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Adaptation of the Technoference in Parent-Child Relationships Scale into Turkish: Validity and Reliability Study

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ABSTRACT

The present study aims to adapt the Technoference in Parent-Child Relationships Scale (TPCRS) to Turkish culture by conducting validity and reliability analyses. The study group consists of the parents of 445 children between the ages of 3 and 6 attending preschool in the Denizli province. Expert opinions were consulted for the language validity and content validity of the measurement tool. Exploratory and confirmatory factor analyses were conducted to ensure the construct validity of the scale. As a result of the exploratory factor analysis, it was determined that the total variance explained was 40.89%, and the items were grouped under a single factor. The model fit indices obtained from the confirmatory factor analysis were calculated as $x^2/sd=1.828$, RMSEA=.046, AGFI=.96, GFI=.97, CFI=.98, NFI=.96, and SRMR=.056. These values show that the scale gives acceptable and valid results. The Cronbach Alpha internal consistency coefficient of the Technoference in Parent-Child Relationships Scale was found to be .72. For criterion-related validity, the correlations between the TPCRS's Problematic Internet Use Questionnaire and the Parental Attitudes Towards Technology Use Scale were analyzed. In addition, item-total and test-retest correlation coefficients were calculated at three-week intervals. The analyses for criterion-related validity and test-retest correlations provided sufficient evidence for the validity of the scale. It was observed that the item-total correlation values of the TPCRS ranged between .41 and .50. The results of the study show that the Technoference in Parent-Child Relationships Scale is a valid and reliable measurement tool.

Keywords:
Parent child technoference, preschool period, scale adaptation, technology.

1. Introduction

Mobile and digital technologies, which have become a significant part of human life today, are pushing individuals and societies into a process of rapid change in many areas. Families, the most basic unit of society, are also affected by this process of social change, and the nature of the interactions between spouses and their children is changing. Since mobile and digital technologies are widely used in the daily lives of families, it is foreseeable that technology-induced interruptions in family relationships may occur. This highlights the need to pay more attention to the effects of the increasing use of technological devices on spousal and parent-child interactions. Whether families and societies will be affected by the increasing use of technology will be determined by the extent to which individuals use face-to-face communication while simultaneously utilizing digital technology in their social interactions.

In the early stages of children's learning and development, the quality of the parent-child relationship is highly influential in determining the direction of children's future development. Children's experiences of interacting with their parents form a significant basis for their future verbal and physical communication with their peers (Cillessen & Mayeux, 2004; Donovan et al., 2010). Infants have an innate capacity to form social relationships

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with their parents and engage in social learning (Yogman et al., 2018). Indeed, the majority of learning in early childhood takes place in the context of social relationships (Vygotsky, 1978). Therefore, responsive and reciprocal parent-child interactions are an important foundation for cognitive and socio-emotional development in the early years. However, there is a growing concern among experts and the general public that the omnipresence of portable technologies such as smartphones, tablets, and smartwatches may negatively affect parental attention during parent-child interactions and alter the nature of family interactions (Ventura et al., 2020). There are legitimate reasons for this concern among the public and experts. This is because emerging mobile and digital technologies have become part of the daily lives of families and young children (Radesky et al., 2015).

Individuals from all age groups frequently use the internet and digital technologies due to their ability to reach a large number of people in a very short time, to get information, and to entertain themselves in their free time (Yeniçıktı, 2014; Vural & Bat, 2010). Multifunctional devices such as tablets, phones, and computers with unlimited internet content have revolutionized the forms of interaction between people, such as social relationships, professional life, and family relationships (Campbell et al., 2014; Katz & Aakhus, 2002). In fact, some researchers argue that interactive digital technologies have become part of the microsystem level in Bronfenbrenner's (1979, 1994) Ecological Systems Theory (McHale et al., 2009; Vaterlaus & Tulane 2015). The Ecological Systems Theory examines the development of the individual within the context of the system of relationships that constitute their environment. According to this approach, intertwined systems that interact with each other contribute to the interpretation of the individual's developmental process. These systems are categorized as the microsystem, mesosystem, exosystem, macrosystem, and chronosystem. The microsystem, in which some researchers include technology, comprises the child's immediate environment in which the child lives and interacts every day, such as school and family, including caregivers, relatives, neighbors, friends, or teachers who are in direct communication and interaction with children.

The increasing prevalence and integration of smartphones and mobile devices into people's lives has had some impact on the daily routine activities of infants and young children. The widespread use of these devices makes their presence in the environment inevitable during the time parents spend with their children. Previous studies on the subject also support this statement. Radesky et al. (2014) found that 73% of parents used their phones while eating out with their children in restaurants. In another study, 35% of caregivers were found to be on their phones every five minutes (or sometimes more) while in the park with the children (Hiniker et al., 2015). Jiang (2018) found that 36% of parents spend excessive amounts of time on their phones.

The rapid spread of technology has affected parents as well as all other segments of society. The form of modern parenting has changed as more and more parents own smartphones and other mobile devices and use them throughout the day (Rainie & Zickuhr, 2015). Recently, researchers have begun to examine the reasons affecting parental phone use and its possible impacts on children (McDaniel, 2019; Radesky et al., 2016; Wolfers, 2021). Studies have concluded that parental distraction due to mobile devices can become very common at times, which can negatively affect the quality of parenting children receive (Hiniker et al., 2015; McDaniel & Coyne, 2016b; Radesky et al., 2014).

Although individuals reap significant benefits from technology use, such as increased social support (McDaniel et al., 2012) and the ability to work from home (Chesley et al., 2013), sociological and psychological studies have highlighted that face-to-face social relationships are likely to be disrupted when using mobile and digital technologies (McDaniel & Radesky, 2018). This situation was initially defined as the act of an individual being physically present in an environment but having their mind elsewhere based on signals from their cell phones (Gergen & Gergen, 2002). Recently, it has been conceptualized as "technoference," which is defined as interruptions in interpersonal interactions or time spent together on a daily basis due to digital and mobile technology devices (McDaniel, 2015). Technoference is a concept derived from the combination of the words "technological" and "interference." Technoference is defined as the interruption of relationships in social life due to the intensive use of technology (McDaniel & Coyne, 2016b; Stocdale et al., 2018).

The widespread use of technology and the intensive use of cell phones in daily life make individuals more vulnerable to the intrusion of technology. Although it is stated that the level of technological device use is higher among children and young people in the society, it is noted that parents also use these devices at a very high rate (Xie et al., 2019; Niu et al., 2020). The intensive use of technological devices by parents has caused

them to experience technoference in their interactions with their spouses as well as technological interventions during social interactions with their children, and this situation has been conceptualized as "parental technoference." Parental technoference is defined as parents focusing their attention and interest on their cell phones instead of their children during parental interactions, resulting in an interruption in parent-child engagement (Radesky et al., 2014).

Previous studies have shown that parents who use mobile devices extensively have fewer conversations with their children and respond less to their children's attention-seeking behaviors. It has also been observed that parents who use mobile devices respond more negatively to their children's attention-seeking behaviors compared to non-users (Radesky et al., 2014, 2015). The most prominent goals of parenting include protecting the health and safety of the child, preparing the child to be a good adult in the future, and ensuring the socialization of the child by providing cultural values to them (Darling & Steinberg, 1993). The dizzying developments in digital technologies have introduced new dimensions to the parent-child relationship. The approaches of parents are crucial for children to be protected from the risks of digital technologies and to benefit effectively from the learning experiences offered by them. This is because the quality of the relationship established between parents and children determines the child's cognitive, social, emotional, moral, and physical development (İnan et al., 2018; Kağıtçıbaşı & Cemalcılar, 2016).

The intense involvement of technology and mobile devices in the lives of individuals and societies has inevitably directed the attention of researchers to this subject. Intensive use of technology was examined in terms of internet addiction and problematic mobile phone usage behaviors. The relevant study concluded that all of these behaviors were associated with mental health issues such as depression, anxiety, and social problems (Bianchi & Phillips, 2005). In another study, problematic use of mobile technologies was associated with anxious dependence in relationships, poorer self-regulation skills, and lower levels of mindfulness (Cheever et al., 2014; Feldman et al., 2011). There are a number of studies in the literature investigating the relationship between the problematic use of technology by parents and parental digital technology use with the quality and quantity of parent-child interactions. In relation to this subject, in the study conducted by Corkin et al. (2021), correlations were found between intensive use of mobile technology by parents while they are with their children and the quality of parent-child interactions as well as children's language development. In another study, Sundqvist, Heimann, and Koch (2020) revealed the relationship between parental technoference and behavioral problems in children aged 4-5 years. Moreover, technological disruptions during parenting practices were associated with mothers having lower perceptions of their quality of parenting (McDaniel & Coyne, 2016a). In the interviews conducted, children stated that parents should not use digital technology during family routines (Hiniker et al., 2016). It is observed that there are various studies in the literature on the reflections of technology on individuals and society. However, it is understood that the number of studies examining these dynamics in the context of technoference in parent-child relationships is insufficient. Furthermore, there is no measurement tool in Turkey that assesses technoference in parent-child relationships. Therefore, the present study aims to adapt the Technoference in Parent-Child Relationships Scale into Turkish and to conduct validity and reliability studies.

2. Methodology

2.1. Research Sample

The study group consisted of 445 parents of children between the ages of 3 and 6 who were attending preschool in Denizli, Turkey. In order to increase the representativeness of the sample in the universe, the simple random sampling method, one of the probability sampling methods, was used (Punch, 2005). In simple random sampling, the participants to be included in the study are selected by a random method. In this method, the participants have equal probabilities of participating in the research process, and the study universe is also homogeneous. Additionally, criterion-related validity analyses of the scale were conducted with a new sample group consisting of 243 parents of children between the ages of 3 and 6 attending preschool in Denizli. In the test-retest correlation analyses, another sample group consisting of 116 parents of children between the ages of 3 and 6 attending preschool in Denizli was used.

2.2. Data Collection Tools

In the study, a Demographic Information Form and the Technoference in Parent-Child Relationships Scale (McDaniel & Coyne, 2016), which was tested for validity and reliability within the scope of its adaptation into Turkish, were used as data collection tools. Also, the Problematic Internet Use Questionnaire - Short Form developed by Demetrovics et al. (2016) and adapted into Turkish by Göktaş et al. (2018) and the Parental Attitude Scale on Technology Use developed by Kalkan, Kılıç, and Yılmaz (2022) were used to examine their correlations with the Technoference in Parent-Child Relationships Scale within the scope of criterion-related validity.

Demographic Information Form: The Demographic Information Form was prepared to obtain detailed information about the children included in the study and their parents. The Demographic Information Form includes questions about the age and gender of the children and the year of birth, education, and employment status of their parents.

Technoference in Parent-Child Relationships Scale: In the present study, data on technoference in parent-child relationships were collected using the Technoference in Parent-Child Relationships Scale (TPCRS), the validity and reliability of which were tested in this study. The scale was developed by McDaniel and Radesky (2018) to measure technoference in mother-child and father-child relationships. The TPCRS was adapted from the Technological Device Interference Scale, which measures technoference in relationships between spouses (McDaniel & Coyne, 2016). The TPCRS can be filled out by mothers and fathers. The scale consists of six items. The following question is directed to parents: "On a typical day, approximately how many times do the following devices interrupt a conversation or activity with your child?". The six items in the scale include the following devices: cell phone/smartphone, television, computer, tablet, iPod, and video game console. Each item has a 7-point scale ranging from 0 (never) to 6 (more than 20 times). The Technoference in Parent-Child Relationships Scale consists of a single factor. Higher scores on the scale indicate more frequent technoference in parent-child relationships.

Problematic Internet Use Questionnaire-Short Form (PIUQ-SF): This measurement tool was developed by Demetrovics et al. (2016) and adapted into Turkish by Göktaş et al. (2018). With this questionnaire, the problematic internet use levels of individuals are determined. The questionnaire consists of 3 sub-dimensions, namely obsession, neglect, and impaired control, and a total of six items, two in each sub-dimension. A minimum score of 6 points and a maximum score of 30 points can be obtained from the questionnaire. Higher scores indicate higher levels of problematic internet use. In the exploratory factor analysis conducted within the scope of the validity study of the questionnaire, it was observed that the three sub-factors explained 53.42% of the total variance. Furthermore, the content validity coefficient of the scale was calculated as .90. The internal consistency coefficient and test-retest reliability coefficient were calculated as .82 in the reliability analysis performed in the adaptation study of the measurement tool into Turkish. In the present study, the reliability analysis of the questionnaire was conducted, and the Cronbach's alpha internal consistency reliability value was calculated as .84 for the overall scale, .73 for the obsession sub-dimension, .75 for the neglect sub-dimension, and .78 for the impaired control sub-dimension.

Parental Attitude Scale on Technology Use: This scale was developed by Kalkan et al. (2022) to examine parents' knowledge and attitudes towards their preschool children's use of technology. The instrument is graded on a five-point Likert scale. The Parental Attitude Scale on Technology Use has two sub-dimensions: behavioral and relational. This two-factor structure explains 52.99% of the total variance. The first dimension of the scale includes 12 items (items 2, 3, 6, 7, 8, 9, 10, 11, 12, 14, 15, and 17) and focuses on child and parent behaviors. The second dimension of the scale includes 7 items (items 1, 4, 5, 13, 16, 18, and 19) and focuses more on relationships. The Cronbach's alpha coefficient of the Parental Attitude Scale on Technology Use was calculated as 0.885 for the behavioral attitude sub-dimension and 0.804 for the relational attitude sub-dimension. By summing the items in the sub-dimensions of the scale, parents' behaviors related to the first and second factors can be examined. It is not suitable to obtain a general attitude score by summing all items of the scale. In the present study, the scale was tested for reliability, and its Cronbach's alpha internal consistency reliability value was calculated as .80 for the behavioral attitude sub-dimension and .83 for the relational attitude sub-dimension.

2.3. Procedure

Within the scope of the adaptation of the Technoference in Parent-Child Relationships Scale into Turkish, first, permission was obtained via e-mail from Brandon T. McDaniel, the corresponding author of the researcher group who developed the scale. In the first stage, the scale was translated from English to Turkish by the researcher and two field experts independently of each other within the scope of language validity. The translations obtained were examined by a faculty member from the Department of English, and the most appropriate one in terms of meaning and language structure was selected for each item, and a consensus was reached on the translation. The agreed-upon scale was examined by two faculty members in the field of preschool education, and it was aimed to prevent conceptual errors that may arise from the translation. In the second stage, the back translation method was used, and the scale was translated from the target language to the source language by a professional translator who is fluent in both languages. After the back translation process, the original text of the scale and the translated text were checked by a faculty member from the English department, and the consistency between them was examined. Taking into account the evaluations made as a result of the examinations, the necessary corrections and adjustments were made, and the Turkish form of the scale was created. Thus, it was aimed to prevent situations that may cause problems in the future administration of the test arising from intercultural differences and that may have a negative impact on the validity and reliability of the scale. In the final stage, the finalized scale was administered by the researcher to the parents of 10 children. The Turkish form of the scale was finalized by taking the opinions of the parents about the items that were not understood and that created ambiguity.

After the linguistic validity step of the study was completed, the content validity study of the Technoference in Parent-Child Relationships Scale (TPCRS) was conducted. Content validity is tested to determine the extent to which the overall scale and each item in the scale serve the specified purpose. When evaluating the content validity of a scale, it is necessary to obtain expert opinions to determine the level of representation of the test items as a whole and the scope areas in which the items are written individually (Thorndike & Haggen, 1977). To test the TPCRS for content validity, five faculty members, three from the Department of Preschool Education, one from the Department of Psychological Counseling and Guidance, and one from the Department of Computer Education and Instructional Technology, were selected. Within the scope of content validity, the scale and the evaluation form were sent independently of each other to the five field experts who were selected to evaluate each of the items in the scale in terms of meaning, expression, and appropriateness to the measurement tool. In the evaluation form, the opinions, suggestions, and evaluations of the experts on each item in each scale were taken. Furthermore, the experts also evaluated the scale in terms of its suitability for preschool children. Based on the expert opinions, a consensus was reached on the appropriateness of the scale for the preschool period. Following the independent evaluations of the experts, the Technoference in Parent-Child Relationships Scale (TPCRS) was finalized in terms of content validity by taking into account the opinions and consensus of the experts. Thus, the content validity studies of the TPCRS were completed.

Following the language and content validity studies, the necessary permissions were obtained to collect the study data. The measurement tools were administered online to the parents of 445 children between the ages of 3 and 6 attending preschool in Denizli. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted to assess the construct validity of the Technoference in Parent-Child Relationships Scale. In order to reveal the criterion-related validity of the TPCRS, the correlation between the "Problematic Internet Use Questionnaire - Short Form" and the "Parental Attitude Scale on Technology Use" was examined in a new sample group consisting of 243 parents of children aged 3-6 years attending a preschool education institution, taking into account the measurement tools in the development phase of the scale. The Cronbach's alpha coefficient, item-total correlations, and test-retest method were used in reliability analyses. The study data were analyzed using the SPSS and AMOS software.

2.4. Ethical

This study was conducted with the approval of the Pamukkale University Social Sciences and Humanities Research and Publication Ethics Committee with the decision dated 18/11/2022 and numbered 19-6.

3. Findings

The findings regarding the validity and reliability of the Technoference in Parent-Child Relationships Scale are presented below.

3.1. Validity Study

Exploratory Factor Analysis (EFA): It is stated that the suitability of study data for factor analysis can be tested using the Kaiser Meyer Olkin (KMO) coefficient and the Barlett Sphericity test (Büyüköztürk, 2016). For factor analysis, Kaiser Meyer Olkin (KMO) coefficient values higher than .60 and Barlett Sphericity test scores being significant at a level of .05 are considered sufficient (Çokluk et al., 2010; Field, 2009; Pallant, 2005). The Kaiser Meyer Olkin (KMO) coefficient of the Technoference in Parent-Child Relationships Scale was .74 and the Barlett Sphericity test result $\chi 2= 579.032$, df= 15, ($p<.001$) was statistically significant, indicating that the data were suitable for factor analysis. As a result of the exploratory factor analysis, it was revealed that the scale items were grouped under a single factor with an eigenvalue greater than 1. Factor eigenvalues of the scale consisting of 6 items are shown in Table 1.

Table 1. *Total Variance Explained*

Initial Eigenvalues				Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,453	40,891	40,891	2,453	40,891	40,891
2	,835	17,171	63,194			
3	,693	11,553	11,553			
4	,648	10,808	10,808			
5	,557	9,282	9,282			
6	,490	8,163	8,163			

This scale has a one-dimensional structure that explains 40.89% of the total variance. Table-2 shows the factor common variance and factor loading values of the scale items.

Table 2. *Exploratory Factor Analysis Results*

Item	Factor Common Variance	Factor Load Value
1	.41	.62
2	.34	.61
3	.38	.61
4	.45	.67
5	.44	.67
6	.48	.70

Total variance explained = 40.89%

As a result of the exploratory factor analysis, the total variance explained was found to be 40.89%. This finding also shows that the scale has a general factor. In single-factor scales, it is considered sufficient for the variance explained to be 30% or more (Büyüköztürk, 2016; Çokluk et al., 2010). The factor loadings of the scale items were calculated between .61 and .70. A factor loading value of .45 or higher is a good criterion for selection. However, it is stated that this value can be reduced to .30 (Büyüköztürk, 2016).

Confirmatory Factor Analysis (CFA): Confirmatory factor analysis tests whether a previously defined and restricted structure is confirmed as a model (Çokluk et al., 2010). In CFA, model-data fit is examined and hypotheses about the relationships between variables are tested (Kline, 1994; Tabachnick & Fidell, 2012). Various fit indices are utilized to test the validity of the model in CFA. The most frequently used among these fit indices are the Chi-Square Test, Root Mean Square Error of Approximation (RMSEA), Adjusted Goodness of Fit Index (AGFI), Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), and Standardized Root Mean Square Residuals (SRMR). Confirmatory factor analysis was conducted on 445 data collected from the six-item Technoference in Parent-Child Relationships Scale.

Based on the findings obtained from the study, the standardized factor loadings of the items of the Technoference in Parent-Child Relationships Scale were found to range between 0.38 and 0.67. In order to make the model fit stronger, modification suggestions were examined, and modifications were made between

items 1 and 2, and model fit indices were examined. Accordingly, the model fit indices were found as x^2/sd=1.828, RMSEA=.046, AGFI=.96, GFI=.97, CFI=.98, NFI=.96, SRMR=.056 (Figure 1). It is stated in the literature that a x^2/sd ratio below 3 indicates a very good fit and a ratio below 5 indicates a good fit. RMSEA values less than .05 indicate a very good fit, and values less than .08 indicate a good fit. SRMR values below .05 indicate a very good fit, and values below .08 indicate a good fit (Çokluk et al., 2010; Schermelleh-Engel & Moosbrugger, 2003). It is stated that AGFI, NFI, GFI, and CFI indices above .95 indicate very good fit and above .90 indicate good fit (Çokluk et al., 2010). In this context, it was revealed with the fit indices obtained as a result of the CFA that the one-factor structure of the Technoference in Parent-Child Relationship Scale was a very good fit.

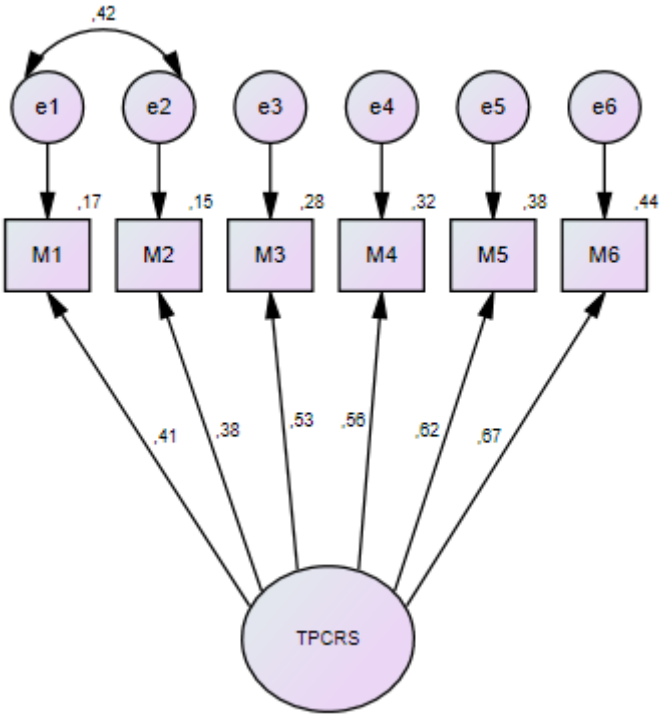

Figure 1. *Path Diagram and Factor Loadings for TPCRS*

In the present study, in addition to the confirmatory factor analysis, multiple correlation squares (R^2) and t-values of the items of the Technoference in Parent-Child Relationships Scale were calculated. Along with these values, combined reliability (CR) values and Average Variance Extracted (AVE) were calculated to determine the reliability of the factor structures of the scales and are presented in Table 2.

Table 2. *The t-value, Multiple Correlation Squares (R^2), Average Variance Extracted (AVE) and Combined Reliability (CR) Values of the Scale Items*

Scale	Item	t-value (t)	Multiple Correlation Squares (R^2)	Average Variance Extracted (AVE)	Combined Reliability (CR)
TPCRS	Item 1	12.71**	.34	.43	.81
	Item 2	12.88**	.33		
	Item 3	11.71**	.30		
	Item 4	11.25**	.32		
	Item 5	10.32**	.39		
	Item 6	9.30**	.45		

When the data in Table 2 are analyzed, it is observed that the t-values of the items of the TPCRS range between 9.30 and 12.88. It is emphasized that the t-values should be significant for the scale items to remain in the model (Byrne, 2010). It is also stated that if the t-value of the scale exceeds 1.96, it is significant at a level of 0.05, and if it exceeds 2.56, it is significant at a level of 0.01. It is suggested that insignificant items should be removed from the scale (Schumacker & Lomax, 2004; Şimşek, 2007). Since all items of the TPCRS were significant at a level of .01, all of the items remained in the model. The values of the Multiple Correlation Squares (R^2) indicate that the variance explanation ratios of the items are significant at a level of .01. The

Combined Reliability (CR) value of the TPCRS was calculated as .81 and the Average Variance Extracted (AVE) value as .43. In general, it is stated that for AVE and CR values to be acceptable, AVE values should be above 0.50 and CR values should be above 0.60 (Hair et al., 2010). However, since it is stated that if the CR value is above .60, it may be sufficient to have an AVE value of .40 or more (Fornell & Larcker, 1981), it can be said that the CR and AVE values of the Technoference in Parent-Child Relationships Scale are sufficient.

Criterion-Related Validity: Within the scope of criterion-related validity, the correlations between the Problematic Internet Use Questionnaire - Short Form (PIUQ-SF) developed by Demetrovics et al. (2016) and adapted to Turkish culture by Göktaş et al. (2018) and the Parental Attitude Scale on Technology Use developed by Kalkan et al. were examined by considering the measurement tools used in the development phase of the Technoference in Parent-Child Relationships Scale. For this analysis, a new sample group consisting of 243 parents of children aged 3-6 years attending preschool education institutions in the Denizli province was determined, and data were collected from this group. Table 3 shows the results of the analysis.

Table 3. *Results of the Correlation Analysis on the Criterion-Related Validity of the Technoference in Parent-Child Relationships Scale*

	1	2	3	4	5	6	7
1. TPCRS	1						
2. Obsession	.35**	1					
3. Neglect	.33**	.75**	1				
4. Impaired Control	.38**	.65**	.54**	1			
5. PIUQ-SF Total	.41**	.91**	.87**	.84**	1		
6. PASTU Behavioral	.37**	.51**	.49**	.46**	.56**	1	
7. PASTU Relational	-.22**	-.35**	-.30**	-.31**	-.36**	-.39**	1

When the results of the correlation analysis between the Technoference in Parent-Child Relationships Scale (TPCRS), the Problematic Internet Use Questionnaire (PIUQ-SF), and the Parental Attitude Scale on Technology Use (PASTU) are examined as shown in Table 3, it is observed that there is a moderate positive relationship between the TPCRS and the obsession (r=.35, p<.01), neglect (r=.33, p<.01) and impaired control (r=.38, p<.01) sub-dimensions of the PIUQ-SF. It was found that there was a significant positive relationship between the TPCRS and the behavioral sub-dimension of the PASTU at a moderate level (r= .37, p<.01) and a low level (r= -.22, p<.01) between the TPCRS and the relational sub-dimension. Additionally, the relationship between the TPCRS and the total score of the PIUQ-SF (r=.41, p<.01) was moderate and positive. The results of the analysis revealed that the Technoference in Parent-Child Relationships Scale met criterion-related validity.

3.2. Item Analysis and Reliability Studies

In order to determine the reliability of the Technoference in Parent-Child Relationships Scale, the Cronbach's alpha internal consistency coefficient, the test-retest correlation coefficient with a four-week interval, and the item total correlation coefficient were calculated. The test-retest reliability studies of the TPCRS were conducted on a different sample group of 116 parents of children aged 3-6 attending preschool in Denizli. Table 4 shows the results of the analysis.

Table 4. *Item Total Correlation Coefficient, Test-Retest and Cronbach's Alpha Internal Consistency Coefficient Results of the TPCRS*

Item No	*Item*	Item-Total Correlation	Test-Retest
1	Cellphone/Smartphone	.47	
2	Television	.44	
3	Computer	.41	.77
4	Tablet (e.g., iPad, Kindle Fire, etc.)	.48	
5.	iPod or other music player	.44	
6	Video game on console	.50	
	Cronbach alfa = 0,72		

When the item-total correlation coefficients of the Technoference in Parent-Child Relationships Scale are examined as shown in Table 4, it is observed that these values range from .41 to .50. The Cronbach alpha internal consistency coefficient of the scale was calculated as .72. The sample group determined for the test-

retest reliability analysis of the TPCRS filled out the scale twice with a four-week interval. The reliability coefficient obtained from the scale with the test-retest method was found to be .77. In the process of adapting the Technoference in Parent-Child Relationships Scale to Turkish culture, the Cronbach alpha internal consistency coefficient was calculated as .70 and above, the item total correlation coefficient was found to be above .30, and the correlation coefficient calculated by test-retest reliability analysis was close to 1, indicating that the reliability of the items of the TPCRS is high (Aksayan & Gözüm, 2002; Büyüköztürk, 2010; Ellez, 2012, p. 179; Özdamar, 2004; Robinson et al., 1991).

4. Discussion, Conclusion and Recommendations

In the present study, In the present study, it was aimed to adapt the Technoference in Parent-Child Relationships Scale (McDaniel & Radesky, 2018) into Turkish. For this purpose, a study was conducted in the light of expert opinions for the language and content validity of the scale. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted to test the construct validity of the scale, and it was assessed with criterion-related validity analysis. For reliability analyses, Cronbach's alpha internal consistency coefficient, test-retest, and item-total correlation coefficients were calculated. As a result of the analyses, it was determined that all items of the TPCRS were functional, unidimensional, and similar to the original scale in this respect. The results obtained from the validity and reliability analyses showed that the Technoference in Parent-Child Relationships Scale is an appropriate measurement tool to determine the extent to which technology interferes with the relationships between parents and children by interrupting mother-child and father-child relationships.

The studies on the language and content validity of the TPCRS were conducted by referring to expert opinions. It is stated that in order to improve the language validity level of a measurement tool translated from a different language into Turkish, the original scale should be evaluated by different field experts, their opinions should be taken, and the scale translated into Turkish should be translated back into the language in which it was developed, and the consistency between the two measurement tools should be checked. Content validity is the indicator of whether the scale items are sufficient in terms of quantity and quality to measure the behavior (trait) to be measured. One of the logical ways to test content validity is to seek expert opinion (Büyüköztürk, 2016, p. 180). Five field experts were consulted for the content validity of TPCRS. The experts independently evaluated the items in the scale in terms of meaning, expression, and appropriateness to the measurement tool. The experts also evaluated the scale in terms of its suitability for preschool children. According to the expert opinions, a consensus was reached on the appropriateness of the scale for the preschool period. After the independent evaluations of the field experts, the Technoference in Parent-Child Relationships Scale (TPCRS) was finalized in the context of content validity by taking into account their opinions and the points they agreed on.

In the present study, the Kaiser Meyer Olkin (KMO) coefficient and the Barlett Sphericity test were applied to test whether the data set in the study was suitable for factor analysis before the EFA and CFA analyses were performed to ensure the construct validity of the scales. As a result of the test, it was found that the Kaiser Meyer Olkin (KMO) coefficient of the Technoference in Parent-Child Relationships Scale was .74, and the Barlett Sphericity test result χ 2= 579.032, df= 15, ($p<.001$) was statistically significant. In order to conduct a factor analysis with the data obtained, the KMO value is required to be greater than .60 and the Bartlett Sphericity test must be significant (Field, 2009; Pallant, 2005). The results of the KMO and Bartlett test show that the data are suitable for factor analysis. As a result of the exploratory factor analysis conducted for the construct validity of the TPCRS, it was revealed that the scale items were grouped under a single factor with an eigenvalue greater than 1. As a result of the EFA, the total variance explained was found to be 40.89%. This finding also shows that the scale has a general factor. In single-factor scales, it is considered sufficient that the variance explained is 30% or more (Büyüköztürk, 2016; Çokluk et al., 2010). The factor loadings of the scale items were calculated to range between .61 and .70. It is stated that a factor loading value of .45 or higher is a valid criterion (Büyüköztürk, 2016).

Additionally, a confirmatory factor analysis was conducted to test the construct validity of the TPCRS. The most frequently used statistics for model-data fit in confirmatory factor analyses are the Chi-Square Fit Test, Root Mean Square Error of Approximation (RMSEA), Adjusted Goodness of Fit Index (AGFI), Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), and Standardized Root Mean Square

Residuals (SRMR). Accordingly, the model fit indices were found as $x^2/sd=1.828$, RMSEA=.046, AGFI=.96, GFI=.97, CFI=.98, NFI=.96, and SRMR=.056. In the literature, it is stated that a x^2/sd ratio below 3 indicates a very good fit and a ratio below 5 indicates a good fit. RMSEA values less than .05 indicate a very good fit, and values less than .08 indicate a good fit. SRMR values below .05 indicate a very good fit, and values below .08 indicate a good fit (Çokluk et al., 2010; Schermelleh-Engel & Moosbrugger, 2003). It is stated that AGFI, NFI, GFI, and CFI indices above .95 indicate very good fit and above .90 indicate good fit (Çokluk et al., 2010). In this context, when the CFA model fit indices were taken into consideration, it was revealed that the one-factor structure of the Technoference in Parent-Child Relationships Scale, similar to its original form, yielded a very good fit, and the factor structures in the original scale were compatible with the factor structures in the Turkish forms.

In the present study, multiple correlation squares (R^2), t-loadings, Average Variance Extracted (AVE), and combined reliability (CR) values of the TPCRS were also analyzed. As a result of the analyses, t and R^2 values of the TPCRS were found to be significant at a level of .01. The combined reliability (CR) value of the TPCRS was found to be .81. It is stated that a reliability coefficient of .70 and above is sufficient for scales to be accepted as reliable (Domino & Domino, 2006; Fraenkel et al., 2012; Leech et al., 2005). However, it is also stated that reliability coefficients above .60 for scales with a small number of items can also be accepted as sufficient (Sipahi et al., 2010; Şeker & Gençdoğan, 2006). In the light of this information, it can be said that the CR value of the TPCRS is sufficient. The AVE value of the TPCRS was calculated as .41. It was determined that this value was below the .50 limit value accepted for AVE. However, it is stated that if the CR value of a measurement tool is above .60, AVE values below .50 can be accepted as sufficient (Fornell & Larcker, 1981). In the light of this information, it can be stated that the AVE value of the Technoference in Parent-Child Relationships Scale is at an adequate level.

Within the scope of criterion-related validity, the correlations between the Problematic Internet Use Questionnaire - Short Form (PIUQ-SF) developed by Demetrovics et al. (2016) and adapted to Turkish culture by Göktaş et al. (2018) and the Parental Attitude Scale on Technology Use developed by Kalkan et al. were examined by considering the measurement tools used in the development phase of the Technoference in Parent-Child Relationships Scale. As a result of the analysis, it was determined that there was a moderate positive correlation between the TPCRS and the obsession, neglect, and impaired control sub-dimensions of the PIUQ-SF and the total score of the PIUQ-SF. There was a moderate positive correlation between the TPCRS and the behavioral sub-dimension of the PIUQ-SF and a low correlation between the TPCRS and the relational sub-dimension of the PIUQ-SF. The results of the analysis revealed that the Technoference in Parent-Child Relationships Scale met criterion-related validity.

In order to test the reliability of the Technoference in Parent-Child Relationships Scale (TPCRS) within the scope of its adaptation to Turkish culture, the item-total correlation coefficient, Cronbach's alpha internal consistency coefficient, and test-retest correlation coefficient with a four-week interval were calculated. As a result of the analysis, it was determined that the item-total correlation values of the TPCRS were distributed between .41 and .50. It is stated that when the item-total correlation values of the scale items are .30 and above, they can distinguish the quality to be measured (Büyüköztürk, 2008; Field, 2009). Considering this information, it can be stated that there is a correlation between the total score of the TPCRS and all of its items, and the conditions required for the item validity of the scale are met. The Cronbach alpha internal consistency coefficient of the TPCRS was calculated as .72, and the test-retest reliability coefficient was .77. The reliability levels of the measurement tools used in scientific studies are expected to be 0.70 and above (Tezbaşaran, 1996). The fact that the Cronbach alpha internal consistency coefficient of the TPCRS is above .70, the item total correlation coefficient is above .30, and the test-retest correlation coefficient is close to 1 is significant in terms of demonstrating that the reliability of the scale is sufficient (Aksayan & Gözüm, 2002; Ellez, 2012, p. 179; Özdamar, 2004; Robinson et al., 1991).

In conclusion, the analyses conducted for the validity and reliability of the Technoference in Parent-Child Relationships Scale show that the scale is valid and reliable. The Technoference in Parent-Child Relationships Scale, which was adapted into Turkish, may be regarded as a suitable measurement tool to determine the extent to which technological devices interrupt a conversation or activity (parent-child relationships) between parents and their children. The adaptation of the TPCRS was found to be a unidimensional, valid, and reliable measurement tool as in the original scale. When the literature was examined, no scale measuring technoference

between parents and children in Turkey was found. In this context, it is thought that the adaptation of the TPCRS to Turkish culture will contribute to the field. It is predicted that applying the scale in different and larger sample groups and conducting validity and reliability studies with large samples will positively affect the validity and reliability levels of the TPCRS.

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