



Examination of the relationship between technology use of 5–6 year-old children and their social skills and social status^{*}

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ABSTRACT

The primary objective of this study is to determine the predictive effect of technology use durations of 5–6 year-old children on their social skill levels and social status. In this study, children's technology usage is restricted to the use of television, portable computers, tablets and smartphones. The sample group of the study consisted of 162 children aged 5 and 6 years old who are actively enrolled in seven kindergartens. The data required for the study were obtained from children, parents and teachers. The 'Determination of Use of Technology by Children–Parent Form', the 'Social Skills Evaluation Scale', 'The Picture Sociometry Scale' and 'The Personal Information Form' were used. The results revealed that the use of mobile technologies had no predictive effect on the social skill level, whereas, some mobile devices have predictive effects on the social preference and social impact.

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Introduction

Socialization is a life-long learning process. Primarily the families, peer groups, school and especially the developing social life and mobile devices have important places in this process. Childhood is the most important phase of socialization. Social development in the first years of life underlies future social behaviours. The acquiring and permanence of social skills could only be realized through repeating them in the family and at school. The social environment of children and the support received by families from the immediate and distant environment are the keystones that determine to what extent children will develop and become productive members of society. Socialization is a learning process for children. In accordance with technological developments, mass media and mobile devices play an important mediator role for children to learn their role patterns that are expected by society (Giddens, 2005; Richert, Robb, & Smith, 2011; Vereecken, Todd, Roberts, Mulvihill, & Maes, 2006).

According to researchers (Lynch & Simpson, 2010; Takahashi, Okada, Hoshino, & Anme, 2015), social skill is a learned behaviour pattern displayed in social situations. Social skills are socially accepted learned behaviours that enable individuals to form a stronger interaction with others and avoid socially unaccepted reactions (Gresham & Elliott, 1990; Tsangaridou, Zachopoulou, Luikkonen, Grasten, & Kokkonen, 2014). In the preschool period, children encounter the community outside their family first at kindergarten educational institutions, and the social skills come into prominence with this encounter. In this new environment, children have to acquire some new social skills that

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have not been much needed in the home environment until that time to use them in their relationships with other children and teachers (Önder, 2003 p. 147). Social skills that are acquired in early childhood have a determining role in the relations of children with their peers and consequently their intraclass status (Gülay, 2009; Pahl & Barrett, 2007). Especially the preschool years are usually accepted as an introduction for a child to the world of peers and peer relationships. According to the study results supporting this claim, positive peer relationships enable children to have a better and healthier development (Manaster & Jobe, 2012). Especially in preschool period, social skill level is measured by frequency of implementation of the social skills. Having a high level of social skills is interpreted as the fact that the child perform social skills more frequently (Avcioğlu, 2007). Sociometric status in addition to the social skill level is also accepted as an assessment criterion for determination of peer relationships. It is emphasized that sociometry based on child's view provides more reliable information compared to the views of teacher and researcher (McCandless & Marshall, 1957). One of the criteria for determining the social status is to determine each child's social impact and social preference levels. Social preference is obtained by subtracting the positive preference points from the negative preference points the child obtains from his/her peers (Coie & Dodge, 1983; Coie, Dodge, & Coppotelli, 1982). Social preference reveals the level for a child to be preferred by his/her peers in terms of several criteria. A positive relationship is determined to be between high social preference level, being liked by the peers and displaying positive behaviours towards peers (Berndt, 1997). Social impact is determined by collection of the children's positive and negative preferences. Social impact denotes the children's positive and negative characteristics together on their peer group. While in social preference, the child's positive behaviours towards his/her peers are dominant, in social impact the child's negative behaviours (gaining dominance via oppressive behaviour, bullying, etc.) may also be in question in addition to his/her positive behaviours (Braza et al., 2007).

It is stated that today, types and use duration of technological tools used by young children have increased. In a study conducted in the U.S. (Common Sense Media, 2013), it was observed that rates of children aged between 0 and 8 years having smartphone, tablet, iPod touch and similar tools and any mobile device increased at rates of 6–32% between 2011 and 2013. In a study conducted in Southern Taiwan (Lin, Cherng, Chen, Chen, & Yang, 2015), 150 children aged between 15 and 35 months were divided into two groups based on television watching durations. It was reported that the group including 75 children and watching TV regularly watched television for an average of 67.4 minutes per day. In addition, there was a relationship between television watching duration and linguistic, cognitive and motor delay. In France, the touch-screen technology use durations of 450 children aged between 5 and 40 months were examined. According to its results, 58% of children aged between 5 and 24 months used touch-screen technology at least once. Sixty-eight percentage of children stated that they liked watching videos and this rate increased with increasing age (Cristia & Seidi, 2015). As is seen, related studies conducted in different countries have suggested that use durations of digital media devices increased among children during early childhood. In the environmental interactions of children, media and technological products that are available in almost every home today are also added to the relations with family, teachers and peers (Bavelier, Green, & Dye, 2010; Yarosh, Davis, Modlitba, Skov, & Vetere, 2009).

Even though no study examining directly the technology usage on young children's social status has been encountered, there are studies addressing the effects of technology on social interaction and social development. For example, it is expressed that when young children spend long time with technological devices without any guidance and control, they become passive in physical, emotional, cognitive and social aspects and they might have various problems in their relationships with their parents and peers ('Technology and interactive media,' 2012). Researchers (Clements & Sarama, 2002; DeLoache et al., 2010; Tomopoulos et al., 2010) emphasized that excessive and unconscious use of technology could affect the children's socialization negatively and could isolate them.

The great increase in the use of screen media is closely related with capabilities of preschool children to understand the media. Technologies like computers, internet and smart phones provide an opportunity for network-based communication and thus, the new media with a global extent provides an

opportunity for a global interaction with its diversified content. These opportunities that are provided by technology could be utilized by individuals from all ages and socio-economic levels. Today, technology affects the interaction between adults and children from the ground (Sevinç, 2005). The use of technology affects the mother–father–child relationship, and the use of technological devices by young children is influenced by the duration of their parents' use of these devices. In a study conducted by Lauricella, Wartella, and Rideout (2015), they stated that as durations of 2300 parents with children aged between 0 and 8 years to use computers, smartphones, and tablet computers and watch television increased, digital media device use duration of their children also increased.

The increase in use of technological tools among young children is an issue concerning mothers, fathers and educators as well as counsellors. The use of technological devices is a subject that could open different doors to counsellors. The evaluation of different issues like the use, benefits and effects of technological devices by counsellors is very important in terms of teachers, researchers and parents (Okopi, 2014). Therefore, the influence of the ever increasing place of technological tools in the social life on children's education and development will be better understood.

International studies have revealed an increase on technology use of young children in recent years (Cristia & Seidi, 2015; Lauricella et al., 2015; Lin et al., 2015). It is stated that the number of studies on television regarding technology use is high, however, studies on different technological tools such as computers, smartphones and tablet computers are required (Lauricella et al., 2015). It is observed that studies conducted on technology use during early childhood usually focus on variables of use purposes and durations of children (Cristia & Seidi, 2015; Hatzigianni & Margetts, 2014), determination of mother–father roles in technology use (Lauricella et al., 2015), the effect of technological tools on development (Lavigne, Hanson, & Anderson, 2015; Lin et al., 2015). These studies are also ones conducted in developed countries such as the U.S., China, France and Australia. Upon the literature review, no study examining social skills and social status of young children in terms of use of more than one technological device such as television, portable computers, tablets and smart phones was found. Among the studies conducted both at international level and in Turkey, no study is found where preschool children are evaluated with multiple technological devices. This study is thought to provide guidance for future studies in both national and international area since it examines children's social developments in accordance with the four devices most commonly used at homes. This study is also important in terms of being conducted in a developing country. Inclusion of the age group of 5–6 years in the study is important in terms of revealing the situation particularly in developing countries. While the most recent study carried out by the Turkish Statistical Institute about the usage of technological devices covers 6–15 year-olds (Turkish Statistical Institute, 2013), this study is important in terms of being more recent and including also the 5-year-olds.

The primary objective of this study is to determine the predictive effect of technology devices' use (on weekdays and at weekends) durations of 5–6 year-old children on their social skill levels, social impact and social preference. The subgoals of the study are as follows:

- (1) Do the portable computer use durations of 5–6 year-old children on weekdays and at weekends predict their frequency of realizing their social skills, social impact and social preference levels in a statistically significant way?
- (2) Do the tablet use durations of 5–6 year-old children on weekdays and at weekends predict their frequency of realizing their social skills, social impact and social preference levels in a statistically significant way?
- (3) Do the smart phone use durations of 5–6 year-old children on weekdays and at weekends predict their frequency of realising their social skills, social impact and social preference levels in a statistically significant way?
- (4) Do the television watching durations of 5–6 year-old children on weekdays and at weekends predict their frequency of realising their social skills, social impact and social preference levels in a statistically significant way?

Method

This study, to examine the predictive effect of the technology use durations of children attending a kindergarten education institution on their social skills, social impact and social preference levels is a relational descriptive study. Since correlational survey models are used for the research models aiming to determine the existence or degree of the change between two and more variables, it is considered appropriate for such studies (Cohen, Manion, & Morrison, 2000).

Participants

The sample group of the study consisted of 162 children aged between 5 and 6 (71 (43.8%) female; 91 (56.2%) male) receiving education at seven kindergartens in Denizli (Turkey) Provincial Directorate for National Education. Among the children, 116 (71.6%) were 5 years old and 46 (28.4%) were 6 years old. They had an average age of 5 years, 4 months and 28 days ($SD = 0.452$ years). None of the children showed developmental delays and disabilities. They lived with their parents. The sample group of the study was selected by using the simple random sampling method. The sample was selected by lot from the kindergartens at primary schools and independent kindergartens in Merkezefendi, Pamukkale and Tavas districts of Denizli (Turkey). Names of kindergartens located in three specified districts (Merkezefendi, Pamukkale, Tavas) were written on small pieces of paper and names of 12 kindergartens were drawn from a cloth bag. A permission note was received from the Provincial Directorate for National Education regarding 350 children at 12 kindergartens. Among the assessment instruments given to parents and teachers regarding 350 children, 162 were filled correctly. Thus, 162 children were included in the study.

Measurements

In the study, Personal Information Form for demographic information of the families and children, Social Skills Evaluation Scale (SSES) for determining the social skills; Form for Determination of Use of Technology by Children–Parent Form for determining their technology usage; and Picture Socio-metry Scale for determining social preference and social impact levels within the frame of social status were used.

Personal Information Form

This form involves questions about children's age, gender, birth order, number of siblings, parents' age, educational levels, etc. The information form also involves questions determining the presence of portable computers, tablets and smart phones in the house, and if any, with whom the children use these devices and what are other activities they perform within the day. The form was filled by parents.

Social Skills Evaluation Scale

The SSES, which was developed by Avcıoğlu (2007) and whose validity and reliability study was carried out, is a five-point Likert scale (always-5, frequently-4, generally-3, rarely-2 and never-1) involving 62 items prepared to measure the social skills of 4–6 year-old children. The Social Skills Evaluation Scale measures nine different fields:

- *Interpersonal Skills (IS)*: What matters in sustaining the mutual interpersonal interaction is the sub-scale of interpersonal skills. It consists of 15 items (Example: They apologize in case of a mistake.)
- *Anger Management Skills and Adaptation to Change (AMSAC)*: They refer to skills that enable individuals to control the anger behaviours of both themselves and other people within the social

interaction and easily adjust to changes. It consists of 11 items (Example: They express verbally their anger in a proper manner.)

- *Skills of Coping with Peer Pressure (SCPP)*: They express skills that enable individuals to cope with various possible pressures by their peers within the social interaction. It consists of 10 items (Example: They fulfil their roles in a game despite peer pressure.)
- *Self-Control Skills (SCS)*: They refer to skills that enable individuals to have control over their social behaviours. It consists of four items (Example: They wait for their teachers silently in the class.)
- *Verbal Expression Skills (VES)*: They refer to skills that form an onset in starting and sustaining interpersonal interactions. It consists of seven items (Example: They introduce their friends to others.)
- *Skills of Accepting the Results (SAR)*: They refer to skills that enable individuals to accept various results they may encounter. It consists of four items. (Example: They accept possible consequences when they do not obey rules.)
- *Listening Skills (LS)*: They refer to skills that form an onset in starting and sustaining interpersonal interactions. It consists of five items. (Example: They explain what they have heard from others.)
- *Target Establishing Skills (TES)*: They refer to skills that enable individuals to form a goal independently from other people and realize these goals. It consists of three items. (Example: They set a goal independently for themselves.)
- *Task Completion Skills (TCS)*: They refer to skills that enable individuals to complete tasks they undertake. It consists of three items (Example: They complete their task or tasks they undertake in time.)

The entire scale consists of positively arranged items. The total score obtained from the scale signifies the information regarding the frequency of realising the social skills in that subscale. While the highest score to be obtained from SSES is 62, the lowest score is 310. It is accepted that social skills are realized more frequently in parallel with the increase in the total score. The scale is filled by kindergarten teachers (Avcıoğlu, 2007). Within the scope of this study, the internal consistency coefficients regarding the scale were determined as follows: Interpersonal Skills as 0.95, Anger Management Skills and Adaptation to Change as 0.91, Skills of Coping with Peer Pressure as 0.94, Self-Control Skills as 0.83, Verbal Expression Skills as 0.96, Skills of Accepting the Results as 0.94, Listening Skills as 0.95, Target Establishing Skills as 0.93, Task Completion Skills as 0.91. In the study, the internal consistency coefficient regarding the total score of the scale was determined as 0.91.

Form for Determination of Use of Technology by Children–Parent Form

This form is aimed at determining the durations of children watching television and using portable computers, tablets and smart phones. The form involves time frames of 30 minutes from 6:00 am to 01:30 pm (like 5:00–5:30, 5:30–6:00, 6:00–6:30) for every day (weekday and weekend) of the week. Parents marked the time frame and the duration (in minutes) of their children to use television, portable computer, tablet computer and smart phone together. The form was developed by the researchers within the scope of the study. Regarding the form, expert opinions were received from five academics working in the fields of assessment and evaluation, use of technology, preschool education and child development. Opinions of experts concerning specifying how many minutes were required for the time frames in the form were taken. The form is filled by parents.

Picture Sociometry Scale

Sociometric technique is performed by evaluations made by the group members with each other in accordance with specific criteria (Braza et al., 2007). Picture sociometry scale was developed by Asher, Singleton, Tinsley and Hymel in 1979, the method shows each child photos of their classmates one by one and asks her/him how much she/he likes her/his friend in the photo. Picture sociometry scale is a sociometric technique based on ratings. The child answers the question by putting the photo of her/his friend in one of the boxes illustrated with a Smiley Face (representing the answer 'Like very much'), an Expressionless Face (representing the answer 'Like a little') and a Sad Face (representing

the answer 'Don't like at all'). The reliability of the picture sociometry technique was tested by Asher, Singleton, Tinsley, and Hymel (1979). Being conducted with 19 children aged 4 years (10 boys, 9 girls), the study was aimed at determining three friends of children with whom they loved playing games the best and the least via their peer photos (Asher et al., 1979). The validity and reliability of the scale for 5–6 year-old children were tested by Gülay (2008). In the adaptation study for 5–6 year-old children, three more question items were added to the scale. Three questions added to the scale were as follows: Do you like sitting together with your friend? Do you like conducting an activity with your friend? Do you like going on a trip with your friend? (Gülay, 2008). Within the scope of this study, the internal consistency coefficient regarding the scale was 0.83. As a result of the sociometry technique based on peer rating in this study, social impact and social preference levels of children were determined. Peer rating signifies that all the children in a group evaluate each other according to the specified Likert type (much, less, never, etc.) and the condition (playing games, sitting side by side, etc.), which reveals the personal peer acceptance/rejection of all the children in the group for the in-group (Gifford-Smith & Brownell, 2003). The scores 'like very much' (3) and 'don't like at all' (1), which were obtained by each child from other children were summed separately. Social impact measures the frequency of being liked and not liked by peers. Social impact involves the sum of positive and negative evaluations (being liked + not liked) obtained by a child from other children. Social preference, on the other hand, measures the preference and the relative love between positive and negative evaluations. Children with higher scores are liked more than children with lower scores. Social preference reveals the love of other children for a particular child. It is acquired through subtracting negative evaluations from positive evaluations (being liked – not liked), which enables us to determine social impact and social preference scores of every child. These scores are transformed into z-scores and are standardized. In addition, while the scores of being liked in the formulas are evaluated as peer acceptance, the scores of being not liked are evaluated as peer rejection (Coie & Dodge, 1983; Coie et al., 1982). Sociometry applications contain a number of scoring methods. Social preference and social impact variables are among these scoring methods (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000). In this study, the scoring based on social preference and social impact levels was used.

Procedure

The data required for the study were obtained from children, parents and teachers. To determine use of the mobile technology by children, teachers and researchers conducted a parent–teacher meeting and presented written material informing parents regarding the study in kindergarten classes. Following this meeting, parents, who agreed to participate in the study, were given the Form for Determination of Use of Technology by Children–Parent form and the Personal Information Form. Parents were asked to fill these forms and record the durations of children watching television and using portable computers, tablets and smart phones every day for one week in the relevant time frames in the form.

The data that were required for measuring the social skills of preschool children were obtained through teachers who filled the Social Skills Evaluation Scale for each child in their classes. In the study, the social impact and social preference levels of children in the class were determined by researchers applying the Picture Sociometry Scale to each child individually.

Data analysis

The data of the study were analysed using the SPSS 16.0 software package for statistical analysis. As Normality Tests of variables were required to determine the convenient tests for the data of the study (Özdamar, 2004), the data acquired in the study were primarily analysed by using the One Sample Kolmogorov–Smirnov Test. As a result of the analysis of the Kolmogorov–Smirnov Test, it was determined that the total scores of the frequency of children to realize social skills, which were the dependent variables of the study ($K_s(Z) = 0.842$), the scores of social impact ($K_s(Z) = 1.185$) and social

preference ($Ks(Z) = 0.932$). Total durations of children watching television ($Ks(Z) = 0.922$) and using portable computers ($Ks(Z) = 0.856$), tablet computers ($Ks(Z) = 0.914$), smart phones ($Ks(Z) = 0.811$) and all devices on weekdays ($Ks(Z) = 1.071$) and the total durations of children watching television ($Ks(Z) = 0.1356$) and using portable computers ($Ks(Z) = 0.904$), tablet computers ($Ks(Z) = 0.904$), smart phones ($Ks(Z) = 1.314$) and all devices at weekends ($Ks(Z) = 1.282$), which were the independent variables of the study, showed a normal distribution ($p > .05$). Thus, it was decided to use the Simple Linear Regression Analysis, which is a parametric technique, to answer the research question. Nonparametric tests can be applied when data show normal distribution (Karagöz, 2010). The reason for selecting The Simple Linear Regression Analysis was to investigate the predictive effect of the technology usage on social skills, social preference and social impact. Regression analysis describes the separation of two or more correlated variables (one as a dependent variable and the others as independent variables) and the explanation of the correlation between them with a mathematical equation. If the dependent variable is one and the independent variable is one, the method is called as Simple Linear Regression Analysis (Büyüköztürk, 2004).

Results

The findings of the study revealed that there is no statistically significant correlation between the 5–6 year-old children in terms of the total durations of watching television ($r = 0.098$) and using portable computers ($r = -0.042$), tablets ($r = 0.124$), smart phones ($r = -0.049$) and all devices ($r = 0.092$) on weekdays and their frequency of realising the social skills ($p > .05$). 5–6 year-old children watching television ($R = 0.098$, $R^2 = 0.010$, $F = 1.541$) and using portable computers ($R = 0.04$, $R^2 = 0.002$, $F = 0.279$), tablets ($R = 0.124$, $R^2 = 0.014$, $F = 2.487$) and smart phones on weekdays ($R = 0.049$, $R^2 = 0.002$, $F = 0.389$) did not significantly predict their frequency of realising the social skills ($p > .05$).

There is no statistically significant correlation between the 5–6 year-old children in terms of the total durations of watching television ($r = 0.098$) and using portable computers ($r = -0.042$), tablets ($r = 0.124$), smart phones ($r = -0.049$) and all devices at weekends ($r = 0.092$) and their frequency of realising the social skills ($p > .05$). 5–6 year-old children watching television ($R = 0.030$, $R^2 = 0.001$, $F = 0.145$) and using portable computers ($R = 0.024$, $R^2 = 0.001$, $F = 0.089$), tablets ($R = 0.068$, $R^2 = 0.005$, $F = 0.733$) and smart phones at weekends ($R = 0.016$, $R^2 = 0.000$, $F = 0.040$) did not significantly predict their frequency of realising the social skills ($p > .05$).

According to Table 1, there is a significantly negative correlation between the smart phone use of 5–6 year-old children on weekdays and their social preference scores. In other words, as the durations of children to use smart phones on weekdays increase, their social preference scores decrease. Table 1 illustrates that there is no statistically significant correlation between the total durations of children watching television and using portable computers, tablets and all devices at weekends and their social preference scores.

Table 1. Correlation coefficients between the durations of 5–6 year-old children receiving preschool education watching television and using portable computers, tablet computers and smart phones on weekdays and their social status (subscale of social preference).

Variables	1	2	3	4	5	6
1. Social preference	–					
2. Duration of watching television on weekdays	–0.043	–				
3. Duration of using portable computers on weekdays	–0.063	0.130	–			
4. Duration of using tablet computers on weekdays	0.049	0.089	0.101	–		
5. Duration of using smart phones on weekdays	–0.21**	0.20*	–0.042	–0.079	–	
6. Duration of using all devices on weekdays	–0.074	0.85**	0.48**	0.44**	0.29**	–

* $p < .05$.

** $p < .01$.

When examining Table 2, which shows the findings regarding whether or not the durations of 5–6 year-old children watching television and using portable computers, tablets and smart phones on weekdays had a predictive effect upon their social preferences; it is observed that the durations of children to use smart phones on weekdays were a significant predictor on the subscale of social preference.

Examining Table 3; there is a significantly negative correlation between the total durations of 5–6 year-old children watching television and using portable computers and all devices on weekdays and their social impact scores. In other words, as the total durations of children watching television and using portable computers and all devices on weekdays increase, their social impact scores decrease. Table 3 illustrates that there is no statistically significant correlation between the durations of children to use tablets and smart phones on weekdays and their social impact scores.

Table 4 illustrates that the total durations of children watching television and using portable computers) and all devices on weekdays were a significant predictor on their social impact. It is observed that the social impact, which is the subscale of social status for children, is explained at the rate of 5% by the durations of watching television, 3% by the durations of using portable computers and 6% by the total durations of using all devices on weekdays. According to these results, the total durations of children to use all devices on weekdays could predict the social impact at the highest level, which is followed by the variables of the durations of watching television and using portable computers on weekdays.

There is no statistically significant correlation between the total durations of 5–6 year-old children watching television ($r = 0.098$) and using portable computers ($r = -0.042$), tablets ($r = 0.124$), smart phones ($r = -0.049$) and all devices at weekends ($r = 0.092$) and their frequency of realising the social skills ($p > .05$). Five to six-year-old children watching television ($R = 0.010$, $R^2 = 0.000$, $F = 0.017$) and using portable computers ($R = 0.016$, $R^2 = 0.000$, $F = 0.042$), tablets ($R = 0.081$, $R^2 = 0.007$, $F = 1.060$) and smart phones at weekends ($R = 0.13$, $R^2 = 0.016$, $F = 2.570$) were not significant predictors on their social preferences.

There is no statistically significant correlation between the total durations of 5–6 year-old children watching television ($r = 0.098$) and using portable computers ($r = -0.042$), tablets ($r = 0.124$), smart phones ($r = -0.049$) and all devices at weekends ($r = 0.092$) and their social impact ($p > .05$). Five to six-year-old children watching television ($R = 0.045$, $R^2 = 0.002$, $F = 0.329$) and using portable computers ($R = 0.094$, $R^2 = 0.009$, $F = 1.418$), tablets ($R = 0.039$, $R^2 = 0.002$, $F = 0.243$) and smart phones at weekends ($R = 0.049$, $R^2 = 0.002$, $F = 0.381$) were not a significant predictor on the subscale of social impact.

Table 2. Results of the simple linear regression analysis between the durations of 5–6 year-old children receiving preschool education watching television and using portable computers, tablet computers and smart phones on weekdays and their social status (subscale of social preference).

Variables	<i>B</i>	<i>SD</i>	β	<i>t</i>	<i>p</i>
Social preference	-12.042	22.249	-0.043	-0.541	.589
Duration of watching television on weekdays $R = 0.043$, $R^2 = 0.002$, $F = 0.293$					
Social preference	-8.483	10.612	-0.063	-0.799	.425
Duration of using portable computers on weekdays $R = 0.063$, $R^2 = 0.004$, $F = 0.639$					
Social preference	6.705	10.801	0.049	0.621	.536
Duration of using tablet computers on weekdays $R = 0.049$, $R^2 = 0.002$, $F = 0.385$					
Social preference	-14.622	5.417	-0.209	-2.699	.008*
Duration of using smart phones on weekdays $R = 0.21$, $R^2 = 0.044$, $F = 7.287$					
Social preference	-28.442	30.233	-0.074	-0.941	.348
Total duration of using all devices on weekdays $R = 0.074$, $R^2 = 0.006$, $F = 0.885$					

* $p < .05$.

Table 3. Correlation coefficients between the durations of 5–6 year-old children receiving preschool education watching television and using portable computers, tablet computers and smart phones on weekdays and their social status (subscale of social impact).

Variables	1	2	3	4	5	6
1. Social Impact	–					
2. Duration of watching television on weekdays	–0.23**	–				
3. Duration of using portable computers on weekdays	–0.18*	0.130	–			
4. Duration of using tablet computers on weekdays	–0.041	0.089	0.101	–		
5. Duration of using smart phones on weekdays	–0.004	0.20*	–0.042	–0.079	–	
6. Duration of using all devices on weekdays	–0.25**	0.85**	0.48**	0.44**	0.29**	–

* $p < .05$.** $p < .01$.

Discussion

When the study results are examined, generally it is observed that use of mobile technology (television, portable computers, tablets, smart phones and all devices) on weekdays and at weekends did not significantly predict the frequency of children to realize their social skills. The fact that use of mobile technology had no effect upon the social skill level could be interpreted as the presence of different variables that may have a greater effect on the social skill level. The studies have determined that variables like the age of children, thoughts of teachers about social skills, teacher–children relationship, gender, parenting practices, kindergarten program and peer relationships significantly predict the social skills (Akman et al., 2011; Caemmerer & Keith, 2015; Cowart, Saylor, Dingle, & Mainor, 2004; Mastow, 2004; Seven, 2006; Takahashi et al., 2015). In this study, it can be also thought that different variables would be more effective on social skills of the children based on technological tools. The fact that no predictive effect of technology usage on social skills was found in this study made us think that since social skill forms was based on the teacher's view and the 'Form for Determination of Use of Technology by Children' was based on the parent's view, they might not be filled out objectively.

Technology develops at a pace that affects everyone in the society. In many countries, awareness about the increasing role of technology in the lives of children has increased (Plowman, Stevenson, McPake, Stephen, & Adey, 2011). The number of studies examining the effect of technology on young children in accordance with this awareness has also increased. The literature contains numerous studies on positive and negative effects of technology use in general (Ching, Shuler, Lewis, & Levine, 2009; Rogers & Price, 2009). For example, while some studies indicate that use of technology may have adverse effects on social, emotional, physical and cognitive development of children

Table 4. Results of the simple linear regression analysis between the durations of 5–6 year-old children receiving preschool education watching television and using portable computers, tablet computers and smart phones on weekdays and their social status (subscale of social impact).

Variables	<i>B</i>	<i>SD</i>	β	<i>t</i>	<i>p</i>
Social impact	–0.001	0.000	–0.228	–2.962	.004*
Duration of watching television on weekdays $R = 0.228$, $R^2 = 0.052$, $F = 8.776$					
Social impact	–0.001	0.001	–0.177	–2.281	.024*
Duration of using portable computers on weekdays $R = 0.177$, $R^2 = 0.032$, $F = 5.205$					
Social impact	0.000	0.001	–0.041	–0.520	.604
Duration of using tablet computers on weekdays $R = 0.041$, $R^2 = 0.002$, $F = 0.270$					
Social impact	–6.338	0.001	–0.004	–0.056	.955
Duration of using smart phones on weekdays $R = .004$, $R^2 = .000$, $F = 0.003$					
Social impact	–0.001	0.000	–0.245	–3.199	.002*
Total duration of using all devices on weekdays $R = 0.245$, $R^2 = 0.060$, $F = 10.236$					

* $p < .05$.

(Armstrong & Casement, 2000; Cordes & Miller, 2000), some studies also emphasize the positive effect of these devices on development (Plowman & McPake, 2013; Yelland, 2011). Plowman, McPake, and Stephen (2010) stated that preschool children were alone while using mobile technologies, and therefore their social development could be under risk and such devices affected their social development negatively. However, in the literature, it is indicated that the appropriate use of mobile technologies in the educational environment supports the physical, social and cognitive development of children and it also has a positive effect upon their communication and social development (Ching et al., 2009; Rogers & Price, 2009). The findings of this study expressed that the use of technological devices usually had no predictor effect on social skills of young children and did not show parallelism with studies emphasizing detrimental effects of technological devices (Armstrong & Casement, 2000; Cordes & Miller, 2000).

The effects of the use of technological devices on social impact and social preference varied according to the results in social skills. For example there is a significantly negative correlation between the smart phone use of 5–6 year-old children on weekdays and their social preference scores. The findings regarding whether or not the durations of 5–6 year-old children watching television and using portable computers, tablets and smart phones on weekdays had a predictive effect upon their social preferences; it is observed that the durations of children to use smart phones on weekdays were a significant predictor on the subscale of social preference. It is also observed that the total durations of children watching television and using portable computers and all devices on weekdays significantly predicted their social impact levels. The total durations of children watching television and using portable computers) and all devices on weekdays were a significant predictor on their social impact. In addition, mobile technological devices within the scope of the study may have different effects on social preference and social impact, which could be approached within the scope of social status variables of children. The increase of the time spent by children with mobile devices may increase their possibility of displaying negative verbal and non-verbal behaviours regarding role models, which they observe through these devices, in the peer group. The way the children are affected by devices is thought to decrease the power of the effect over the peer group. The increase in the time spent with smart phones on weekdays may negatively affect the peer relationships of children. Negative effects of technological devices include affecting language development and empathy skills negatively and increasing aggression (Markman, 2010; Plowman et al., 2010; Saleem, Anderson, & Gentile, 2012). Armstrong and Casement (2000) stated that social skills could be learned with interpersonal interaction and children could be kept away from interpersonal interaction while spending time with technological devices. The predictive effect of the technology usage on social impact supports the previous related studies expressing adverse effects of technological devices on social development. The long time spent by children in the sample group with smart phones is also thought to increase language problems and aggression, have a negative effect on the empathic point of view and cause these negative effects to exhibit some results in peer relationships like 'being unpreferred and rejected by other children'. It could be thought that total durations of watching television, using portable computers and all devices on weekdays could indirectly affect peer relations in a negative manner. This result shows parallelism with studies indicating that the use of technological devices causes adverse effects on social development of children.

As is seen, while the usage of technological devices on weekdays and at weekends does not have any predictive effect on social skills, it may have a predictive effect on social status at different levels. These results suggest that various technological devices may have different effects on the variables related to the social development.

Conclusion and recommendations

In this study, which was conducted to determine the predictive effect of technology use durations of 5–6-year-old children on their social skill levels and social statuses, it was determined that while the

durations of watching television, using portable computers, tablets and smart phones on weekdays had no significant predictive effect on the social skill levels of children, some mobile devices had a predictive effect on the social preference and the social impact.

As mobile devices have become an integral part of our lives due to being frequently used in daily life, it is inevitable for children to interact with these technologies from very early ages. The significant point in this case is to determine, organize and apply the most convenient and useful activities for children. In this respect, it is required to organize the relationships of preschool children with the technological devices, specified in the study, under the supervision of aware adults and restrict them within the scope of activities that would not have a negative effect upon their development and health from all aspects and on the contrary, would be useful for their development. In addition, if parents are informed about the use of these technologies by their children and become conscious how to interact with these devices within the scope of guidance services at schools, they will be used in accordance with children's development. In the review study conducted by Hsin, Li, and Tsai (2014) regarding the effect of technology use on young children, they emphasized that adults had a mediator role between technology and the child and increasing their knowledge levels about the effects of technology on children was important.

In this study, it was determined that the use of technological devices did not predict the social skills of children, which makes a new contribution to the planning of guidance services. Similarly, the guidance units at schools could develop various services based on the study results, which suggested that particularly use of mobile phones predicts the social preference and the durations of all technology usages also predict the social impact of children. Having an important role in pre-school education, the teachers should also work interactively with guidance services on this subject, prepare different types of family involvement activities, and apply them regularly throughout the year. As the importance of related guidance services has just been emphasized, it should also be specified that it is not compulsory to have guidance units at kindergartens in Turkey, where the study was conducted. Thus, extending of guidance services at kindergartens in developing countries like Turkey is important in terms of following the development of children in all areas, primarily in the area of social skills, and making early interventions more systematically. In addition, the study is limited to 162 children in the province of Turkey. Future studies could be conducted with larger sample groups and in different countries. A great part of the related studies were conducted in developed countries. Conducting this study in a developing country is a factor increasing its importance for the literature. It is significant to conduct cross-cultural studies examining levels of young children's use of technological devices and comparing short- and long-term effects of these devices on development. Thus, it becomes possible to draw attention to the role of social life in technology and child interaction.

In the study, the social skill level was determined through teachers' views. The studies to be conducted could collect the information from different sources such as observations and parents' views. Relevant longitudinal studies would enable us to follow the effects of use of the technology by young children. It is recommended to increase the number of relevant studies. The effect of use of mobile technology of preschool children on different developmental areas could be examined. It is also possible to examine the effect of family variables like different social economic levels, parents' occupation, parents' educational level, number of siblings and personal characteristics like gender, age, temperament on the use of technological devices. Developing countries like Turkey need studies regarding uses of the mobile device of young children. Being conducted with comprehensive participants, this study should determine the reasons and durations of especially 3–6 year-old children using mobile devices. Bavelier et al. (2010) emphasize the necessity of reviewing the theories regarding the constant interaction of children with technology at school and at home, as well as the brain structure and the basic principles of learning. Studies conducted on this subject could make important contributions to the relevant literature. In their study, Naismith, Sharples, Vavoula, and Lonsdale (2007) examined the reasons for excluding mobile devices, which develop rapidly and reach every area of daily life, from the school environment. They particularly emphasized the insufficiency in education

models regarding the learning goals and uses of mobile devices. They also emphasized how to transfer the acquisitions of learning theories into the use of mobile technologies in education. From this point of view, the teachers' applications aimed at determining the ways of using mobile devices at kindergartens could be examined. It is suggested to compare the durations of parents and the durations of children aged 3–6 years to use these devices at home. Studies could be conducted on determining the presence of relationships between the mobile device usages of parents and the developmental features of children aged 3–6. Examining the relevant studies, it is observed that teachers have insufficient knowledge regarding how to use mobile devices in the classroom environment. To remove these inadequacies and enable the efficient use of mobile devices, it is suggested to train preschool education teachers regarding how to integrate mobile devices into the program and how to use these devices with children. In their experimental study, Lau, Higgins, Gelfer, Hong, and Miller (2005) stated that a child group spending time on the computer under the guidance of the teacher had more positive social interactions during computer activities compared with a child group having no guidance from a teacher. Teacher guidance could be accepted as a factor increasing positively the effects of technology use on social development.

A common aspect of numerous related studies, including this study, is that technological devices assert different findings regarding social development characteristics of young children. In this study, the use of technology by young children in a developing country was examined by using four devices. It is observed that studies making examinations in accordance with a single technological device are more common than studies including several devices (Hatzigianni & Margetts, 2014; Lavigne et al., 2015; Lin et al., 2015). Evaluating different devices together could be thought to increase the importance of this study. Revealing the significance and effects of technological devices for early childhood education is an important research area for all countries.

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