate in semi-structured interviews to gain further understanding of their perspectives on adopting parental mediation during their children's digital gameplay. Unfortunately, while we invited an equal number of mothers and fathers for the qualitative stage of the study, only two fathers agreed to participate in the interview. As a result, we interviewed the two fathers and eight mothers to gain an in-depth understanding of how these parents use mediation strategies during their children's digital gameplay at home. We transcribed the interviews in Persian and subsequently translated the transcriptions into English. Afterward, we enlisted three proficient English–Persian translators to assist with back translation and member checking (Douglas & Craig, 2007). The interviews were conducted online via *WhatsApp* voice call in Persian, lasting 30 to 40 min for each interview.

3.4 Quantitative data analysis

For the quantitative data analysis, we first employed a test of normality to ensure that the survey data were normally distributed, thereby confirming a consistent distribution of parental mediation strategies during children's digital gameplay. We then deployed hierarchical regression analysis. We deployed this method because we had one dependent variable, parental mediation, characterized by five factors (restrictive mediation, active co-playing mediation, viewing mediation, technical mediation, and laissez-faire mediation) during children's digital gameplay. The analysis also included three independent variables: parents' level of education, gender, and SES. The purpose of hierarchical regression analysis is to measure the correlation between these independent and dependent variables. Further information about different sta-

tistical techniques with relevant references is offered in the results section. All statistical analyses in this study were accomplished using Jeffrey's Amazing Statistics Program (JASP), a free-to-use software.

3.5 Qualitative data analysis

For the qualitative data analysis, following the work of Braun and Clarke (2006), we used thematic analysis in NVivo 11 to analyse the interview transcripts. Thematic analysis is a "method for identifying, analyzing, and reporting patterns (themes) within data" (Braun & Clarke, 2006, p. 79). We used pseudonyms to protect the identity of the parents who participated in this study. More information about thematic analysis is provided in this section Qualitative analysis

4 Results

The purpose of the following section is to offer further explanations about the results of the qualitative and quantitative data analysis. Analysis of the quantitative data was used to answer the first research question with five sub-research questions, and the second research question was answered through the analysis of the qualitative data.

4.1 Quantitative results

As previously mentioned, 210 Iranian parents (167 mothers and 43 fathers) completed the survey questions; consequently, the results of the study were significantly influenced by mothers' mediation in the digital gameplay of Iranian children. To ensure that the distribution of parental mediations in the digital gameplay of Iranian children in this study was normal, a test of normality was employed as the first step. Table 2 offers the descriptives, including the mean and standard deviation in restrictive, active, viewing, technical, and laissez-faire mediation.

To ensure that the data were normally distributed, using a threshold of ±2 for skewness and ±2 for kurtosis (Byrne, 2010), we calculated the skewness and kurtosis values for 210 Iranian parents in various mediations: viewing mediations ranged from −0.56 to -0.74, laissez-faire mediations from 0.21 to -0.76, technical mediations from −0.60 to -1.65, active co-playing mediations from −1.06 to -0.36, and restrictive mediations from −0.17 to -0.73. Therefore, our data were normally distributed. In this study, a significant relationship was found between the five mediation strategies (restrictive, active co-playing, viewing, technical, and laissez-faire mediation), but based on the nature of our research questions, we undertook a separate relationship

Table 2 The descriptive statistics of the parent mediation strategies (mean of mothers and fathers combined)

Mediation strategies	Mean	Standard deviation
Restrictive	3.72	0.52
Viewing	3.78	0.50
Technical	3.71	0.54
Active	3.83	0.52
Laissez-faire	2.59	0.62

Table 3 The overall model summary of viewing mediation

Model	R	R^2	Adjusted R^2	RMSE
1	0.44	0.19	0.17	0.43

Table 4 The ANOVA of viewing mediation

Model		Sum of Square	df	Mean Square	F	p
1	Regression	9.69	5	1.64	10.08	<0.001***
	Residual	39.17	204	0.19		
	Total	48.85	209			

Note. *** $p \leq 0.001$

Table 5 The coefficients model summary of viewing mediation

Model		B	SE	t	p	95% CI	
1	(Intercept)	3.57	0.14	25.02	<0.01**	*Upper* 3.28	*Lower* 3.85
	Gender (Male)	0.20	0.10	2.45	<0.01**	0.03	0.34
	Gender (Female)	0.16	0.17	0.82	0.43	-0.24	0.27
	Education (Bachelor)	0.15	-0.15	-0.97	0.33	-0.45	0.15
	Education (Master)	-0.23	0.10	3.45	<0.01**	-0.37	-0.09
	Education (PhD)	0.74	0.20	3.60	<0.01**	0.33	1.14
	SES (Low)	0.11	0.18	0.62	0.53	-0.29	0.37
	SES (Medium)	0.25	0.13	1.88	0.06	-0.01	0.51
	SES (High)	0.22	0.12	1.54	0.17	-0.16	0.24

Note. ** $p \leq 0.01$, B = unstandardized, SE = standard error

between each mediation strategy and demographic factors in this study. Therefore, we conducted hierarchical regression to analyse the five sub-research questions listed under the first research question.

4.1.1 The regression between viewing mediation and demographic factors

As shown in Tables 3 and 4, the overall model predicted approximately 19% of the variance in viewing mediation among Iranian parents, $R^2 = 0.19$, $F_{(5,\ 204)} = 10.08$, $p < 0.001$.

As shown in Table 5, while a significant and positive association between Iranian parents' viewing mediation and male gender (fathers) was found, ($B = 0.20$, $SE = 0.10$, $p = 0.01$, 95% $CI = 0.03$ to 0.34), an insignificant positive correlation was shown between Iranian parents' viewing mediation and female gender (mothers), ($B = 0.16$, $SE = 0.17$, $p = 0.43$, 95% CI=-0.23 to 0.27). Furthermore, a negative and insignificant relationship between Iranian parents' viewing mediation and having a Bachelor's degree as their level of education (B=-0.15, $SE = 0.15$, $p = 0.33$, 95% CI=-0.45 to 0.15) was shown. Moreover, a positive and significant relationship between Iranian parents' viewing mediation and having a Master's or PhD as their level of education ($B = 0.24$, $SE = 0.10$, $p = 0.01$, 95% $CI = 0.09$ to 0.37; $B = 0.74$, $SE = 0.20$, $p = 0.01$, 95% $CI = 0.33$ to 1.14) was also shown. As for SES, a positive and insignificant relationship between Iranian parents' viewing mediation and low, medium, and high SES

Table 6 The overall model summary of laissez-faire mediation

Model	R	R^2	Adjusted R^2	RMSE
1	0.57	0.33	0.31	0.46

Table 7 The ANOVA of laissez-faire mediation

Model		Sum of Square	df	Mean Square	F	p
1	Regression	22.58	6	3.76	17.09	<0.001***
	Residual	44.69	203	0.22		
	Total	67.28	209			

Note. *** $p \leq 0.001$

Table 8 The coefficients model summary of laissez-faire mediation

Model		B	SE	t	p	95% CI	
1	(Intercept)	3.07	0.16	18.41	<0.01**	Upper 2.74	Lower 3.40
	Gender (Male)	-0.73	0.10	-8.73	<0.01**	-0.90	-0.57
	Gender (Female)	-0.20	0.15	-1.53	0.16	-0.52	0.11
	Education (Bachelor)	-0.25	-0.11	-3.75	<0.01**	-0.45	0.15
	Education (Master)	-0.19	0.07	-2.56	<0.01**	-0.34	-0.04
	Education (PhD)	-1.02	0.21	-4.69	<0.01**	-1.46	-0.59
	SES (Low)	-0.17	0.18	-0.95	0.34	-0.53	0.18
	SES (Medium)	-0.21	0.14	-1.47	0.14	-0.49	0.07
	SES (High)	-0.23	0.15	-1.55	0.12	-0.36	0.27

Note. ** $p \leq 0.01$, B = unstandardized, SE = standard error

(B = 0.11, SE = 0.18, p = 0.53, 95% CI=-0.29 to 0.37; B = 0.25, SE = 0.13, p = 0.06, 95% CI=-0.01 to 0.51; B = 0.22, SE = 0.12, p = 0.17, 95% CI=-0.16 to 0.24) was shown.

4.1.2 The regression between laissez-faire mediation and demographic factors

Tables 6 and 7 show the overall model predicted approximately 33% of the variance in laissez-faire mediation among Iranian parents, R^2 = 0.33, $F_{(6, 203)}$ = 17.09, p < 0.001.

As shown in Table 8, while there is a significant and negative association between Iranian parents' laissez-faire mediation and male gender (fathers), (B=-0.73, SE = 0.10, p = 0.01, 95% CI=-0.90 to -0.57), an insignificant negative correlation was shown between Iranian parents' laissez-faire mediation and female gender (mothers) (B=-0.20, SE = 0.15, p = 0.16, 95% CI=-0.52 to 0.11). Moreover, a significant and negative association between Iranian parents' laissez-faire mediation and their level of education (Bachelor's, Master's, and PhD holders) was shown (B=-0.25, SE = 0.11, p = 0.01, 95% CI=-0.40 to -0.15), (B=-0.19, SE = 0.10, p = 0.01, 95% CI=-0.34 to -0.04), and (B=-1.02, SE = 0.21, p = 0.01, 95% CI=-1.46 to -0.59). Furthermore, an insignificant and negative relationship between Iranian parents' laissez-faire mediation and the SES of their families (i.e., low, medium, and high SES) was shown (B=-0.17, SE = 0.18, p = 0.34, 95% CI=-0.53 to 0.18), (B=-0.21, SE = 0.14, p = 0.14, 95% CI=-0.49 to 0.07), and (B=-0.23, SE = 0.15, p = 0.12, 95% CI=-0.53 to 0.27).

Table 9 The overall model summary of technical mediation

Model	R	R^2	Adjusted R^2	RMSE
1	0.34	0.17	0.09	0.48

Table 10 The ANOVA of laissez-faire mediation

Model		Sum of Square	df	Mean Square	F	p
1	Regression	5.65	5	1.13	5.42	<0.001*
	Residual	42.55	204	0.20		
	Total	48.21	209			

Note. *** $p \leq 0.001$

Table 11 The coefficients model summary of technical mediation

Model		B	SE	t	p	95% CI	
						Upper	Lower
1	(Intercept)	3.86	0.15	25.57	<0.01**	3.56	4.16
	Gender (Male)	-0.15	0.10	-0.70	0.48	-0.80	-0.43
	Gender (Female)	0.46	0.18	2.21	<0.01**	-0.23	0.19
	Education (Bachelor)	0.25	0.44	3.75	0.34	-0.45	0.37
	Education (Master)	0.19	0.32	2.56	0.32	-0.34	0.44
	Education (PhD)	0.14	0.21	0.67	0.50	-0.27	0.56
	SES (Low)	-0.19	0.21	-0.99	0.34	-0.52	0.21
	SES (Medium)	-0.23	0.15	-1.49	0.14	-0.41	0.18
	SES (High)	-0.25	0.13	-1.54	0.11	-0.32	0.21

Note ** $p \leq 0.01$, B = unstandardized, SE = standard error

4.1.3 The regression between technical mediation and demographic factors

As shown in Tables 9 and 10, the overall model predicted approximately 17% of the variance in technical mediation among Iranian parents, $R^2 = 0.17$, $F_{(5, 204)} = 5.42$ $p < 0.001$.

As shown in Table 11, while an insignificant and negative association between Iranian parents' technical mediation and their male gender (fathers) was shown (B=-0.15, SE=0.10, p=0.45, 95% CI=-0.35 to 0.05), a significant positive correlation was shown between Iranian parents' technical mediation and their female gender (mothers) (B=-0.46, SE=0.18, p=0.01, 95% CI=-0.82 to -0.10). Furthermore, no significant association between parents' technical mediation and their level of education (for Bachelor's, Master's, and PhD holders) was shown (B=0.25, SE=0.44, p=0.34, 95% CI=-0.61 to 1.11), (B=0.19, SE=0.32, p=0.32, 95% CI=-0.45 to 0.83), and (B=0.14, SE=0.21, p=0.50, 95% CI=-0.28 to 0.56). Moreover, an insignificant negative association between Iranian parents' technical mediation and the SES of their families (i.e., low, medium, and high SES) was shown (B=-0.19, SE=0.21, p=0.34, 95% CI=-0.61 to 0.23), (B=-0.23, SE=0.15, p=0.14, 95% CI=-0.53 to 0.07), and (B=-0.25, SE=0.13, p=0.11, 95% CI=-0.51 to 0.01).

Table 12 The overall model summary of active co-playing mediation

Model	R	R^2	Adjusted R^2	RMSE
1	0.28	0.08	0.05	0.42

Table 13 The ANOVA of active co-playing mediation

Model		Sum of Square	df	Mean Square	F	p
1	Regression	3.21	5	0.64	3.55	<0.001***
	Residual	36.88	204	0.28		
	Total	40.09	209			

Note. *** $p \leq 0.001$

Table 14 The coefficients model summary of active co-playing mediation

Model		B	SE	t	p	95% CI	
						Upper	Lower
1	(Intercept)	3.57	0.14	25.41	<0.01**	3.56	4.16
	Gender (Male)	-0.10	0.12	-0.69	0.31	-0.10	0.20
	Gender (Female)	0.42	0.17	2.36	<0.02*	-0.21	0.17
	Education (Bachelor)	0.24	0.41	3.75	0.34	-0.42	0.35
	Education (Master)	0.18	0.34	2.56	0.32	-0.31	0.46
	Education (PhD)	0.13	0.19	0.67	0.50	-0.21	0.49
	SES (Low)	-0.18	0.22	-0.92	0.24	-0.42	0.26
	SES (Medium)	-0.21	0.13	-1.32	0.12	-0.35	0.29
	SES (High)	-0.20	0.12	-1.41	0.14	-0.27	0.25

Note. * $p \leq 0.05$, ** $p \leq 0.01$, B = unstandardized, SE = standard error

4.1.4 The regression between active co-playing mediation and demographic factors

As shown in Tables 12 and 13, the overall model predicted approximately 8% of the variance in active co-playing mediation among Iranian parents, $R^2 = 0.08$, $F_{(5, 204)} = 3.55$ $p < 0.001$.

As shown in Table 14, while an insignificant and negative association between Iranian parents' active co-playing mediation and their male gender (fathers) was shown (B=-0.10, SE=0.12, p=0.31, 95% CI=-0.34 to 0.14), a significant positive correlation was shown between Iranian parents' active co-playing mediation and their female gender (mothers) (B=0.42, SE=0.17, p=0.02, 95% CI=0.08 to 0.76). Furthermore, no significant association between parents' active co-playing mediation and their level of education (for Bachelor's, Master's, and PhD holders) was shown (B=0.24, SE=0.41, p=0.24, 95% CI=-0.58 to 1.06), (B=0.18, SE=0.34, p=0.12, 95% CI=-0.50 to 0.86), (B=0.13, SE=0.19, p=0.14, 95% CI=-0.25 to 0.51). Moreover, an insignificant negative association between Iranian parents' active co-playing mediation and the SES of their families (i.e., low, medium, and high SES) was shown (B=-0.18, SE=0.22, p=0.24, 95% CI=-0.62 to 0.26), (B=-0.21, SE=0.13, p=0.12, 95% CI=-0.47 to 0.05), (B=-0.20, SE=0.12, p=0.14, 95% CI=-0.44 to 0.04).

Table 15 The overall model summary of restrictive mediation

Model	*R*	R^2	Adjusted R^2	RMSE
1	0.35	0.12	0.19	0.51

Table 16 The ANOVA of active co-playing mediation

Model		Sum of Square	df	Mean Square	F	*p*
1	Regression	8.07	5	1.61	6.05	<0.001***
	Residual	54.42	204	0.26		
	Total	62.49	209			

Note. *** $p \leq 0.001$

Table 17 The coefficients model summary of restrictive mediation

Model		B	SE	t	*p*	95% CI	
						Upper	Lower
1	(Intercept)	3.27	0.17	19.17	<0.01**	3.56	3.71
	Gender (Male)	0.41	0.10	4.48	<0.01**	0.23	0.60
	Gender (Female)	0.15	0.21	0.71	0.41	-0.32	0.55
	Education (Bachelor)	0.29	0.24	0.83	0.53	-0.31	0.57
	Education (Master)	0.22	0.10	2.64	<0.01**	0.05	0.38
	Education (PhD)	0.67	0.24	2.42	<0.01**	0.19	1.15
	SES (Low)	0.16	0.23	0.64	0.27	-0.14	0.38
	SES (Medium)	0.14	0.20	0.72	0.46	-0.25	0.54
	SES (High)	0.13	0.15	0.85	0.39	-0.17	0.44

Note. ** $p \leq 0.01$, B = unstandardized, SE = standard error

4.1.5 The regression between restrictive mediation and demographic factors

Tables 15 and 16, present the overall model predicted approximately 12% of the variance in restrictive mediations among Iranian parents, $R^2 = 0.12$, $F_{(5,\ 204)} = 6.05$ $p < 0.001$.

In Table 17, while a significant and positive association between Iranian parents' restrictive mediation and their male gender (fathers) was shown ($B = 0.41$, $SE = 0.10$, $p = 0.01$, 95% $CI = 0.23$ to 0.60), an insignificant positive correlation was shown between Iranian parents' restrictive mediation and their female gender (mothers) ($B = 0.15$, $SE = 0.21$, $p = 0.41$, 95% CI=-0.32 to 0.55). Additionally, while a significantly positive association between parents' restrictive mediation and their level of education (for those with Master's and PhD degrees) was shown ($B = 0.22$, $SE = 0.10$, $p = 0.01$, 95% $CI = 0.05$ to 0.38), ($B = 0.67$, $SE = 0.24$, $p = 0.01$, 95% $CI = 0.19$ to 1.15), an insignificant positive relationship was found between parents with a Bachelor's degree and their restrictive mediation strategies ($B = 0.29$, $SE = 0.24$, $p = 0.24$, 95% CI=-0.19 to 0.77). Moreover, an insignificant positive association between Iranian parents' restrictive mediation and the SES of their families (i.e., low, medium, and high SES) was shown, ($B = 0.16$, $SE = 0.23$, $p = 0.27$, 95% CI=-0.30 to 0.62), ($B = 0.14$, $SE = 0.20$, $p = 0.46$, 95% CI=-0.26 to 0.54), ($B = 0.13$, $SE = 0.15$, $p = 0.39$, 95% CI=-0.17 to 0.43).

4.2 Qualitative analysis

We employed inductive coding and thematic analysis on the transcripts of the semi-structured interviews by following Braun et al.'s six stages (2019, pp. 852–857), including "(1) familiarization with the data, (2) generating codes, (3) constructing themes, (4) revising themes, (5) defining themes, and (6) producing the report." We used inductive thematic analysis, where researchers approach data to find emerging themes (Braun et al., 2019). In the first step, the interview transcripts were translated into English and double-checked in terms of clarity by three proficient English-Persian translators. After coding the data, we asked three other researchers to code 60% of the data independently, and we then calculated the inter-coder reliability of the data. Finally, using Jeffrey's Amazing Statistics Program (JASP), we calculated the inter-coder reliability of the data (Cohen's κ=0.90). Cohen's kappa coefficient (κ) is considered as a statistic that is commonly employed to evaluate the inter-rater reliability of items in qualitative studies (Kraemer, 2015). We found three emerging themes, including (1) the tendency of parents to mediate their children's digital gameplay, (2) parents value their children's learning during digital gameplay, and (3) the interaction of parents with their children during digital gameplay.

4.2.1 The tendency of parents to mediate their children's digital gameplay

All ten Iranian parents (100%) reported that they tend to mediate the digital gameplay time of their children. However, it appears that parents employed various mediation strategies to guide their children's digital gameplay. As an example, Sima, the mother of one of the children, said:

> Since my child showed interest in history, he was inclined to play *Europe 1798 Military Games*, which I did not find suitable for his age, and I considered this game too violent. Therefore, I suggested *World History Quiz*, an educational game more suitable for learning history at his age. In this way, I can engage in educational gameplay with my child, teaching both English and history.

4.2.2 Davood, the father of one of the children, claimed

> I exercise strict control over my child's digital games. For instance, when I found him playing *Paw Patrol Rescue World*, I explained that this game does not align with our cultural values and removed it from his tablet. Instead, I installed *Quran Kids* for him, a game designed to teach the holy Quran.

Iranian parents who were highly educated and reported their family as middle SES level adopted different types of parent mediation to guide their children during digital gameplay. For instance, Sima took advantage of active co-playing mediation to encourage her children to play a game that she felt would be more appropriate for them. Previous studies showed that parents, especially more highly educated ones,

preferred to regularly monitor their children as they used digital technologies connected to the internet (Livingstone & Helsper, 2008; Steinfeld, 2021; Soyoof, 2022b). The reason that parents control their children when online is to keep children safe from potential risks such as internet addiction, distraction, and cyberbullying (Aslan & Yilmaz, 2021; Selwyn & Aagaard, 2021). Furthermore, Davood, as an Iranian parent, adopted restrictive mediation to shape the digital play of his son. In doing so, inspired by his cultural and religious perception, he banned the use of games supporting the idea of learning about dogs, and urged his son to play religious games, which from his cultural and religious views, can better contribute to his son's learning. Consistent with the above-mentioned findings, previous studies demonstrated that parents' perceptions are shaped by different factors in their community including their culture, religion, and profession, among others (Zhao et al., 2023; Soyoof et al., 2024b). In further research work, it would be worthwhile to help Iranian parents evaluate the educational merits of the digital games played by their children and guide their digital play time towards educational games that can better address their immediate and future needs. To foster these critical skills in their children, it would also be useful to encourage Iranian parents to play educational digital games with their children and guide them on how children can learn through these digital experiences.

4.2.3 Parents value their children's learning during digital gameplay

All ten parents interviewed expressed their appreciation for their children's engagement in digital gameplay, underscoring the educational value of these games in teaching important concepts. These concepts, they believe, are beneficial for their children's formal education and future learning. For instance, Samira, an Iranian mother, mentioned that:

> I am convinced that digital games are beneficial for my children, as they have learned numerous important skills through them. Educational games like *ABC KIDS* and *Learn to Read-Duolingo ABC* have been instrumental in teaching my children to read English words, which they often play on their tablets. These games, among others, have also facilitated their acquisition of new English vocabulary. Therefore, I consider digital games to be valuable tools for my children's education, particularly in enhancing their English language skills.

In another interview, Reza, the father of one child, said:

> I perceive digital games, especially those of an educational nature, as highly effective in enhancing crucial skills in my children. My child, who has a keen interest in mathematics, regularly plays *Gogomath-Fun Math Game* and *Math Kids: Math Game for Kids* on his tablet. As a mathematics teacher, I recognize that these games effectively meet many of his mathematical needs at the primary school level.

Based on parental interviews, it appears that digital games can offer significant skills such as English language learning (as a second language, L2) and mathemati-

cal knowledge to children, which are vital for their formal and future education. It is noteworthy that the digital games perceived by parents as facilitative for their children's learning are primarily educational ones. While literature reports varied parental views on digital games, the majority of parents found educational games beneficial for their children's education, a finding consistent with previous studies (Kervin et al., 2019; Ozturk & Ohi, 2022; Soyoof, 2022a; Soyoof et al., 2024b). To further enhance the educational value of these games, it would be advantageous if they were used under the supervision of teachers and parents who can guide these children's learning, as suggested by Kervin et al. (2019). Additionally, it is crucial that these games are selected based on the educational needs and age of the children, serving as supplementary materials in tandem with the main curriculum.

4.2.4 The interaction of parents with their children during digital gameplay

All of the parents shared that they interact with their children during their digital gameplay. For example, Mahsa, an Iranian mother, mentioned that:

> My twin sons engage with *STEM Buddies*, a game that introduces various concepts in English. Through this game, they have explored several important topics, including gravity and the water cycle. I often join them to watch the instructional videos within the game and then ask them to explain what they've learned. Then, I provide further explanations of these concepts in both English and Persian, using practical examples.

In another interview, Reza, the father of one child, claimed:

"My son engages with *Gogomath-Fun Math Game* and *Math Kids: Math Game for Kids* on his tablet. As a math teacher, I assist him by explaining the four basic mathematical operations, namely addition, subtraction, multiplication, and division. In my explanations, I use both English and Persian, which helps him to understand these concepts in both languages. He frequently asks questions, and I respond with simple, relevant examples".

According to interviews with the parents, digital games, especially educational ones, seem to facilitate interaction between children and parents in both English (L2) and Persian (L1). Iranian parents view engaging with their children in educational games as an opportunity to develop various skills, particularly in L1, L2, and STEM knowledge. Previous research acknowledged the pivotal role of parents in nurturing important skills in their children through interaction and concept simplification (Neumann, 2018; Ozturk & Ohi, 2022; Soyoof et al., 2024b). For instance, Harrison and McTavish (2016) highlighted the significance of parents fostering mathematical skills in children using digital technologies at home, a key aspect of future education. The use of digital technologies and texts at home has been shown to enhance children's proficiency in both L1 and L2 (Hsin et al., 2014). Additionally, digital games, as a form of digital resource, can equip children with practical skills, including STEM and digital literacy, particularly when used at home (Lieberman et al., 2009; Othman et al., 2021). The active role of parents as mediators in their children's learning during gameplay is crucial. Moreover, balancing screen time with diverse

learning activities and integrating both digital and non-digital methods can further augment essential skills in children, such as L1, L2, STEM knowledge, and digital literacy (Nichols & Selim, 2022; Soyoof et al., 2024b).

5 Discussion

This study aimed to examine the types of mediation strategies (i.e., restrictive, active co-playing, viewing, technical, and laissez-faire mediation) used by Iranian parents during their children's digital gameplay. Studying parent mediation practices of Iranian families is important to create strategies that are suitable for different ages, culturally relevant, effective in managing children's digital literacy practices, and helping children's development. Further, understanding the relationship between parents' demographic profiles and their mediation strategies can guide policies and government recommendation for parents to balance the digital and non-digital practices of their children. Drawing on the survey scale by Gözüm and Kandır (2020), we explored five types of mediation strategies used by Iranian parents during their children's gameplay time, namely, viewing, laissez-faire, technical, active co-playing, and restrictive mediation.

For research question 1.1 (*What is the relationship between Iranian parents' viewing mediation and their level of education*, *gender*, *and SES of their families?)*, we found a strong and positive correlation between Iranian parents' use of viewing mediation strategies and advanced educational degrees (Master's and PhD), particularly among the fathers. For example, fathers holding Master's or PhD degrees were more inclined to supervise and check whether a specific game is appropriate for their children by observing them from a distance. On the other hand, our study found no significant relationship between these viewing mediation strategies among mothers and the SES of the families. The results of our study are consistent with several previous studies (Barrios, 2022 Gözüm & Kandır, 2020; Livingstone et al., 2015; Soyoof et al., 2024b) that highlighted the role of parents with higher level of education in their mediation strategies. Furthermore, we found a difference in the way fathers and mothers mediate their children's digital experiences, with fathers taking viewing mediation more strictly than mothers; this result supports the findings of a study conducted in the USA and another in Israel (Boniel-Nissim et al., 2020; Drouin et al., 2020). These differing parenting approaches by fathers and mothers can be explained by considering an interplay of various factors, namely traditional gender roles, sociocultural norms, differences in risk perception, engagement, awareness, and other factors (Balleys, 2022; Dong et al., 2022; Drouin et al., 2020 Gözüm, 2022; Nikken & Jansz, 2014; Soyoof et al., 2024b). One potential explanation for the differences in the roles of fathers and mothers could be the influence of Islamic-Iranian norms on society. These norms tend to encourage mothers to adopt a more lenient role, while fathers are often expected to assume a stricter role, in line with Islamic teachings.

For research question 1.2 (*What is the relationship between Iranian parents' laissez-faire mediation and their level of education*, *gender*, *and SES of their families?*), we found a significant and negative association between the laissez-faire mediation of children by Iranian parents and their higher education levels (i.e., Bachelor's, Mas-

ter's, and PhD degrees), particularly in the case of the fathers. Nevertheless, there was no significant correlation between Iranian parents' laissez-faire mediation and the SES of the families, as well as between laissez-faire mediation and mothers. These findings replicate the findings in the literature (Livingstone et al., 2015; Soyoof et al., 2024b, c) where the level of education is reported as one of the factors influencing parental mediation strategies. Although Livingstone et al. (2015) reported that the SES of families can influence parental mediation strategies, our study did not find any significant relationship between parents' mediation strategies and the SES of their families. These differences can be explained by the complex nature of the SES of families, which can be challenging to capture in research, as well as by the different mediation strategies of parents shaped by multiple factors in their lives, including their religion, communities, and other factors (Dong et al., 2022; Soyoof et al., 2024b). It is also important to note that in Iran, the unemployment rate is high among individuals with advanced degrees, indicating that higher education does not directly correlate with the SES of their families (Khezri et al., 2020).

For research question 1.3 (*What is the relationship between Iranian parents' technical mediation and their level of education*, *gender*, *and SES of their families?)*, we showed a significant positive correlation between technical mediation and Iranian mothers. Conversely, no significant relationship was found between technical mediation and either the Iranian fathers or the SES of their families. These findings are in line with a number of previous studies (Neumann, 2018; Ozturk & Ohi, 2022; Soyoof, 2022b) which showed that mothers dedicate more time and effort to promote the technical knowledge of their children during digital media use regardless of their education level. However, contrary to the findings of Drouin et al. (2020), our study did not find evidence of fathers offering more technical mediations compared to mothers. The different mediation strategies of parents can be explained by their different perceptions shaped by various factors across different countries, including sociocultural norms (Balleys, 2022; Gözüm, 2022; Soyoof et al., 2024b). Particularly, the role of mothers in taking more active co-playing mediation can be attributed to their traditional role in Islamic-Iranian society and the part-time nature of their employment, which allows them more time to spend with their children at home (Balleys, 2022). Similarly, Gözüm (2022) reported that there are significant differences between Turkish and Greek fathers and mothers in adopting technical mediation due to the sociocultural norms of their societies. Overall, it is essential for parents, especially fathers, to employ technical skills to assist children, as it can contribute to early digital literacy skills, which can play a crucial role in children's education and future lives.

For research question 1.4 (*What is the relationship between Iranian parents' active co-playing mediation and their level of education*, *gender*, *and SES of their families?*), we found that there was a significant positive correlation between active co-playing mediation and Iranian mothers. Conversely, no significant relationship was found between active co-playing mediation and either the Iranian fathers or the SES of their families. The findings of this study align with previous research (Balleys, 2022; Drouin et al., 2020; Soyoof, 2022b; Soyoof et al., 2024b; Zaman et al., 2016), which highlighted the more facilitative role of mothers compared to fathers in actively co-playing mediating and enhancing children's learning during digital

playtime. One possible explanation for mothers' more supportive role, relative to fathers, could be sociocultural norms or the fact that mothers, often in part-time roles, have more opportunities to spend time with their children (Balleys, 2022). Furthermore, scholars (Scott, 2022; Soyoof, 2022b; Soyoof et al., 2024b) have reported that due to the emergent nature of digital technologies and resources, including digital games, mothers have adopted new mediation strategies to more actively co-playing and effectively fostering their children's learning. While in this study many mothers reported adopting active co-playing mediation during their children's gameplay time, it would be beneficial to encourage these skills in especially fathers who tend not to use active co-playing mediation. In this way, parents, especially fathers, can help their children learn optimally through digital games. The increased involvement of mothers in technical mediation may be linked to their conventional position within Islamic-Iranian society, coupled with the predominantly part-time nature of their jobs. This employment pattern allows them greater opportunities to be with their children at home. Similar to these ideas, Soyoof (2022b) and Balleys (2022) reported that the mediation strategies of parents in Switzerland and Iran might be shaped by the norms of their society.

To address research question 1.5 (*What is the relationship* between *Iranian parents' restrictive mediation and their level of education*, *gender*, *and SES of their families*?), the results of this study demonstrated that there is a positive and significant relationship between Iranian fathers' restrictive mediation and having a Master's or PhD as their level of education. However, no significant relationship was found between Iranian maternal and parental restrictive mediation and the SES of their families in our study. These findings are in alignment with a number of previous studies in the literature (Dong et al., 2022; Drouin et al., 2020; Soyoof, 2022b), underscoring the role of the level of education and gender of parents in their restrictive mediation strategies. For example, Drouin et al. (2020) reported that fathers in the USA adopt more restrictive mediation compared to mothers, who tend to discuss with their children why certain digital resources can be harmful and why they should not use them. Soyoof (2022b) also found that Iranian mothers with a higher level of education tend to restrict their children's harmful digital use at home and guide them toward more educational digital resources that contribute to their learning. Taken together, it would be valuable for parents to employ more guided mediation strategies to shape their children's use of digital games. However, it is also essential to respect and value the digital interests of children as players. For instance, instead of banning digital games for children, parents can guide them toward educational games that align with their interests (e.g., history or animals), ensuring these games are suitable for their age and learning needs.

For the second research question, (*How do Iranian parents adopt viewing*, laissez-faire, *technical*, *active co-playing*, *and restrictive mediation during their children's digital games to support their digital literacy practices*?), we noted that both Iranian fathers and mothers employed different mediation strategies, particularly viewing, restrictive, and active co-playing to ensure that children's digital gameplay time would be constructive. One Iranian mother reported that she mediated her children's digital gameplay time as an opportunity for learning. For instance, Sima urged her children to play *World History Quiz* rather than *Europe 1798 Military Games*, which she did

not find suitable for their age, and she considered that game to be too violent. Iranian parents valued the digital play of their children provided that these games included educational content which could help in the immediate and future learning of their children. For example, Mahsa found *STEM Buddies* as an educational digital game that can foster important skills in her children namely, STEM and L2 knowledge, so she valued her children's digital gameplay time. Iranian parents (i.e., 2 fathers and 8 mothers) claimed that they interacted with their children during digital game play to better foster various skills. An example of this type of interaction between an Iranian father and his children is Reza, who facilitated the mathematical learning of his son through further explanation and examples. The way Iranian parents were recruited in the qualitative phase of this study approached the digital gameplay of their children is consistent with previous studies (Gözüm & Kandır, 2020; Neumann, 2018; Ozturk & Ohi, 2022; Soyoof, 2022a, b). In the aforementioned studies, Australian, Turkish, and Iranian parents capitalize on using different mediation to guide and foster the digital use of their children at home. Taken as a whole, the role of parents is integral in shaping their children's digital gameplay time. Engaging in digital games as a form of digital literacy practice is particularly important, as it fosters interaction between parents and children, which in turn develops essential skills in children. These skills include socio-emotional, first and second language and literacy, as well as STEM skills (Nichols & Selim, 2022; Soyoof et al., 2024b). For instance, educational games such as *ABC Reading Eggs*, *Duolingo ABC*, *STEM Buddies*, and *Prodigy Math* align well with the needs of primary school children, aiding in the development of first and second language literacy and STEM skills. Importantly, these games can be more effective when used as supplementary materials outside the classroom, in collaboration with teachers and with active co-playing parental involvement. It would be beneficial if these games were selected to meet the individual needs and values of families by also considering cultural norms and prioritizing the skills that parents deem important for their children. For example, Davood mediates the digital games of his child by installing *Quran Kids and* deleting *Paw Patrol Rescue World*, to guide his child into digital games that promote Islamic-Iranian ethics.

6 Conclusion

The present study explored the association between Iranian parents' demographic factors and their mediation of children's digital gameplay at home using a parent survey scale and interviews. The results indicate a positive correlation between maternal involvement in technical and active co-playing mediation, while it was found that Iranian fathers with Master's or PhD degrees positively correlated with viewing and restrictive mediation. These findings highlight the nuanced role that parental demographics play in shaping digital mediation strategies. The technical and active mediation strategies by mothers suggest that they are more inclined to directly involve themselves in their children's digital activities, potentially due to a combination of cultural expectations and a hands-on approach to parenting. Conversely, the tendency of highly educated fathers to favor viewing and restrictive mediation could reflect a strategic approach aimed at balancing digital exposure with other developmental pri-

orities, leveraging their academic experiences and knowledge. The qualitative findings revealed that Iranian parents generally guide their children's digital play toward educational games, recognizing these activities as vital to their children's learning needs. Taken as a whole, as the literature attests to the effectiveness of educational and well-designed digital games in children's learning, the role of parental mediation is gaining more momentum, especially with the adoption of supportive parental mediation strategies through which children can gain important skills through their digital gameplay at home.

7 Limitations and suggestions for further study

While this study adds valuable insights, it is not free from limitations. One limitation of this study is that its findings are specific to the context of Iran and that our sample size included only 43 fathers compared to 167 mothers. Thus, future studies can be undertaken in other contexts and recruit more fathers, if they are willing to participate to capture the parents' mediation during the digital gameplay of their children. We also employed Gözüm and Kandır's (2020) scale for mediation strategies. Therefore, it is recommended that future studies use scales that capture a wider range of mediation strategies to fully reflect parents' mediation during their children's digital gameplay. We conducted a hierarchical regression analysis based on the information provided by the participants, such as the SES of families, the gender of parents, and the parents' level of education. However, correlation does not imply causation, so caution should be applied to avoid overgeneralisations of the findings. It is proposed that future studies consider other influencing factors in parents' mediation during digital gameplay of their children, including the age of the children, their ethnicity, and the profession of their parents. The nature of this study is that it relies on parent-reports based on a survey scale and semi-structured interviews. We suggest future studies complement our findings through the use of an emic-ethnographic and longitudinal approach in various cultural contexts.

8 Appendix A: scale on parental mediation in children's digital gameplay

1. Please report your demographic profile before answering the scale
A. The Socioeconomic status of your family----------
B. Your gender and level of education----------
C. The age of yourself and your child ----------

Viewing Mediation	No	Item	Never	Rarely	Sometimes	Often	Always
	M13	I check the game classification for the age restriction of the digital game my child plays.	1	2	3	4	5
	M02	I check whether the digital game my child plays contains sexual items.	1	2	3	4	5
	M15	I check whether the game my child plays is suitable for his/her age.	1	2	3	4	5
	M01	I know the content of the digital game my child plays.	1	2	3	4	5
	M08	I check my child's digital playing time.	1	2	3	4	5
	M07	I keep track of whether my child plays games that are dangerous for children or not.	1	2	3	4	5
	M14	I observe whether my child plays digital games that contain violence.	1	2	3	4	5
	M10	I check whether my child plays digital games that may cause substance abuse.	1	2	3	4	5
	M12	I observe who communicates with my child in digital games played through mutual communication.	1	2	3	4	5
	M06	I check whether my child plays the digital game I tell his/her to play.	1	2	3	4	5
	M04	I investigate whether the digital game my child plays has negative effects.	1	2	3	4	5
	M11	I examine whether the digital game contributes to my child's education.	1	2	3	4	5
	M05	I check whether my child follows the rules in the digital games s/he plays.	1	2	3	4	5

1. Please report your demographic profile before answering the scale A. The Socioeconomic status of your family---------- B. Your gender and level of education---------- C. The age of yourself and your child ----------							
LaissezFaire	M31	My child fulfills the responsibilities given to him/her in return for playing digital games.	1	2	3	4	5
	M37	Although I do not approve, I cannot prevent my child from playing digital games.	1	2	3	4	5
	M23	I want my child to play digital games because s/he is upset when s/he does not play.	1	2	3	4	5
	M33	I cannot prevent my child from playing even digital games that I think are harmful for him/her.	1	2	3	4	5
	M25	When I want my child to eat food, I feed by letting him/her play digital games.	1	2	3	4	5
	M19	I allow my child to play digital games when I want to keep him/her quiet.	1	2	3	4	5
	M30	My child has turned to playing digital game out of my control	1	2	3	4	5
	M17	Since I cannot spare time for my child, s/he plays digital games.	1	2	3	4	5
	M20	I want my child to play digital game because I do my work while s/he is playing.	1	2	3	4	5
	M27	I allow my child to play digital game because s/he has not any peers.	1	2	3	4	5
Technical	M03	I tell my child to ask me for the password I put on the digital device so that s/he can play digital games.	1	2	3	4	5
	M09	I say that I will control his/her playing time through the software I have installed on the digital device.	1	2	3	4	5

1. Please report your demographic profile before answering the scale A. The Socioeconomic status of your family---------- B. Your gender and level of education---------- C. The age of yourself and your child ----------							
	M35	I install filter software on the digital device so that my child does not play digital games that I find harmful.	1	2	3	4	5
	M44	I search for a software to track digital games my child plays.	1	2	3	4	5
Restrictive	M36	I prohibit my child from playing digital games that I think are harmful for his/her socialization.	1	2	3	4	5
	M43	I tell my child that s/he should not play violent digital games.	1	2	3	4	5
	M32	I tell my child the rules for digital gameplaying time.	1	2	3	4	5
	M40	I prohibit my child from playing digital games that I think are harmful for his/her development.	1	2	3	4	5
	M38	I prohibit my child from playing if s/he shows offensive behavior after the game.	1	2	3	4	5
	M42	I tell my child to play digital games that I think contribute to his/her education.	1	2	3	4	5
	M34	While playing digital games, I tell my child to play according to the rules I set.	1	2	3	4	5
	M39	I remind my child the rule of playing digital games at certain times of the day.	1	2	3	4	5
	M41	I tell my child that s/he should not play digital games that reduce our communication time.	1	2	3	4	5
Active co-playing Mediation	M22	I make an explanation of the digital games that support my child's language development by playing together.	1	2	3	4	5

1. Please report your demographic profile before answering the scale A. The Socioeconomic status of your family---------- B. Your gender and level of education---------- C. The age of yourself and your child ----------						
	M21	I make an explanation of the digital games that support my child's concept development by playing together.	1	2	3	4	5
	M24	I make an explanation of the digital games that contribute to my child's education by playing together.	1	2	3	4	5
	M28	I make an explanation of the digital games that improve my child's empathy skills by playing together.	1	2	3	4	5

9 Appendix B: interview on parental mediation of children's digital gameplay

1. How do you perceive the role of digital games in your child's life?
2. What types of digital games does your child play?
3. Can you provide several examples of the digital games that your child plays?
4. How do you guide or influence your child's choices in digital games?
5. Can you describe any instances where you had to intervene or guide your child's gameplay?
6. How do you balance respecting your child's autonomy with the need to provide guidance in their digital gameplay?
7. Do you discuss the content of the games with your child? If so, how do these discussions go?
8. Do you believe digital games contribute to your child's learning and development? Can you give examples?
9. How has your approach to controlling or supporting your child's digital gameplay evolved over time?
10. Looking back, is there anything you would change about how you have managed your child's digital gameplay?

Data availability The data that support the findings of this study are available from the first author upon a reasonable request.

Declarations

Conflict of interest None.

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