

## Technology use among preschool children and their parents' self-efficacy

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### Abstract

This quantitative descriptive-comparative study examined relationships between the technology-use characteristics of preschool children (aged 4–6 years) and their parents' perceived self-efficacy. The sample comprised 250 parents ( $n_{\text{mothers}} = 164$ ;  $n_{\text{fathers}} = 86$ ) residing in Fatsa, Ordu (Türkiye) who completed an online survey. Data were collected using a researcher-developed Demographic Information Form and the Berkeley Parenting Self-Efficacy Scale–Revised (BPSE-R;  $\alpha = .91$ ). Independent samples *t* tests and one-way analyses of variance (ANOVA) were computed in SPSS 26 ( $\alpha = .05$ ).

Parents' self-efficacy scores did not differ significantly by the child's sex, age group, birth order, sibling number, ownership of a personal digital device, daily screen time, hours of parent–child interaction at home, number of devices used, or most frequently used device ( $p > .05$ ). In contrast, the availability of a neighborhood playground exerted a small yet significant positive effect on parental self-efficacy ( $t = 2.02$ ,  $p < .05$ ,  $d = 0.27$ ). Findings indicate that contextual resources and the quality of parental guidance may be more important than sociodemographic factors in shaping parenting self-efficacy. Increasing child-friendly public spaces and offering family-centered digital-literacy programs are recommended. Future research should employ mixed-method and experimental designs across broader age ranges.

**Keywords:** Preschool children, technology use, parenting self-efficacy, playgrounds, BPSE-R

### Introduction

With the advent of the pandemic, technology has become more deeply embedded in our lives, leading to increased daily use of the internet and smartphones. As technology use rises, even very young children encounter and routinely use devices such as smartphones and tablets. Nearly all preschool-age children now operate at least one of these technological devices for a minimum of half an hour each day (Bulut, 2018) <sup>[5]</sup>. Guiding children's technology-use behaviors and encouraging conscious use are crucial for their development; limiting prolonged and unsupervised screen exposure can prevent negative developmental consequences (Ömrüüzun, 2019) <sup>[37]</sup>. Yet parents often do not monitor their children while they are using technology and instead occupy themselves with other tasks (Kırık, 2014) <sup>[24]</sup>. It is therefore vital to recognize that unlimited, unsupervised exposure to the vast content of the digital world may adversely affect children's development and behavior (Mustafaoğlu, Zirek, Yasacı, & Özdiñçler, 2018) <sup>[34]</sup>. Parents must guide their children to use technological tools purposefully, for limited periods, and effectively (Saltuk & Erciyes, 2020) <sup>[39]</sup>.

For children in the preschool period, the home—one of their primary spheres of interaction—shapes psychomotor, cognitive, linguistic, and socio-emotional growth through social learning from parents (Shonkoff & Meisels, 2000) <sup>[32]</sup>. The quality of parent-child relations in early childhood—effective communication, meeting children's needs, and unconditional acceptance—is strongly influenced by parents who possess high self-efficacy (Büyüktaşkapu, 2012) <sup>[6]</sup>. Because habits and activities formed during this critical developmental window shape future behavioural patterns, the family plays a decisive role in meeting needs, fostering development, educating, and forming personality (Bulut, 2018) <sup>[5]</sup>. Parenting self-efficacy is therefore critical for

instilling healthy technology habits and shielding children from the negative aspects of the digital world; research emphasizes its importance in managing children's screen time and attitudes toward technology use (Milford *et al.*, 2024) <sup>[33]</sup>.

Self-efficacy reflects the extent to which individuals believe they can apply necessary skills when confronting challenging events or situations (Bandura & Wessels, 1997) <sup>[4]</sup>. Individuals with low self-efficacy may possess adequate skills yet fail to deploy them effectively because they lack confidence (Yıldırım & İlhan, 2010) <sup>[47]</sup>. Higher self-efficacy typically predicts greater achievement (Bandura, 1982) <sup>[1]</sup>, as it mediates between belief, knowledge, and action (Bandura, 1993). People with high self-efficacy persevere in the face of difficulties and remain resilient (Kuzu, 2020), whereas those with low self-efficacy tend to expend less effort, show less patience, and perceive challenges as more formidable than they are (Gordon, Lim, McKinnon, & Nkala, 1998) <sup>[17]</sup>. In parenting, high self-efficacy helps mothers and fathers address childcare challenges patiently and feel less inadequate (Bandura, 1997) <sup>[3]</sup>.

Parenting self-efficacy refers to parents' beliefs and perceptions regarding their capacity to fulfil responsibilities in caring for and raising their children (Cavkaytar, Aksoy, & Ardiç, 2014) <sup>[8]</sup>. Low parenting self-efficacy can hinder problem-solving when issues with the child arise (Coleman & Karraker, 2003). According to Bandura's (1989) <sup>[2]</sup> theory, it encompasses parents' judgements of how well they can apply their skills and abilities in child-rearing. Low self-efficacy often corresponds to emotional distance and behavioural problems, thereby adversely affecting child development (Coleman & Karraker, 2003) <sup>[10]</sup>. High self-efficacy, by contrast, is closely tied to creating a secure, positive, and healthy environment and consistently meeting caregiving duties (Kılıçaslan, 2007) <sup>[23]</sup>. In early childhood,

when children spend nearly all their time with family, parents with high self-efficacy tend to support home learning environments and engage more closely with the child (Machida, Taylor, & Kim, 2002) [31], and increases in parental self-efficacy correlate with gains in children's cognitive scores (Büyüktaşkapu, 2012) [6].

The parent-child relationship profoundly affects children's health, development, and well-being, and caregiving skills are strongly influenced by parenting self-efficacy (Coleman & Karraker, 2000) [9]. Parents who see themselves as more competent foster their children's social, emotional, and cognitive growth (Coleman & Karraker, 2000) [9]. High self-efficacy is associated with creating a safe, nurturing environment that meets children's needs (Campos *et al.*, 1983) [7] and relates to reduced parental depression and greater social support and competence (Teti & Gelfand, 1991) [42]. Conversely, low self-efficacy is linked to harsher discipline, quicker surrender in the face of difficulties, and higher risk of maltreatment (Jones & Prinz, 2005) [20]. Parenting-support programmes can strengthen parent-child bonds and enhance parents' sense of efficacy (Şahin & Kalburan, 2009) [40]. Mothers who exhibit secure, warm, and positive attitudes during the critical 0-6-year period help children forge a robust sense of self-competence (Díaz & McClelland, 2017) [12] and respond creatively and confidently to challenges (Tokat, 2009) [43]. Studies further show positive links between parenting self-efficacy and caregiving beliefs, behaviors, resilience, education, and income (Cavkaytar *et al.*, 2014; Kurt & Aslan, 2020) [8, 27]. Generally, parents with higher self-efficacy adopt more supportive and positive parenting practices (Uyanık Balat & Yılmaz, 2014; VanDenBerg, 2012) [44, 48].

The present study therefore aims to examine how parents' self-efficacy varies according to their preschool children's technology-use habits and selected demographic variables.

### Purpose and Significance of the Study

Only a limited number of studies have addressed parenting self-efficacy, and, to date, none has examined how parents' self-efficacy relates to preschool children's technology-use habits. Yet parenting self-efficacy is known to influence children's academic success, healthy lifestyle behaviors, and overall well-being. Parents with a strong sense of efficacy tend to play a more active role in their children's developmental processes and provide greater support (Milford *et al.*, 2024) [33]. By clarifying how parenting self-efficacy is associated with young children's technology-use patterns and related factors, the present research may offer avenues for enhancing parents' efficacy beliefs and, in turn, promoting children's healthy development.

Our study seeks to fill this gap by analyzing parents' self-efficacy in relation to their preschool children's technology-use characteristics. Specifically, we ask: Does the parenting self-efficacy of parents with preschool-age children differ according to various factors—namely, the child's sex, age group, birth order, number of siblings, average daily parent-child interaction time at home, most frequently used technological device, number of devices used, daily screen-time duration, ownership of a personal device, and the presence of a playground in the child's residential area?

### Method

This section describes the study's design, sample, data-collection instruments, data-collection procedure, and data-analysis techniques.

### Research Design

A quantitative descriptive survey design was employed. Such designs aim to portray a past or present situation as it exists in its natural context (Karasar, 2016) [21]. In addition, a descriptive-comparative survey approach was used to examine whether parenting self-efficacy differs according to parents' age, spouse's age, number of children, child's birth order, child's sex, parents' education levels, family structure, household income, and occupation.

### Sample

The sample consisted of 250 parents of 4- to 6-year-old children residing in Fatsa (Ordu Province, Türkiye) who were readily accessible and volunteered to participate. Convenience sampling—selecting an easily reachable subgroup to save time and resources—was adopted (Kılıç, 2013) [22]. Power analysis with G\*Power (Faul *et al.*, 2009) [15] indicated that, for medium effect sizes, 128 participants were required for independent-samples t-tests and 159-180 for one-way ANOVAs (power = .80,  $\alpha$  = .05; Verma & Verma, 2020) [46]. Allowing for attrition and outliers, a minimum of 200 participants was targeted.

### Instruments

**Demographic Information Form.** Developed by the researchers, this form collected data on participants' sex, age, education, monthly income, number of children, and their child's technology-use frequency, duration, and preferred devices. The page preceding the form contained an information sheet explaining the study purpose, anonymity, and voluntary consent.

**Berkeley Parenting Self-Efficacy Scale—Revised (BPSE-R).** Parents' self-efficacy was measured with the BPSE-R, created by Holloway, Suzuki, and Yamamoto (2016) through adding and removing items from the original Berkeley Parenting Self-Efficacy Scale. The Turkish adaptation was validated by Güler Yıldız *et al.* (2018). The 6-point Likert scale comprises two subscales—"Parenting-Specific Strategies" and "Anticipated Child Outcomes." In adaptation studies, Cronbach's  $\alpha$  ranged from .834 to .878 for mothers and .892 to .922 for fathers. In the present study, overall reliability was  $\alpha$  = .91, indicating very high internal consistency (George & Mallery, 2022) [16].

### Procedure

All preschools in Fatsa serving 4- to 6-year-old children were contacted. Parents who consented received an online survey link, and responses were obtained from 250 parents.

### Data Analysis

Analyses were conducted in SPSS 26. Descriptive statistics summarized child sex, age group, birth order, ownership of a personal device (tablet/computer/phone), presence of a playground nearby, daily screen time, number of siblings, daily parent-child interaction time, most frequently used device, and number of devices used.

Independent-samples t-tests compared mean parenting self-efficacy scores by child sex, personal device ownership, and playground availability. One-way ANOVAs tested differences across categories of screen-time duration, number of siblings, parent-child interaction time, primary device, number of devices, and other multi-level variables. Before analysis, data accuracy, missing values, outliers, and

statistical assumptions were checked and met (George & Mallery, 2022; Hair *et al.*, 2019; Tabachnick & Fidell, 2019) [16, 18]. When an ANOVA was significant, Tukey’s HSD post-hoc test identified group differences. Effect sizes were reported following Cohen’s (1992) guidelines: for t-tests,  $d \geq .80$  = large,  $.50-.79$  = medium,  $\leq .49$  = small; for ANOVAs,  $\eta^2 \geq .13$  = large,  $.06-.12$  =

medium,  $\leq .05$  = small. The significance threshold was set at  $p < .05$  for all analyses.

**Results**

In Table 1, the frequencies and percentages for the sociodemographic characteristics of preschool children examined in the study are presented.

**Table 1:** Descriptive Statistics on Sociodemographic Characteristics of Preschool Children

Variable / Category	n	%
Gender – Girl	122	47.8
Gender – Boy	133	52.2
Age Group – 48–59 Months	50	19.6
Age Group – 60–66 Months	88	34.5
Age Group – 67–72 Months	53	20.8
Age Group – 73 Months and Above	64	25.1
Birth Order – First Child	131	51.4
Birth Order – One of the Middle Children	30	11.8
Birth Order – Last Child	94	36.9
Number of Siblings – None	64	25.1
Number of Siblings – One	138	54.1
Number of Siblings – Two or More	53	20.8
Device Ownership – Yes	85	33.3
Device Ownership – No	170	66.7
Parent–Child Time – 1–5 h	89	34.9
Parent–Child Time – 6–10 h	112	43.9
Parent–Child Time – 11–15 h	54	21.2
Primary Device – Tablet	50	19.6
Primary Device – Smartphone	64	25.1
Primary Device – Television	141	55.3
Number of Devices Used – 1	74	39.0
Number of Devices Used – 2	121	47.5
Number of Devices Used – 3 or More	60	23.5
Daily Screen Time – 0–30 min	52	20.4
Daily Screen Time – 31–60 min	98	38.4
Daily Screen Time – $\geq 1$ h	105	41.2
Playground in Area – Yes	166	65.1
Playground in Area – No	89	34.9

As seen in Table 1, the preschool children who participated in the study were mostly boys ( $n = 133$ ; 52.2 %), in the 60–66-month age group ( $n = 88$ ; 34.5 %), first children in the family ( $n = 131$ ; 51.4 %), had one sibling ( $n = 138$ ; 54.1 %), largely did not own a technological device ( $n = 170$ ; 66.7 %), spent on average 6–10 h a day with a parent at home ( $n = 112$ ; 43.9 %), most frequently used television

( $n = 141$ ; 55.3 %), typically used two different technological devices ( $n = 121$ ; 47.5 %), had daily screen time of  $\geq 1$  h ( $n = 105$ ; 41.2 %), and lived in areas with a playground ( $n = 166$ ; 65.1 %).

In Table 2, independent-samples t-test results comparing parental self-efficacy means by child gender, device ownership, and playground availability are shown.

**Table 2:** Independent-Samples t-Test Results

Variable	n	Mean	SD	df	t	p
Girl	122	109.14	11.56	253	1.30	.196
Boy	133	106.91	15.43			
Device Ownership – Yes	85	109.11	13.61	253	0.93	.354
Device Ownership – No	170	107.41	13.81			
Playground – Yes	166	109.24	11.74	253	2.02	.044*
Playground – No	89	105.62	16.66			

\* $p < .05$ .

The t-tests indicated no significant difference in parental self-efficacy by child gender ( $t(253) = 1.30$ ,  $p > .05$ ,  $d = .16$ ) or by device ownership ( $t(253) = 0.93$ ,  $p > .05$ ,  $d = .12$ ). However, parents residing in neighborhoods with a playground scored significantly higher on self-efficacy ( $t(253) = 2.02$ ,  $p < .05$ ,  $d = .27$ ). Although statistically

reliable, this effect size is small; those for gender and device ownership are very small.

Table 3 presents one-way ANOVA results for parental self-efficacy across categories of age group, birth order, number of siblings, daily parent–child interaction time, primary device, devices used, and daily screen-time duration.

**Table 3:** One-Way ANOVA Results

Predictor	n	Mean	SD	df	F	p
Age 48–59 moth	50	107.04	10.45	3, 251	.15	.928
Age 60–66 month	88	109.90	12.02			
Age 67–72 month	53	108.00	15.28			
Age ≥ 73 month	64	108.80	16.79			
First Child	131	107.37	14.61	2, 252	.85	.428
Middle Child	30	106.23	18.37			
Last Child	94	109.37	10.41			
No Siblings	64	106.80	16.07	2, 252	.87	.420
One Sibling	138	109.02	12.35			
Two or More	53	106.68	14.16			
Parent–Child 1–5 h	89	107.53	11.51	2, 252	.20	.818
Parent–Child 6–10 h	112	107.84	14.27			
Parent–Child 11–15 h	54	109.00	16.02			
Tablet	50	107.04	18.34	2, 252	.54	.585
Smartphone	64	109.47	11.53			
Television	141	107.63	12.78			
Devices Used – 1	74	109.74	13.36	2, 252	1.01	.367
Devices Used – 2	121	106.87	14.30			
Devices Used – ≥ 3	60	108.03	12.99			
Screen Time 0–30 min	52	109.27	12.66	2, 252	.31	.734
Screen Time 31–60 min	98	107.86	15.32			
Screen Time ≥ 1 h	105	107.45	12.73			

As shown in Table 3, parental self-efficacy means did not differ significantly across any of the examined variables (all  $p > .05$ ), and all observed effect sizes ( $\eta^2 \leq .01$ ) were negligible.

**Conclusion and Recommendations**

This study examined the relationship between preschool children’s technology use and their parents’ self-efficacy. Specifically, it explored whether parents’ self-efficacy perceptions differed by child gender, age group, birth order, number of siblings, ownership of a personal device, the average amount of time the parent spends with the child at home, the child’s most frequently used device, the number of devices used, daily screen-time duration, and the presence of a playground in the neighborhood.

**Key findings**

No significant differences were found in parents’ mean self-efficacy scores by the child’s gender, birth order, or age group. This aligns with earlier work: Koyunoğlu (2021) [25] found no such differences, and Fang, Boelens, Windhorst, Raat, and van Grieken (2020) likewise reported that parental self-efficacy did not vary by number of children, birth order, or child gender. Studies by Ogelman and Topaloğlu (2014) [36], Özkubat and Elibol (2018) [38], and Dıcel Elbaş (2024) [13] also showed no gender-based differences in parental self-efficacy.

Similarly, the number of siblings did not yield a significant difference. While many studies concur (e.g., Coleman & Karraker, 2003; Kotil, 2010) [10], some nuanced findings exist. For instance, Kıvrak Kunt (2019) [26] observed a weak negative link between sibling count and the “importance” subscale of parenting self-efficacy, and Zembat *et al.* (2009) [49] noted higher “emotional control” scores among parents of only children. Overall, increases in sibling number may dilute parental time and attention, potentially lowering efficacy, yet such effects often remain statistically small or limited to particular subscales.

Parents’ self-efficacy did not differ significantly by average daily parent–child time, the child’s primary device, the

number of devices used, or daily screen time. The literature contains little prior work on these variables, but broader evidence suggests many demographic and usage factors do not meaningfully shift efficacy perceptions (Jones & Prinz, 2005) [20]. The absence of effects implies that parenting competence is shaped more by the *quality* of guidance and media management than by purely quantitative factors (Livingstone & Helsper, 2007; Nikken & Schools, 2015) [29, 35].

In contrast, a significant difference emerged for playground availability: parents whose children had access to a neighborhood playground reported higher self-efficacy scores than those without such access. Prior studies show that safe, accessible play spaces boost children’s physical activity and strengthen parents’ sense of control, guidance, and competence (Veitch, Salmon, & Ball, 2010; Tandon, Zhou, & Christakis, 2012) [41, 45]. Conversely, a lack of play areas can push families toward more screen-based leisure, undermining parental efficacy (Hinkley *et al.*, 2018) [19].

**Implications**

Because parental self-efficacy appears less sensitive to basic demographics and more responsive to environmental supports and quality of guidance, interventions should prioritize:

1. Enhancing digital literacy and media-management skills for parents, emphasizing conscious, age-appropriate technology use rather than focusing solely on screen-time quotas.
2. Expanding child-friendly public spaces—especially safe playgrounds—to foster active, balanced leisure options that reinforce parents’ confidence in guiding their children.
3. Embedding qualitative supports (e.g., parenting workshops, peer mentoring) that address attitudes, psychosocial resources, and informed mediation of digital media.

Future research should examine these relationships with larger, more diverse samples and consider mixed-method or longitudinal designs to clarify causal pathways.

## Recommendations

### Recommendations for Practitioners

1. Integrate parent-education modules into school curricula to raise parenting self-efficacy, supported by education policies that facilitate implementation.
2. Offer training programs aimed at boosting parents' self-efficacy or providing preventative guidance to help reduce children's device use.
3. Provide digital-literacy courses so parents can manage their children's technology use more consciously.
4. Publish age-appropriate guidelines for screen-time limits, content selection and safe internet practices for families.
5. Organize "Parent Technology Days"—regular sessions run by guidance services to discuss monitoring and setting boundaries for technology use.
6. Establish screen-free periods at home and encourage families to plan joint, offline activities.

### Recommendations for Future Research

1. Because studies on technology use and parenting self-efficacy in Türkiye remain scarce, increasing the number of investigations will enrich the literature.
2. The present findings concern preschoolers; similar studies should examine primary-, middle- and high-school cohorts and their parents' self-efficacy.
3. The sample was limited to parents of 4- to 6-year-olds in Fatsa, Ordu. Larger, more diverse samples—and measures completed by children themselves—are recommended.
4. Convenience sampling reflects only the current group's traits; probability sampling across wider populations would yield more generalizable results.
5. As this study relied on parents' questionnaire responses, qualitative or focus-group work (e.g., interviews, observations) could explore children's behaviors, parental perceptions and parenting styles in depth.
6. Experimental designs (pre-test/post-test control groups) could test training programs that raise parenting self-efficacy and curb children's device use.
7. Beyond self-efficacy, future work could address other parent-related variables (parent-child communication, parental acceptance-rejection, inter-parental communication) and their impact on technology use.

### Contribution and Significance

The findings indicate that strengthening parents' technology-related self-efficacy is pivotal for fostering healthy, balanced tech-use habits in children. This article uniquely explores how parents' attitudes, knowledge and self-efficacy shape children's frequency, quality and tech-related behaviors, thereby broadening theoretical perspectives on parental influence. By analyzing parents' knowledge, attitudes, anxieties and efficacy across demographic and cultural contexts, it offers insights that inform educational and policy interventions at both individual and societal levels. Consequently, the study provides a practical guide for educators, policymakers and family-guidance specialists and sets a direction for future research on the nexus between parenting self-efficacy and children's technology use.

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