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THE ROLE OF CONFLICT RESOLUTION STYLES, COMMUNICATION PATTERN AND SEXUAL SATISFACTION AS PREDICTORS OF HOW TO CONSIDER DIVORCE IN MARRIED INDIVIDUALS

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ABSTRACT

The aim of the study is to determine the conflict resolution styles, communication patterns and sexual satisfaction what extent truly classify married individuals' thinking about divorce and not thinking about divorce. The research group consists of 396 married people. In this study, those who think about divorce and those who do not are divided into two categories and Binary Logistic Regression analysis was performed to classify these groups by sub-dimensions of conflict resolution styles, aggressive communication pattern, destructive communication pattern and sexual satisfaction variables. Conflict Resolution Styles Scale, Communication Styles Scale and Golombok-Rust Sexual Satisfaction Scale were used for data collection. As a result of the analysis, it is seen that the sub-dimensions of conflict resolution styles (positive conflict, negative conflict, submission and withdrawal), aggressive communication pattern, destructive communication pattern and sexual satisfaction are effective in correctly classifying married individuals who are considering divorce or not.

Keywords: Divorce; conflict resolution; communication pattern; sexual satisfaction; binary logistic regression

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EVLİ BİREYLERDE BOŞANMAYI DÜŞÜNÜP DÜŞÜNMEMENİN YORDAYICISI OLARAK ÇATIŞMA ÇÖZME STİLLERİ, İLETİŞİM ÖRÜNTÜSÜ ve CİNSEL DOYUMUN ROLÜ

ÖZET

Araştırmanın amacı çatışma çözme stilleri, iletişim örüntüsü ve cinsel doyumun evli bireylerin boşanmayı düşünme ve düşünmeme durumlarını ne derece doğru sınıflandırdığını belirlemektir. Araştırma grubu evli 396 kişiden oluşmaktadır. Bu çalışmada boşanmayı düşünenler ve düşünmeyenler iki kategoriye ayrılmışlar ve bu grupların çatışma çözme stillerinin alt boyutları, saldırgan iletişim örüntüsü, yıkıcı iletişim örüntüsü ve cinsel doyum değişkenleri tarafından sınıflandırılmasına yönelik Binary Lojistik Regresyon analizi yapılmıştır. Çatışma Çözüm Stilleri Ölçeği, İletişim Şekilleri Ölçeği ve Golombok-Rust Cinsel Doyum Ölçeği veri toplamada kullanılmıştır. Yapılan analiz sonucunda çatışma çözme stillerinin alt boyutları (olumlu çatışma, olumsuz çatışma, boyun eğme ve geri çekilme), saldırgan iletişim örüntüsü, yıkıcı iletişim örüntüsü ve cinsel doyumun boşanmayı düşünen ve düşünmeyen evli bireyleri doğru sınıflandırmada etkili olduğu görülmektedir.

Anahtar Kelimeler. Boşanma; çatışma çözme; iletişim örüntüsü; cinsel doyum; binary lojistik regresyon

INTRODUCTION

Why some relationships are perpetual, while others are like a ticking time bomb? Why do some marriages sometimes get into trouble? Why do people who decide to bind their lives by loving each other so much decide to divorce one day? How to prevent a marriage from getting ruined? All these and similar questions have formed the basis of research, especially in the field of family and couple counseling.

Marriage provides many material and nonmaterial benefits for spouses (Waite & Gallagher, 2000). Married individuals reportedly have better psychological and physical health and have more financial opportunities than unmarried ones (Marcussen, 2005; Waite & Gallagher, 2000). Married individuals in Turkey are also reported to be happier than singles (TÜİK, 2021). On the other hand, when we look at divorce indicators in Turkey in the TÜİK data, 91994 people divorced in 2001 (with a divorce rate of roughly 1.35 per thousand), while this number increased to 135022 in 2020 (with a divorce rate of roughly 1.62 per thousand). However, the rough divorce rate in the world was 1.95 in 2020 (Kara, 2020).

Before the divorce is finalized legally with separation, it grows as a thought in individuals' minds, and they become lonely within themselves from an emotional perspective (Uyar, 1999). As part of its emotional, psychological, social, and economic consequences, divorce is a phenomenon that may affect both the spouses and the people around them. Considering the consequences, divorce may affect the individual and the family evermore over the years. Based on the theorem that healthy spouses are the foundation of healthy societies, couples should be considered primarily as social values, not just as persons in a romantic relationship (Tatkin, 2020).

The court records and statistical data on divorce data in Turkey show that the most common reason for divorce is the "disruption of family unity", i.e., the dissension (Yıldırım, 2004). However, the reasons for divorce that could be considered as the disruption of marital union differ in the Turkish Civil Code. Such a general definition that dissension is the reason for divorce obscures the true reasons for divorce and leads to uncertainty (Sürerbiçer, 2008). Divorce is a complex process that cannot be explained by a single factor.

It is noteworthy that problems married couples experience during their marriage are parallel to the causes of divorce. Kelley et al. (1983) suggest determining the interaction patterns of the couples to understand whether a marriage is truly successful or not. Understanding the interaction patterns in a relationship depends on understanding an ongoing communication between spouses (Thomas, 1977). Malkoç (2001) states that spouses with low marital adjustment scores use more destructive communication than those with high marital adjustment scores; however, there is no difference in communication styles according to gender.

There is an emphasis on the importance of the couples' ability to talk about their marriage in order to maintain a healthy relationship (Dokur & Profeta, 2006). To carry out the marital relationship in a healthy manner, many factors such as spouses mutually providing emotional support to each other, respecting and adapting to their personal characteristics, having positive communication skills, and sexual compatibility should be considered. Unresolved conflicts, weak and negative communication patterns emerge when these duties and behaviors are unfulfilled between the couples (Kalkan & Yalçın, 2015). When dissensions and differences between couples cannot be resolved through healthy communication, negative experiences rise between spouses over time. As a result, they may cause spouses to feel dissatisfaction in their relationships and increase negative perspectives regarding the relationship (Strong, DeVault, & Cohen, 2005).

A significant relationship between spouses' communication patterns and relationship satisfaction in marriage has been demonstrated in both cross-sectional and longitudinal studies (Carrere & Gottman, 1999; Gottman & Levenson, 1992). It is stated that the communication of couples, especially during conflict, is closely related to and a significant predictor of marital adjustment (Noller & Feeney, 2002). Additionally, strong communication is necessary for spouses to establish intimacy and commitment with each other and to manage their power and conflict (Feeney & Noller, 1991; Sillars, Leonard, Roberts, & Dun, 2002). Positive and strong communication between spouses, in particular, helps to overcome the tensions and difficulties in daily marriage life. It also prevents the accumulation of resentments and anger (Jacobson & Margolin, 1979). The communication styles established between marriage partners and these patterns that could predict a possible divorce are underlined as important variables (Gottman, 1999, 2011).

In addition to communication skills, dysfunction in conflict styles is also seen as one of the primary causes of problems in marriage. Raush et al. (1974) argue that avoidance and discussion styles at two

extremes of the conflict are dysfunctional. Research shows that hostile conflict is one of the signs of unhappiness in marriage (Christensen & Shenk, 1991; Gottman, 1999). Gottman and Silver (2017) define hostile conflict as the interaction pattern of a negative couple. They also argue that the four habits they call as Four Horsemen of the Apocalypse (criticism, contempt, defensiveness, and stonewalling) increase conflicts and lead couples towards divorce. In this interaction pattern, arguments are frequent and quite heated, and couples insult and humiliate each other. In addition, unwillingness to listen, lack of emotional interest, and higher negative behaviors than positive ones are seen more in communication patterns (Topham, Larson, & Holman, 2005). It is emphasized that the preferred conflict styles in married couples, dissension (Gottman, 1999), and the existence of hostile conflicts predict divorce in marriage by 80% accuracy (Gottman & Levenson, 1992). Moreover, Roberts' (2000) study, examining the relationship between the current stage of the spouses and their future marital satisfaction, showed that hostile response is closely related to marital problems. Avoiding intimacy, avoiding conflict, avoiding anger, and hostile response behaviors are determined to be among the main predictors of marriage satisfaction.

Experiencing disagreements and discontentment in marriages where two different people come together is inevitable. The conflict styles of spouses are different from each other; while some avoid fighting without arguing, others fuel the escalation of the conflict by arguing. Some couples can also have gentle initiations during the argument by talking about their differences. The marriage of spouses who experience conflict but can resolve it is unproblematic than those who cannot (Öner, 2013). In some way, the quality of a relationship is not determined by the absence of conflict but by how conflicts are managed, and 31% of conflicts in relationships are resolved with communication skills (Gottman, 1999). In marriages where conflicts persist hostilely and constantly, spouses may break away emotionally from each other with time. As such, they may retire into their shells, feeling worthless in their marriage. In tandem with the increasing distance between them and their spouses, people organize their lives in such a way that are parallel but move towards loneliness (Gottman, 1999). Basically, the couples are getting divorced emotionally and are willing to end their marriage. In this context, conflict could be considered as a window through which we could see the future of an intimate relationship between spouses (Dhir & Markman, 1984). Conflict styles and how they are managed are important factors in maintaining the marriage, and from this perspective, determining the conflict resolution styles of the spouses may be imperative.

One of the most important elements of marriage is sexuality (Crowe, 1995). It is a phenomenon that binds the spouses to each other psychologically and biologically. The bond formed between spouses through sexuality is seen as an element that amplifies their intimacy with each other. The chief function of sexuality in marriage is sharing the pleasure they experience together, increasing and deepening their intimacy, and reducing tensions that may arise when tackling the challenges of life and marriage. Hence, unproblematic sexual function may contribute positively to marriage. However, the problems experienced

in sexual function have profound and negative impacts, and these problems even disrupt positive emotions and deplete intimacy between spouses (McCarthy, 1997). Research shows that sexuality is an important factor in marital harmony and the health of spouses (Eşsizoğlu, Yenilmez, Güleç, & Yazıoğlu, 2012). The satisfaction of couples from their sexual life also affects their marital satisfaction. When spouses cannot please each other sexually, they experience demoralization, and this affects their marital relations negatively (Çağ & Yıldırım, 2013).

Sexual satisfaction is stated to have a significant impact on couples in establishing and maintaining a healthy relationship (Donnelly, 1993). Several factors, such as marital problems and inadequate sexual life, can cause problems in sexual satisfaction (Boyacıoğlu, 1999). Sexual satisfaction, as a multidimensional concept, is a crucial factor for the general course and health of a marriage. What people think and feel about their sexuality, especially in their relationships, often affects their feelings and thoughts about their whole relationships. Couples, who are sexually satisfied with their marriage, also have positive opinions about their relationships. Byers (2005) associates sexual dissatisfaction with unresolved conflicts, lack of intimacy, and emotional distance between couples. As indicated, sexual communion has an indispensable place in marital relationships. At this point, the relationship between the sexual satisfaction and marital harmony of spouses gains significance. A study conducted by Witting et al. (2008) revealed that a high level of sexual satisfaction is associated with general relationship satisfaction and increases relationship satisfaction. Thus, the ability to provide sexual satisfaction, as is inherent in human nature, may also be instrumental in predicting the future of the relationship in married individuals.

Studies on improving the relationship between spouses are a relatively new phenomenon. In this context, it might be significant to examine the processes that lead spouses to think of divorce and reveal some variables that may be instrumental in improving the relationship between couples. There was no study in the relevant literature on spouses who think of divorce during an ongoing relationship and their processes before deciding to get a divorce. Generally, it appears that individuals who have obtained a divorce or have decided to divorce were studied. In addition, no study examined the effect of spouses' conflict styles, communication patterns, and sexual satisfaction variables together on the divorce process. In this context, providing sufficient awareness regarding the thoughts and behaviors of spouses during the marriage process seems essential. Knowing how these variables are related to each other seems necessary for raising enough awareness regarding the behaviors exhibited by spouses during the marriage process. This study aims to determine the extent to which conflict resolution styles, aggressive communication patterns, destructive communication patterns, and sexual satisfaction correctly classify married individuals' state of thinking or not thinking of divorce. The resulting findings are considered significant in revealing the factors affecting thoughts of divorce and determining factors that may strengthen the relationship. Moreover, the resulting findings may contribute to the theoretical and empirical marital research and the helping processes to

prevent and resolve problems arising during the marriage. The study seeks an answer to the following question: "Do the conflict resolution styles, aggressive communication patterns, destructive communication patterns, and sexual satisfaction correctly classify married individuals' state of thinking and not thinking of divorce?"

METHOD

This study, conducted based on a quantitative research approach, is correlational. Correlational studies examine the association between two or more variables without performing any intervention to these variables. Correlational studies also reveal the relationships between variables. Such studies are quite instrumental in determining the level of relationships and also allow higher-order investigations on relationships (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2020). A purposive sampling method was employed in the study. Purposive sampling is a nonprobability and nonrandom sampling type. It allows the selection and in-depth examination of ideal situations in terms of gathering information in accordance with the purpose of the study (Büyüköztürk et al., 2020). Being married was considered a criterion in selecting individuals as the study group. Criterion sampling is a sampling method in which the units that meet the criteria specified for the study are included in the sample when the observation units consist of people, events, or situations with specific characteristics (Büyüköztürk et al., 2020). The dependent variable of the study was the married individuals' state of thinking or not thinking of divorce, defined as a categorical variable. However, the independent variables comprised the sub-dimensions of conflict resolution styles, aggressive communication pattern, destructive communication pattern, and sexual satisfaction. All independent variables were continuous.

Study Group

The study group consisted of 396 people selected through a purposive criterion sampling method. Of these participants, 85 (21.5%) were men and 311 (78.5%) women. The age of all participants ranged between 25 and 70, with a mean age of $X = 40.02$. Considering the education status of the participants, 2 (0.05%) had primary school, 1 (0.3%) secondary school, 15 (3.8%) high school, 12 (3%) associate degree, 170 (42.9%) undergraduate, and 196 (49.5%) master's and doctoral education. Almost all of the participants in the study group have a very high education level. It is thought that this situation is due to the fact that the researchers collected the data online through their close circle. Considering their professions, 125 (31.6%) were doctors, 76 (19.2%) teachers, 92 (23.1) counselors/psychologists, 26 (6.6%) engineers, 11 (2.8%) academicians, 6 (1.5%) civil servants, 5 (1.3%) lawyers, 8 (2%) housewives, and 47 (11.9%) self-employed. Moreover, 356 (89.9%) were employed, and 40 (10.1%) were unemployed. Considering the number of children the participants had, 81 (20.5%) had none, 127 (32.1%) had one, 165 (41.7%) had two, and 23 (5.8%) had three. Considering the number of marriages they had, 364 (91.9%) had their first marriage, and

31 (7.8%) had their second marriage. Lastly, considering the marriage decision of the participants, 367 (92.7%) married through dating, and 28 (7.1) through arranged dating and deciding by themselves, and 1 (0.3%) through an arranged marriage.

Data Collection Tools

Personal information form

The personal information form included questions to determine the demographic characteristics of the married individuals in the study group, such as age, gender, education, occupation, employment status, and the number of their children. In addition, questions about how many marriages they had and their marriage decision were also included in this form.

Conflict Resolution Styles Scale

The Conflict Resolution Styles Scale (CRSS) developed by Özen (2006) to determine the conflict resolution styles used by married individuals was used in the study. The scale was designed to measure each spouse's four conflict resolution styles, including positive, negative, submission, and withdrawal conflict resolution styles. It consists of 25 items, including positive conflict (6 items), negative conflict (7 items), submission (6 items), and withdrawal (6 items).

In Özen's (2006) study, the scale had a four-factor construct, where the first factor (negative) accounted for 16.93% of the total variance, the second (submission) 13.07%, the third (positive) 11.33%, and the fourth (withdrawal) 11.01%. The factor loadings of the items in the scale ranged between 0.46 and 0.76. Moreover, the factor loadings of the items were high, and the number of items under each subscale was also adequate. The Cronbach alpha for the positive conflict resolution style was 0.77, 0.81 for submission, 0.75 for withdrawal, and 0.75 for negative conflict resolution styles. The adjusted item-total correlation ranged between 0.38 and 0.64 for the positive conflict, 0.35 and 0.67 for the negative conflict, 0.50 and 0.62 for submission, plus 0.36 and 0.62 for the withdrawal. In addition, the correlations of the items in the subscales were higher than 0.20 (Özen, 2006). The reliability coefficient was calculated within the scope of this study, and the Cronbach alpha was 0.81 for the negative conflict resolution style, 0.72 for the positive conflict, 0.72 for the submission, and 0.80 for the withdrawal.

Communication Patterns Scale

The communication patterns scale developed by Sullaway and Christensen (1983) and adapted into Turkish by Malkoç (2001) is Likert type scale consisting of 35 items (Sullaway & Christensen, 1983). The scale addresses the spouse's behaviors during three stages of conflict. These phases are as follows: a) when some problems arise in the relationship (four questions about withdrawal and discussion at this stage), b) during the discussion of a relationship problem (18 questions about behaviors such as criticism, blame, and withdrawal at this stage), and c) after discussion of a relationship problem (13 questions about post-conflict phase such as withdrawal or reconciliation at this stage). High validity and reliability values were obtained

in the adaptation study of the scale. The internal consistency coefficient of the scale, consisting of the destructive, constructive, emotional/logical, and aggressive communication patterns subscales, ranged between 0.61 and 0.81 (Malkoç, 2001). In addition to these subscales in the scale, the woman demand/man withdrawal, man demand/woman withdrawal, and total demand/withdrawal scores are also calculated. The internal consistency coefficients of these subscales ranged between 0.50 and 0.85 (Kluwer, Heesink, & Van De Vliert, 1997). In this study, the 13-item destructive communication pattern and the 8-item aggressive communication pattern subscales of the Communication Patterns Scale were used. The Cronbach alpha internal consistency coefficients of the destructive and aggressive communication pattern subscales were computed as 0.73 and 0.69, respectively.

Golombok-Rust Sexual Satisfaction Scale

The scale was developed by Rust and Golombok (1986). Golombok-Rust Sexual Satisfaction Scale, standardized by Tuğrul, Öztan, and Kabakçı (1993), is an evaluation tool for determining sexual function disorders and sexual intercourse quality. In this study, it was used to measure the sexual satisfaction of spouses. It is applied to couples and heterosexual individuals with permanent partners and provides information about the quality of sexual functions. Some of the subscales of the scale are also used for diagnosis (Golombook & Rust, 1988; Tuğrul, Öztan, & Kabakçı, 1993). The scale consists of 28 items of male and female forms. Communication, avoidance, satisfaction, touch, and intercourse frequency subscales are the same in both forms. There were four items regarding the quality of sexual intercourse in both forms. In addition, the female form includes vaginismus and orgasm disorder, and the male form includes premature ejaculation and erectile dysfunction subscales. Scores obtained from the scale for both the total and subscales can be used in the evaluation. They report that the split-half reliability coefficient of the scale is 0.87 in women and 0.94 in men. The internal consistency coefficients of the subscales ranged between 0.61 and 0.83. The Cronbach alpha was 0.92 in men, and 0.91 in women, considering the total score (Golombok & Rust, 1988).

In the standardization study of Tuğrul, Öztan, and Kabakçı (1993), the Cronbach alpha values relating to the subscales ranged between 0.63 and 0.91. The sexual intercourse frequency subscale had the lowest value in both men and women. The reliability coefficients were calculated in this study, and the Cronbach alpha was 0.42 in women and 0.79 in men considering the total score.

Procedure

The scale form was collected online through Google forms. The data collected were imported into the SPSS 26 program.

Data Analysis

At the first stage of the analysis, the missing data were controlled in the dataset. There was no any missing data in the dataset. Then, one-dimensional extreme values were examined and nine outliers greater

than +3 and smaller than -3 were excluded from the dataset transformed to standard z scores. However, there was no any multi-dimensional extreme value.

The skewness and kurtosis coefficients of the variables and the scatter diagram matrix were examined. The dataset met the univariate and multivariate normality and linearity assumptions. In terms of multicollinearity problem, all pairwise correlations of the variables in the dataset were examined, and they were less than 0.90. The VIF values of the variables were smaller than 2, and the tolerance values were greater than 0.10. There is an emphasis that multicollinearity problem may arises when pairwise correlations are greater than 0.90, the VIF values are equal to or greater than 10, and the tolerance values are smaller than 0.10, (Çokluk, Şekercioğlu, Büyüköztürk, 2021).

Tabachnick and Fidell (2013) emphasize that logistic regression analysis does not need to meet the assumptions required in linear regression models, but the assumptions about extreme values, sample size, and multicollinearity problems should be considered. Çokluk et al. (2021) state that there should be groups of at least 50 people for each independent variable to achieve significant results in the logistic regression analysis. In this study, the sample met this assumption. After testing all the required assumptions, Binary Logistic Regression analysis was performed. Binary Logistic Regression analysis was conducted to test whether the sub-dimensions of conflict resolution styles, that is, the aggressive communication pattern, destructive communication pattern, and sexual satisfaction variables addressed in the study, correctly classify the participants according to their thinking and not thinking of divorce that was determined as the dependent variable. In Binary Logistic Regression, the dependent variable can be categorical, while the independent variables can be categorical or continuous. It is an analysis method that presents a model that can capture the relationship between dependent and independent variables in a way that best fits with the least number of variables (Çokluk et al., 2021).

FINDINGS

The findings obtained within the scope of the research problem are presented below.

The accuracy level to which the independent variables classify the spouses who think and do not think of divorce was examined through Binary Logistic Regression Analysis. First, those thinking of separation were coded as “1”, and those not thinking of separation were coded as “0”. Then, the analysis was conducted using the “Standard (Enter)” method. In the Enter method, all common variables are entered into the regression model as a block, and parameter estimates are calculated for each block (Çokluk et al., 2021).

Two values relating to -2LL (-2Log Likelihood) are calculated in the analysis. These are the values that are included in the initial model and the outcome model formed by the introduction of predictor variables into the model. By comparing the difference in -2LL in these two models, the improvement in the model caused by the predictive variables is evaluated (Çokluk et al., 2021). As shown in Table 1, in this

study, the -2LL value of the initial model with only the constant term is 543,140.The -2LL value shows the extent to which the maximum likelihood estimate has a perfect fit. It is known that the value of -2LL, which indicates a perfect fit in the model, takes the value of “0”, and in such a case, the likelihood is “1” (Çokluk et al., 2021).

Table 1. Initial Model Iteration History

Iteration		-2 LL	Coefficients Constant
Step 0	1	543.140	- .242
	2	543.140	- .244
	3	543.140	- .244

In the initial model of the analysis, all subjects are classified in a category that includes more subjects by an arbitrary calculation, assuming that all subjects are in a single category (Field, 2005; as cited in Çokluk et al., 2021). In this study, all participants were classified in the group thinking of divorce with a classification percentage of 56.10% in the initial model, and the percent of correct classification was 56.10% (Table 2).

Table 2. First Classification Obtained As a Result of the Logistic Regression Analysis

Observed Case		Estimated Case		
		Divorce Thought		Correct Classification
		Yes	No	Percent
Step 0	Yes	222	0	100.00
	No	174	0	0.00
Total Percent of Correct Classification				56.10

Table 3 presents the variables include in the initial model. As seen, it includes the constant term making up the initial model, the standard error of the constant term, the Wald statistic that tests whether the variable is significance, the degrees of freedom of the Wald statistic, significance level, and Exp(β) (exponential logistic regression coefficient).

Table 3. Variables Included in the Initial Model/Equation

Step 0	β	Standard Error	Wald	*df*	*p*	Exp (β)
Constant	- .244	.101	5.789	1	.016	.784

As seen in the following, variables not included in the initial model were examined with error chi-square statistic (x^2_{bo}) whether they significantly contribute to the model. The significance of the calculated chi-square value indicates that the prediction power of the model increases with the inclusion of the predictor variables not included in the initial model (Çokluk et al., 2021). In this study, it was found as x^2_{bo} = 76.043. This finding shows that the predictor variables added later to the model will increase the prediction power of the model.

The score values and p values given in Table 4 show whether the contribution of the predictor variables to the model is significant.

Table 4. Variables Not Included in the Initial Model

		Score	*df*	*p*
Step 0	Positive Conflict	14.864	1	.000
	Negative Conflict	40.541	1	.000
	Submission	5.206	1	.023
	Withdrawal	6.027	1	.014
	Aggressive Communication	51.104	1	.000
	Destructive Communication	51.104	1	.000
	Sexual Satisfaction	.184	1	.668
Error Chi-square Statistic (x^2_{bo})		76.043	7	.000

As shown, the negative conflict style, aggressive communication pattern, and destructive communication pattern variables related to x^2_{bo} statistic ($p < 0.01$) significantly contributed to the model ($p = 0.000$). The score values provide information about the extent to which each predictor variable contributes to the model. In this context, the biggest contribution to the model came from the aggressive communication pattern variable, followed by the destructive communication pattern and negative conflict style variable, respectively.

Findings regarding the outcome (intended) model, formed by including the predictor variables into the model, are presented below.

Table 5. Iteration History for the Case in Which Predictor Variables Enter the Model

Iteration		Coefficients							
Step	-2LL	Constant	Positive Conflict.	Negative Conflict	Submission	Withdrawal. Communication.	Aggressive	Destructive Communication	Sexual Satisfaction
1	462.224	2.537	.018	-.048	-.016.	-.009.	-.028	-.024	-.002
2	459.603	2.982	.023	-.057	-.019	-.011	-.039	-.026	-.003
3	459,581	3.016	.024	-.058	-.019	-.011	-.040	-.027	-.004
4	459,581	3.016	.024	-.058	-.019	-.011	-.040	-.027	-.004

According to Table 5, the -2LL value, which was 453.140 in the initial model, has dropped to 459.581. The difference of -2LL value was 83.559 (543.140 – 459.581) when the predictor variables were included in the initial model where there was only the constant term. In this case, the change in the model fit is significant.

Table 6. Omnibus Test of Model Coefficients

Step		Chi-Square	*df*	*p*
1	Step	83.559	2	.000
	Block	83.559	2	.000
	Model	83.559	2	.000

*$p<.05$

The Omnibus Test results are examined first in the intended outcome model (Table 6). The Omnibus test calculates the chi-square value as the model, block, and step. The computed chi-square value indicates the difference between the initial and outcome models. The significant chi-square values show the effectiveness of predictor (independent) variables in classifying the dependent variables. In this study, the chi-square value was 83.559 for the model ($p = 0.000$). According to the chi-square value of the model in Table 6, one could argue that predictor variables significantly predict the married individuals' state of thinking and not thinking of divorce ($p < 0.05$).

The Cox and Snell R^2 value relating to the outcome model was 0.19. This finding shows that 19% of the dependent variable (thinking or not thinking of divorce) will be explained when the predictor variables enter the model. The Cox and Snell R^2 is also hard to interpret, as it never reached "1". Therefore, the Nagelkerke R^2 is computed (as cited in Çokluk et al., 2021). Nagelkerke R^2 is the transformed form of

the Cox and Snell coefficient and ensures the range is between 0-1 (Garson, 2008, as cited in Çokluk et al., 2021).

The Hosmer and Lemeshow Test evaluates the fit of the logistic regression model as a whole. Moreover, non-significance of the Hosmer and Lemeshow Test ($p > 0.05$) reveals that the model has an acceptable fit. However, when the test result is significant ($p < 0.05$), one understands that the model does not fit the data. In this study, the chi-square value relating to the Hosmer and Lemeshow Test was 18.013 ($p > 0.05$). Accordingly, one could say that the model has a good fit.

Findings regarding the classification obtained as result of the logistic regression model are presented in Table 7.

Table 7. Findings on Classification Yielded by Logistic Regression Analysis

Observed Case		Estimated Case		
		Divorce Thought		Correct Classification
		Yes	No	Percent
Step 1	Yes	176	46	79.30
	No	70	104	59.80
Total Percent of Correct Classification				70.10

According to Table 7, 104 out of 174 people who did not have thoughts of divorce were classified correctly, and 70 were classified incorrectly, and the percent of correct classification of married individuals who did not have thoughts of divorce was 59.80%. Moreover, 176 out of 222 people having thoughts of divorce were classified correctly, and 46 were classified incorrectly.

Married individuals who had thoughts of divorce were classified with a correct classification of 79.30%. In the intended outcome model, married individuals thinking and not thinking of divorce were classified with a total correct classification percentage of 70.10%. In the initial model, this classification percentage was computed as 56.10%.

Although this finding is considered as a sign of model-data fit, another method that tests the significance of the model is the Wald statistics. Wald statistic is a measure that reveals the significance of β and the contribution of each variable to the model (Çokluk et al., 2021). Table 8 presents the findings on the coefficient estimates of the Wald statistics and the outcome model.

Table 8. The Coefficient Estimates of the Outcome Model

Step 1	β	Standard Error	Wald	df	p	Exp (β)
Positive Conflict	.024	.024	1.006	1	.316	1.024
Negative Conflict	-.058	.022	6.975	1	.008	.944
Submission	-.019	.022	.737	1	.391	.981
Withdrawal	-.011	.020	.340	1	.560	.989
Aggressive Communication	-.040	.018	4.971	1	.026	.961
Destructive Communication	-.027	.009	8.233	1	.004	.974
Sexual Satisfaction	-.004	.009	.142	1	.706	.996
Constant	3.016	1.030	8.571	1	.003	20.415
Cox & Snell R^2 = .19	Nagelkerke R^2 = .25			Hosmer-Lemeshow= .021		

As seen in Table 8, one unit of increase in negative conflict style predictor variable increased the odds (true likelihood ratio) of thinking about divorce (coded thinking of divorce as "1") by 5.6% [(1-0.944).100], one unit of increase in aggressive communication pattern predictor variable increased the odds of thinking about divorce by 3.9% [(1-0.961).100], and also one of increase in destructive communication pattern predictor variable increased the odds of thinking about divorce by 2.6% [(1-0.974).100]. These findings show that predictor variables of negative conflict style, aggressive communication, and destructive communication pattern contribute significantly to the classification of married individuals who think or do not think of divorce. Put differently, the probability of married individuals thinking of divorce is observed to increase as the negative conflict, aggressive, and destructive communication patterns increase. In addition, considering the Cox and Snell R^2 and Nagelkerke R^2 values, when the independent variables are included in the model, thinking of divorce explains 19% of the variance in the dependent variable and 25% according to Nagelkerke.

DISCUSSION AND CONCLUSION

As a result of the study, the sub-dimensions of the conflict resolution styles (positive conflict, negative conflict, submission, and withdrawal), aggressive communication pattern, destructive communication pattern, and sexual satisfaction, classified married individuals thinking and not thinking of divorce correctly by 70.10% rate. The predictor variables of negative conflict style, aggressive communication, and destructive communication pattern contributed significantly to the classification of married individuals who did and did not think of divorce. The greatest contribution to the percentage of this classification was from the negative conflict style. Then, the predictor variables of aggressive

communication and destructive communication patterns made significant contributions. In this context, one could say that negative conflict style had a significant impact on classifying married individuals who do and do not think of divorce.

The relevant literature shows that there are significant and negative relationships between the negative conflict styles and marital adjustments (Soylu & Kağnıcı, 2015). Varol (2019) points out that there are significant differences between the scores of married individuals from the conflict resolution scale and those who are in the process of divorce. The same author also stated that couples in the process of divorce have less conflict resolution skills., Driver, Tabares, Shapiro, and Gottman (2017) observed 843 married couples in their longitudinal research for more than 30 years. In the love laboratory they established, they studied the conflict patterns of happy and stable marriages and marriages leading to divorce. They found that the most important factor separating happy and unhappy couples are conflict patterns. Moreover, the conflict patterns that led couples to divorce were hostile conflict and stonewalling (Gottman, 2017). Similarly, in a study that examined the relationship between marital stability and conflict resolution styles, Njoroge (2017) reported that individuals who were happy in their marriages used the validating conflict resolution style the most. Research has found that couples using this conflict style demonstrate behaviors like sharing their thoughts more with each other, being more sensitive in order not to hurt their feelings, and prioritizing the wishes of their spouses rather than their own (Kavak, 2018). Hacı's (2011) study, examining the relationship between marital adjustment and conflict resolution styles, revealed that negative conflict resolution and submission conflict resolution styles significantly predict the marital adjustment between spouses. Again, in parallel with the present study, Hacı reported that positive conflict resolution and withdrawal conflict resolution styles were not significant predictors of marital adjustment (Hacı, 2011). Having positive conflict resolution skills is a condition that ensures the continuation of marriage. One could argue that the negative conflict resolution style existing, especially between married individuals, might be one of the reasons that lead them to the divorce process.

In this study, the predictor variables of positive, submission and withdrawal, of sub-dimensions of conflict resolution styles, do not significantly contribute to the classification of married individuals who think of divorce. Although this finding of the study does not contribute significantly to the classification of married individuals who are thinking of divorce, it may significantly contribute to the classification of married individuals who are not thinking of divorce. Couples who use a positive conflict resolution style are more open to listening and understanding each other. Whenever they encounter a problem, they tend to solve it together through discussion and producing a solution. Kavak (2018) studied the conflict resolution styles of couples having high and low marital satisfaction and found that there was a significant positive relationship between marital satisfaction and positive conflict resolution styles of spouses. Similar to the present study, Kavak's (2018) study revealed that all sub-dimensions of general family functionality and

conflict resolution style (positive, negative, submission, withdrawal) together explained 28% of the total variance in the marital satisfaction of couples. A similar finding is that of these predictor variables, marital satisfaction is mostly predicted by positive, negative, and submission conflict resolution styles. However, withdrawal conflict resolution style was reportedly a non-significant predictor of marital satisfaction (Kavak, 2018).

A spouse who uses the submissive conflict style generally tends not to take the current situation seriously so that the problem does not get worse and aggravate in case of a conflict with his or her partner. Additionally, when a conflict erupts, they try to calm down their spouses and do whatever they want. In the long term, such cases may lead to a decrease in marital satisfaction of the partner who uses the submission conflict resolution style. Some studies in the literature show that there is a positive and significant relationship between submission conflict resolution style and marital adjustment (Soylu & Kağnıcı, 2015; Karakoyun, 2012).

Contrary to the submission conflict resolution style, there is no a significant relationship between the withdrawal conflict resolution style and marital adjustment (Hacı, 2011; Karakoyun, 2012; Öner, 2013; Soylu & Kağnıcı, 2015). Partners using the withdrawal conflict may prefer avoiding the conflict by staying silent or moving away from the environment to prevent an existing problem from getting worse at that moment. However, since this conflict resolution style does not include any permanent solution, spouses may have to face the same problem again in the continuum. Although couple therapists work with couples in therapies on reconciliation as one of the most effective ways together with the conflict management skills, 14% of couple problems seem to finalize through reconciliation (Gottman, 2017). Around 61% of couples postpone their arguments and quarrel (Benokraitis, 1993). Thus, one could say that as spouses who use the withdrawal conflict resolution styles suspend their problems, they may also suspend their thoughts about their relationships. In the present study, positive conflict, submission, and withdrawal may not have made a significant contribution to the classification of married individuals who think of divorce due to high mean conflict resolution scores.

Moreover, this study revealed that aggressive and destructive communication patterns were important variables in predicting married individuals who do and do not think of divorce. The problems spouses experience in communication may also be a factor that increases their conflict frequency. Researchers define the communication pattern as the mutually occurring and constantly repetitive communication processes between spouses. In this context, they separated conflict behaviors from communication patterns, pointing out that the resulting behavior was following by other behavior (Sullaway & Christensen, 1983). Couples experiencing problems in communication patterns often use the demanding-withdrawing communication pattern. In this communication pattern, spouses generally avoid

communication, causing psychological distance and conflict (Christensen & Heavey, 1990; Christensen & Shenk, 1991).

Destructive communication patterns such as contempt, criticism, shouting, and, belittlement and accompanying behaviors increase the negative evaluation of spouses about their marriage over time, negatively affecting the continuity of marriage (Heene, Buysse, & Oost, 2007; Kavak, 2018; Kurdek, 1995; Pasch & Bradbury, 1998) and marital satisfaction (Burleson & Denton, 1997; Cleek & Pearson, 1985; Noller & Fitzpatrick, 1990; Young & Long, 1998).

Couples using us language in their communication are happier in their relationships and also behave more positively in addressing and solving the problems they experience (Seider, Hirschberger, Nelson, & Levenson, 2009). Beside, exposure to verbal violence, especially within the aggressive and destructive communication patterns between spouses, is reported to negatively affect marital satisfaction (Christensen & Heavey, 1990). Spouses with destructive communication patterns do no show each other many behaviors such as trusting each other, loving and respecting each other, and sharing their feelings and thoughts. Similarly, Gottman (2017) notes that the failure of unhappy couples in solving problems stems from the hostile and accusatory communication style they use. The negative attitudes and behaviors of couples having such a communication pattern with each other increase over the passage of time and push them towards divorce.

This study showed that the predictor variable of sexual satisfaction did not make a significant contribution to the classification of married individuals, thinking or not thinking of divorce. In the relevant literature, studies also show there are independent relationships between marital adjustment and marital satisfaction. Litzinger and Gordon (2005) state that the sexual satisfaction of couples who do have strong communication skills in the relationship can be satisfactory. They also argue that this condition may compensate for the impacts of unsuccessful communication patterns that negatively affect marital satisfaction. Some researchers also report a significant relationship between marital and sexual satisfaction (Butzer & Campbell, 2008). Girma (2016) examined the effect of sociodemographic variables, sexual intercourse satisfaction, marital satisfaction, communication, and marital conflict on marriage quality. He found a significant and strong relationship between marital satisfaction and marital stability. He also found that sexual intercourse satisfaction and communication were significant predictors of marital satisfaction (Girma, 2016). Also, when spouses have positive conflict resolution styles and constructive communication patterns, establishing verbal communication about sexuality may become easy for them and this open communication may indirectly increase their positive thoughts about their relationships. Verbal communication of spouses about sexuality has been found to increase their sexual satisfaction and contentment (Babin, 2013). As such, sharing sexual pleasure in marital relationship reportedly strengthens the intimacy between couples, and they will feel less tension in coping with their problems (Öztürk & Arkar,

2014; Gülsün, Aydın, & Gülçat, 2006). However, in this study, sexual satisfaction was the weakest variable in the classification of married individuals thinking of divorce.

SUGGESTIONS AND LIMITATIONS

One of the limitations of this study was that 21.5% of the participants were men, and 78.5% were women. Conducting this study with larger sample groups and more male participants may increase the generalizability of the results. Although the study focused on processes relating to the relationship, the data were collected only from one spouse. Evaluation of the future of a relationship may yield more consistent results with the findings obtained from both spouses. In addition, more comprehensive data could be collected if this study is conducted with married couples and couples who in the process of divorce.

The research is limited to data obtained from the self-report scales. Besides, the Cronbach alpha of the Sexual Satisfaction Scale used in this study was 0.42, which is one of the limitations of this study. Although there are measurement tools used to evaluate the relationships of married individuals in our country, there is a need for measurement tools sensitive to Turkish culture that can measure the quality of sexual relationship in couples and the relationship quality in general in different dimensions.

In this study, the data were collected through quantitative methods. In order to reach more in-depth findings, new studies could be supported with qualitative data and enriched with longitudinal studies.

Another issue that needs to be investigated to strengthen the marriage and family structure across the country is the conflicts in marriage. Increasing conflict resolution and communication skills, considered influential in divorce, may strengthen marriage and family structures. Moreover, reorganizing activities and programs on family empowerment, enacted in cooperation between the Ministry of Family and Social Policies and universities, in a systematic and continuous manner is believed to be important. The data obtained from this study may provide an insight for researchers working in theoretical and practical fields.

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THE EFFECT OF ACTIVITY-BASED ALGORITHM TRAINING ON PROBLEM-SOLVING SKILLS OF 5-6 YEAR OLD CHILDREN[1]

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ABSTRACT

The aim of this study is to examine the effect of activity-based algorithm training on problem solving skills of 5-6 year old children. The study group consists of two classes in Bağışçılar Foundation Kindergarden in the city center of Bolu Province, Turkey with children of the same age group and at similar developmental stages. One class was assigned as the experimental group (16 children) and the other group was assigned as the control group (13 children). Personal Information Form prepared by the researcher and the Problem Solving Skills Scale (PSSS) for 5-6 year children developed by Oğuz and Köksal Akyol (2015) were used as data collection tools in the study. The experimental group was taught based on the activity-based algorithm training practices prepared by the researcher as well as the daily plan practices of Ministry of National Education for 3 days a week, 24 activities for 8 weeks. There was a significant difference in the pre-test and post-test scores of the children in the experimental group. Thus, it was revealed that activity-based algorithm training practices supported problem solving skills of children.

Keywords: Algorithm; problem solving skills; pre-school period; activity-based algorithm training.

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ETKİNLİK TEMELLİ ALGORİTMA EĞİTİMİNİN 5-6 YAŞ ÇOCUKLARININ PROBLEM ÇÖZME BECERİSİNE ETKİSİ

ÖZET

Bu araştırma, etkinlik temelli algoritma eğitiminin 5-6 yaş çocuklarının problem çözme becerisine etkisini incelemeyi amaçlamıştır. Bu bağlamda çalışma grubu oluşturulmasına yönelik ilk olarak; Bolu il merkezinde Bağışçılar Vakfı anaokulunda aynı yaş grubunda ve benzer gelişim dönemlerinden çocukların bulunduğu iki sınıf belirlenerek deney ve kontrol grubu (deney,16; kontrol,13) olarak atanmıştır. Araştırmada veri toplama aracı olarak Araştırmacı tarafından hazırlanan Kişisel Bilgi Formu ve Oğuz ve Köksal Akyol (2015)'un geliştirdiği 5-6 Yaş Problem Çözme Becerileri Ölçeği (PÇBÖ) kullanılmıştır. Kontrol grubu ile MEB günlük plan akışı uygulamaları devam ederken deney grubuna MEB günlük plan akışının yanında araştırmacı tarafından hazırlanan Etkinlik Temelli Algoritma Eğitimi Uygulamaları haftada 3 gün olmak üzere, 8 hafta boyunca toplam 24 etkinlik olarak, her bir oturum 30 dakika süreyle uygulanmıştır. Araştırma sonucuna göre, Etkinlik Temelli Algoritma Eğitimi Uygulamalarının çocukların problem çözme becerilerini desteklediği ortaya çıkmıştır.

Anahtar Kelimeler: Algoritma; problem çözme becerisi; okul öncesi dönem; etkinlik temelli algoritma eğitimi

INTRODUCTION

The rapid changes and developments in science and technology in the 21st century, which is called "information age", and these concepts, which are the indicators of the development levels of the century, have great effects on the functioning of social life today (Çakmak, 2008). In today's information society, these rapid developments and changes in the field of science and technology have increased the expectations and needs of the society (Bayraç, 2003). This state of development and change requires individuals to improve themselves (Demirel & Yağcı, 2017). In this context, the general goals of the countries are to raise individuals who are physically, mentally and socially developed, productive, adaptable and have problem solving skills.

Since the beginning of the 21st century, countries around the world have been defined as "developed countries, developing countries, and underdeveloped countries (Tolunay & Akyol, 2006). The studies conducted in determining these levels of development indicate that especially the economy contributes greatly to education (Economic Cooperation and Development Organization [OECD], 2017). Today, in many OECD countries, children start having education before the age of 5. In these countries, two-thirds (84%) of 4-year-old children have pre-school or primary education (OECD, 2014). In this context, it can be said that early childhood education should be given priority in order to ensure social development.

Early childhood is an important period that includes mental, physical, social skills and habits in the early stages of children's lives (Bertan, Haznedaroğlu, Koln, Yurdakök & Doğan Güçiz, 2009). Experiences gained in the early childhood requires the child to be able to find solutions to the problems, to discuss these solutions, to use analytical thinking skills, to plan and apply the solution (Aydoğan, 2012). Education in the pre-school period is significant in terms of the individual's learning and

innovation skills, critical thinking skills, problem solving skills, communication and collaboration skills (Yalçın, 2018).

In Turkey, the education called pre-school education for children aged between 0-6 years covers an important part of early childhood education (Gürkan, 2009). It has been stated that, in this period, when children's social-emotional, physical, cognitive, psychomotor and language development grow faster and their curiosity and interest levels are high, computer assisted learning has a great importance (Kaçar & Doğan, 2007), and the integration and the use of technology with the pre-school education period simultaneously, the effect of using rich materials and different methods affect the social, cultural and economic development levels of the countries (Çakmak 2008; Tolunay & Akyol, 2006). In this context, considering that children should be able to use the 21st century skills effectively to support their developmental areas, to raise awareness in terms of developing solutions to the problems they encounter at an early age and to produce information technologies on online and offline platforms are significant both for the development of educational technologies and for the development of economies of the countries (MoNE, 2018a). Accordingly, Student Profile Workshop in the 21st Century organized by the MoNE in 2011, it was stated that one of the most important skills that students should have is problem solving skill (MoNE, 2011). Considering that the most appropriate age range for problem solving skill education covers the pre-school period (Aydoğan, 2012), it is important for children to be able to solve daily problems, professional and social problems by using their cognitive skills. Basic skills such as scientific and multi-directional thinking and analytical thinking, especially problem solving skill, which are among the skills that are required for the individuals during their whole life, are provided to the individual by the algorithm activities carried out in the pre-school period (Demirer & Sak, 2016). "Coding" skill, which includes logical reasoning and problem solving skills, is one of them (European Commission, 2014). Coding refers to the code sequences written in order to reach a solution by using a programming language (Şahin & Namlı, 2017). Software development is the stages of development and implementation with various command sequences to solve problems, to provide human-computer interactive communication and to implement certain tasks by computers (Fessakis, Gouli & Mavroudi, 2013). Algorithm is the logical and sequential expression of the set of rules of the process, especially computed by the computer or to be followed in other problem solving processes (Michael & Omoloye, 2014). Coding and algorithm activities are included in the curriculum from the first grade in Estonia, from the fifth grade in Australia for two years, from pre-school in France and China (Saygıner & Tüzün, 2017). On the other hand, in Turkey, coding education has been added as an elective course to the curriculum under the name of "Information Technologies and Software Course" since the 2012-2013 academic year, and it became a compulsory course for 5th and 6th grades in the 2018-2019 academic year (MoNE, 2018b).

There are various web-based platforms for pre-school aged group and older aged groups such as ToonTalk, Squeak toys, Microworlds JR, Tagecast Creator, Code.org and Scratch that contain coding and simple algorithm applications that can be applied in a computerized and non-computer environment

(Code.org, 2019; Atabay & Albayrak, 2020). When the applications on these platforms are examined, it is seen that there are content studios for children at 4-6 years of age; and the content of studios for this age group are algorithm activities that support the creativity of children and depend on solving daily life problems. Algorithms foster creativity and are supportive in teaching people to collaborate, to work together across physical and geographical boundaries, and to communicate in a universal language (Mora-Gutiérrez, Ramírez-Rodríguez, Rincón-García, Ponsich & Herrera, 2012). Algorithms help to apply the 21st century skills such as mastering today's problem solving stages, team-working and analytical thinking (Akçay, 2015). It can be stated that algorithm practices, especially in pre-school period, support skills such as working according to the rules and models, understanding, using, applying and developing algorithms of daily life, creating sequence of actions to achieve results, correcting the sequence of actions (Bers, 2019). In addition, algorithm education supports other application fields such as Mathematics, Turkish, Science, Game with rich materials. Considering that the algorithm education for pre-school children supports basic cognitive skills (Fessakis, Gouli & Mavroudi, 2013; Morgado, Cruz & Kahn, 2010; Liao & Bright, 1991), it should not be ignored that the algorithm supports problem solving skills, which is the intended use of the algorithm. Within this context, considering the learning outcomes and the indicators in the current curriculum and children's developmental characteristics, the aim of the current study is to examine the effect of Activity-Based Algorithm Training Practices on children's problem solving skills.

METHOD

Research Model

In this study, quasi-experimental design was employed to determine the effect of Activity-Based Algorithm Training on problem solving skills of 5-6 year old children. Experimental design is generally based on environment arrangement created with dependent, independent and control variables and in this design the researchers evaluate the data assumed by the evaluative criteria determined in the scientific method (Karasar, 2017; Creswell 2014). The quasi-experimental design is one of the experimental research designs. The purpose of the quasi-experimental design is the same as the experimental design. The difference between them is that in the quasi-experimental design, the control and experimental groups are not determined randomly, but based on criteria (Karasar, 2017).

Two classes of Bağışçılar Foundation Kindergarden in the city center of Bolu Province, Turkey with children of the same age group and at similar developmental stages were determined, and one class was assigned as experimental group and the other group was assigned as control group. Personal Information Form and the Problem Solving Skills Scale (PSSS) for 5-6 years of children were used as data collection tools in the study. The control group was taught according to the daily plan practices of the MoNE while the experimental group was taught based on the Activity-Based Algorithm Training Practices prepared by the researcher as well as the daily plan practices of MoNE for 3 days a week, 24 activities for 8 weeks, and each session lasted 30 minutes.

Study Group

The study group consisted of 29 children (experiment, 16; control, 13) studying at the Bolu Bağışçılar Foundation Kindergarten in the spring semester of the 2018-2019 academic year. Homogenous sampling, which is among the purposive sampling methods, was used in determining the study group. Homogenous sampling is the formation of the events in the universe related to the problem of the research from the homogenous subgroups or events (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2012).

Data Collection Tools

In the study, a personal information form prepared by the researchers was used to obtain demographic information of the children, and the "Problem-Solving Skills Scale (PSSS)" developed by Oğuz and Köksal Akyol (2015) was used to determine children's problem solving skills.

Problem-solving skills scale

The "Problem Solving Skills Scale (PSSS)" developed by Oğuz and Köksal Akyol (2015) aims to determine problem solving skills of 5-6 years old children. The scale consists of a single form to be administered to 5-6 years old children. The features of the "Problem Solving Skills Scale", which consists of 18 pictures containing real-life problem situations, the problem statements in which these pictures are described and an evaluation form, are as follows:

- Each form in the scale consists of 18 problem situations that include observable and measurable behaviours.
- The scale is administered to children individually.
- It is a five-point Likert type scale.
- It is prepared for 5-6 years old children.
- In order for the solution suggestions produced by the children to the problem situation to be scored, each solution suggestion must be different from the other suggested solution.
- The important thing in the scale is that the child can produce more than one (alternative) answer to problems.
- The higher scores in PSSS means that problem solving skills of the children are high (Oğuz & Köksal Akyol, 2015).

Data Collection Process

In the study, the Activity-Based Algorithm Training Practices for 5-6 years old pre-school children to gain problem solving skills were carried out by the researcher at the Bağışçılar Foundation Kindergarten between 04/03/2019 and 26/04/2019. The data collection process of PSSS and Activity-Based Algorithm Training Practices are presented in Table 1.

Table 1. The Data Collection Process of PSSS And Activity-Based Algorithm Training Practices

Study Groups	Evaluation	Procedure	Evaluation
Experiment	Pre-test	Activity-Based Algorithm Training Practices	Post-test
Control	Pre-test	Ministry of National Education Curriculum	Post-test

During the application of the scale consisting of 18 visuals of real-life problem situations and various expressions for the definition of these problems, the child was placed in a position to make eye contact with the researcher. The researcher said that; "Now I will tell you about the problems some children face. The problems that I will tell are similar to the problems that every child may encounter and you need to help them"; and the visual about the problem situation was shown to the child. No additions or removal were made for the problem situation. It was ensured that the child focused on the visual as much as the questions related to the problem situations were answered completely. Children were given time for each solution. The researcher noted the answers given by the child on the scoring table. In this way, the application process of the scale took approximately 20-30 minutes for each child.

Preparation and Application Process of the Activities

The activities prepared by the researcher and applied to the experimental group aimed to support the cognitive processes that are considered important in the process of applying the algorithm training in providing problem solving skills to the 5-6 aged pre-school children. According to Aydoğan (2012), these cognitive processes include understanding whether a problem exists and defining the problem, asking questions, explaining the problem situation, analyzing the reasons, reviewing the information required for the solution of the problem, predicting the results, revealing the important points about the problem situation, testing the accuracy of choosing the most appropriate solution. In line with these processes, 24 activities were prepared within the scope of Activity-Based Algorithm Training Practices to help children acquire and develop problem solving skills.

The activities were prepared as from simple to complex, from easy to the difficult, from general to the specific and in accordance with the age, gender and developmental characteristics of the children, and the aims and the learning outcomes of the problem solving skills with the aim of providing children learning opportunities that they could gain experience about their daily lives.

In addition, the learning outcomes and the indicators in the MoNE (2013) Pre-school Education Curriculum (36-72 Months), which was updated in 2013, were examined while preparing the Activity-Based Algorithm Training Practices. The curriculum includes learning outcomes and indicators of problem solving skill in the field of cognitive development:

Learning outcome 19: Children produce solutions to problem situations.

Indicators are as:

- S/he tells the problem.

- S/he offers various solutions to the problem.
- S/he selects one of the solutions.
- S/he tells the reason for the selected solution.
- S/he tries the solution that s/he has selected.
- When s/he cannot reach a solution, s/he tries a new solution.
- S/he suggests creative solutions to the problem (MEB, 2013)

After 24 activities were prepared by the researcher in accordance with the problem-solving skills, learning outcomes and indicators, they were presented to expert opinion. Regarding this, the opinions of four experts from the field, two experts in field of pre-school education, one in the field of information technologies, and one in the field of mathematics education, were taken. The level of agreement between expert opinions on the Activity-Based Algorithm Training Practices was calculated as 0.89 by the reliability formula (Reliability=Agreement/(Agreement+Disagreement) by taking the similarity of the opinions and the reliability formula created by Miles and Huberman (1994).

The researcher prepared the activities based on a Bee Arya character that created by himself in order to attract the attention of children and arouse curiosity. In all of the activities, practices were carried out with an algorithm set made of wooden blocks. During the application process, for example, the researchers asked the question of; “The Bee Arya wants to go to the flower but cannot, how can we bring her to the flower?” to describe a problem situation. Then, this problem situation discovered by the children was tried to be solved by creating an appropriate algorithm by the children in the algorithm setup on the tables. The children, who grasped the location of the Bee Arya, freely formed the flow chart using the appropriate units and brought the Bee Arya to the flower. Each child tried various algorithms that he/she created as a flow diagram on the setup and saw whether the problem was solved. Problem situations were selected from real life problems such as making cake and tying shoes.

After the pre-test application, Activity-Based Algorithm Training Practices were applied to the experimental group. In the study, a total of 24 activities were applied to the experimental group during the 8-week application period, and one activity was carried out for 3 days a week (Monday, Wednesday and Friday), and each session lasted 30 minutes. In this process, no Activity-Based Algorithm Training was applied regarding problem solving skills with the children in the control group, and the daily education practices of the Ministry of National Education Preschool Education Curriculum (for 36-72 Months Children) was applied by the classroom teacher. The Activity-Based Algorithm Training Practice was conducted in the morning classes after breakfast since the focus of children on cognitive activities were at highest level during this time of the day (Aydoğan, 2004). The explanations about the activity and the timeline for the application of one-week Activity-Based Algorithm Training Practices are shown in Table 2.

Table 2. Timeline for The Application Of One-Week Activity-Based Algorithm Training Practices

DURATION (MIN.)	Monday	Wednesday	Friday
5 minutes	Preparation of the educational environment	Preparation of the educational environment	Preparation of the educational environment
5 minutes	Introduction and description of the activity	Introduction and description of the activity	Introduction and description of the activity
15 minutes	Practising the activity	Practising the activity	Practising the activity
5 minutes	Evaluation	Evaluation	Evaluation
Total 30 minutes.			

After completing the Activity-Based Algorithm Training Practices, the PSSS was applied as post-test to the experimental and control groups individually and as face-to face in the same environment and conditions where the pre-tests were carried out by the researcher in the workshop of the related institution.

Data Analysis

The data collected through the "Problem Solving Skills Scale (PSSS)" for 5-6 years old children were analyzed using the IBM SPSS 25 package program in computer environment. In the analysis of data, firstly the distribution of descriptive statistics such as frequency, arithmetic mean and percentage were examined. For determining the appropriate data analysis, firstly it was examined whether the data were normally distributed. For this purpose, Kolmogorov-Smirnov and Shapiro-Wilk tests, which are widely used by the researchers, were employed. A significance level of 0.05 was accepted for the analysis. Since the result for this analysis was found to be less than 0.05, it was interpreted that the scores at this level of significance did not show a normal distribution. Therefore, appropriate non-parametric tests were used in the analysis of data since the data did not show normal distribution and the data were less than 30 (Büyüköztürk et al., 2012). In order to determine the equivalence of the experimental and control groups before the application, the Mann Whitney U test, which is one of the non-parametric statistical tests, was applied. The Mann Whitney U Test reveals whether the scores obtained from two unrelated samples differ significantly from each other (Büyüköztürk et al., 2012).

In order to compare the pre- and post-application scores of both groups, the pre-test and post-test scores of the non-parametric statistical tests, Wilcoxon Sign Rank test, were applied. The Wilcoxon Signed Ranks Test is used in experimental studies to determine whether there is a significant difference

between pre-test and post-test scores and whether the distribution is normal (Woolson, 2007). In this context, Mann-Whitney U test was applied to evaluate the post-test conditions of the experimental and control groups.

FINDINGS

The findings of the pre-test scores of the experimental and control groups obtained from the Problem-Solving Skills Scale before starting the Activity-Based Algorithm Training Practice process prepared for 5-6 years children are given in Table 3.

Table 3. Descriptive Statistics Of The Experimental And Control Groups Regarding The PSSS Pre-Test Scores

Pre-test	N	$\bar{X}$	SS
Experimental Group	16	17,18	3,56312
Control Group	13	15,53	5,83974

As can be seen in Table 3, the mean pre-test scores obtained from the Problem-Solving Skill Scale was found to be 17,18 for the experimental group while it was obtained as 15,53 for the control group.

The Mann-Whitney U Test analysis was applied to determine whether there was a significant difference between the pre-test scores of the experimental and control groups before starting the Activity-Based Algorithm Training Practice process prepared for 5-6 year old children. The results are given in Table 4.

Table 4. Mann-Whitney U test Results Related To The Difference Between The Pre-Test Scores Of The Experimental And Control Group

Pre-test	N	Mean Rank	Sum of Ranks	z	U	p
Experimental Group	16	16,88	270,00	-1,326	74,00	0,185
Control Group	13	12,69	165,00			

$p > 0,05$

The analysis results in Table 4 showed that there was no statistically significant difference between the Problem Solving Skills Scale pretest scores, U = 74,00, p> 0,05. (z = -1.326; p = 0.185; p> 0.05). When the pre-test mean rank scores of the Problem Solving Skills Scale were examined, it was seen that there was no significant difference between the groups since the scores of the children who participated and did not participate in the Activity-Based Algorithm Training Practices were close to each other.

The results of the Wilcoxon Signed Ranks Test regarding whether problem solving skills of the children in the experimental group showed a significant difference before and after the Activity-Based Algorithm Training Practices are given in Table 5.

Table 5. Wilcoxon Signed Ranks Test Results Related to The Difference Between The Experimental Group PSSS Pre-Test And Post-Test Scores

Experimental Group	**N**	**Tanks**	**M.R.**	**z**	**P**
	0	Negative Ranks	0,00		
Pre-test	16	Positive Ranks	8,50		
Post-Test	0	Equal		-3,524	0,000
	16	Total			

$p < 0,05$

The analyses in Table 5 showed that there was a significant difference between the pre-test and post-test scores of the children who participated in the Activity-Based Algorithm Training Practices ($z = -3.524$; $p = 0.00$; $p < 0.05$). Considering the mean rank of the difference scores related to the scale, it was seen that the obtained difference was in favor of the positive ranks, that is, in favor of the posttest score.

Table 6 presents the results of the Wilcoxon Signed Ranks Test regarding the difference between the pre-test and post-test scores of the children in the control group.

Table 6. Wilcoxon Signed-Ranks test results related to the difference between the control group PSSS pre-test and post-test scores

Control group	**N**	**Ranks**	**M.R.**	**z**	**P**
	1	Negative Ranks	3,00		
Pre-test	10	Positive Ranks	6,30		
Post-test	2	Equal		-2,697	0,007
	13	Total			

$p>0,05$

As a result of the analysis in Table 6, it was obtained that there was a significant difference between the post-test and pre-test scores of the children, and this difference was in favor of the post-test scores ($z = -2.697$; $p = 0.007$; $p < 0.05$).

Table 7. Descriptive Analysis Of The PSSS Post-Test Scores Of The Experimental And Control Groups

Pre-Test	**N**	**X̄**	**SS**
Experimental Group	16	50,62	4,82873
Control Group	13	18,07	5,66365

As can be seen from the post-test mean scores in Table 7, the mean score of the children in the experimental group was 50.62 while the mean score of the children in the control group was 18.07.

Table 8 presents the statistics of the Mann-Whitney U Test regarding the difference between the post-test scores of the experimental and control group.

Table 8. Mann-Whitney U Test Results Regarding The Difference Between The Post-Test Scores Of The Experimental And Control Groups

Post-test	**N**	**Mean Ranks**	**Sum of Ranks**	**Z**	**U**	**p**
Experimental Group	16	21,50	344,00	-4,570	0,000	0,000
Control Group	13	7,00	91,00			

p<0,05

As a result of the analysis in Table 8, there was a statistically significant difference between the posttest scores of the children in the experimental group who participated in the Activity-Based Algorithm Training Practices and the children in the control group who did not participate in such an practice: U = 0.00, p <0.05. (z = -4.570; p = 0.00; p <0.05). When the mean ranks of the Problem Solving Skills Scale were considered, it was seen that this difference was in favor of the children who participated in the Activity-Based Algorithm Training Practices.

RESULTS AND DISCUSSION

The findings of the study showed that there was no significant difference between the pre-test scores of the experimental and control groups in terms of problem-solving skills of children. The fact that there was no significant difference between the pre-test scores of the children in the experimental and control groups can be explained by the fact that the school that the study was conducted in is located in the city center, the children in the study group were at the same age group, the sociocultural characteristics of the families were similar, and the children had training in the morning hours of the day.

When the pre-test and post-test scores of the children in the experimental group were examined, a significant difference was obtained. Therefore, it can be concluded that the Activity-Based Algorithm Training applied improved problem solving skills of the children. The mean ranks of the PSSS scores of the children participated in Activity-Based Algorithm Training practices showed that there was a significant difference in favor of the positive ranks; that is in favor of the post-test score. It was concluded that there was a significant increase in the post-test problem solving scores depending on the training the children in the experimental group received. As a result, it can be said that activity-based algorithm training practices have a positive effect on improving problem solving skills. In a study conducted by Çetin (2016) with 28 children at 60-72 months of age, for 12 weeks, it was determined whether children can be included in the computational thinking activities in a computing-supported environment with schematic-based schematic organizers such as fishbone diagram, brainstorming and flow diagram, which are among the cognitive tools in pre-school education. In the study, the researcher concluded that the computational thinking activities prepared and applied with the support of information technologies by using cognitive tools were suitable for the use of children in the pre-school period of 60-72 months of age and that the algorithmic thinking of children was at a good level while planning the problem solving stages. In addition, as stated by Bers (2018), the type of activity is important for children to discover content specific to the field and to develop their problem solving and reasoning skills. For this reason, it is shown that the Activity-Based Algorithm Training Practices applied are effective in problem solving skills. A similar finding of this study was obtained in the study conducted by Bers, Gonzalez and Armas-Torres (2019) with 3-5 years old age pre-school children (N = 172) and 16 classroom teachers. In the study, they aimed to evaluate the experience of "coding as a playground" prepared in accordance with the Positive Technological Development (PTD) framework with the KIBO robot set designed for young children, and it was obtained that the strategies used supported communication, problem solving skills, collaboration and creativity in classroom environments. In another similar study, Akyol Altun (2018) conducted a research with 5 years-old children who have pre-school education, and examined the effect of the algorithm and basic coding training on the problem solving skills of children. They concluded that according to the pre-test and post-test scores obtained from the problem solving scale, the algorithm and basic coding training had a significant effect on problem solving skills of children. On the other hand, in another similar study conducted by Fessakis et al. (2013) with ten 5-6 year old children who get pre-school education for problem solving skill application on the smart board, using a Logo-based application under the guidance of a teacher to solve a series of problems, it was obtained that the children enjoyed practicing activities, and that they had the opportunity to develop problem solving and social skills. In this context, based on the results of this study, it can be stated that problem solving skills of children can be supported with appropriate educational practices regarding problem solving skills.

It was seen that there was a significant difference between the pre-test and post-test scores of the problem solving skill scale of the children in the control group. During the study, activities included

in the daily flow plan of the MoNE Pre-school Education Program (2013) were applied to the children in the control group by their teachers. It is thought that the content supporting problem solving skills are included in the activity applications in this daily flow plan and this may be the reason for this difference. It is thought that the increase in the post-test scores of the control group may be due to the fact that there are learning outcomes for problem solving skills in the MoNE Pre-school Education Curriculum and there are activities related to the learning outcomes of this skill in the daily plans of the teachers. In addition, this increase in score may be due to the factors such as family or classrooms as social environments, the activities conducted for problem solving skills, and the interest of the family and teachers. Similarly, Aksüt (2015) investigated the effect of science activity practices on problem solving skills, and a significant increase was found in the experimental group compared to the control group, and a significant difference was obtained in the pre-test post-test scores of the children in the control group, which support the finding obtained in this study.

According to the results of the difference between the PSSS post-test scores of the children in the experimental and control groups, it was obtained that the mean scores of the children in the experimental group were higher than the mean scores of the children in the control group. It was also seen that there was a significant difference between the PSSS post-test mean scores of the children in the experimental and control groups. The significant difference was found to be in favor of the experimental group. Accordingly, it is concluded that the Activity-Based Algorithm Training Practices applied to the experimental group positively affected problem solving skills of the children. In addition, when the post-test total scores of the experimental and control groups were compared, it was concluded that the post-test total scores of the children in the experimental group were significantly higher than the post-test total scores of the children in the control group. Williams, Park and Oh (2019) conducted a study on the platform they developed for 4-7 year aged children to learn about artificial intelligence (AI) by creating, programming, training and interacting with this social robot for children, and came to the conclusion that children who used social robots considered the robot as a learning partner and created algorithms. It was seen that this platform was effective in helping young children understand the concepts of artificial intelligence. In light of these results, the fact that the Activity-Based Algorithm Practices consist of daily life problems, including steps such as identifying the problem, understanding the problem, planning the solution, applying the solution, reaching the solution in an order from simple to complex, can explain the significant difference in favor of the experimental group.

As one of the most important results of this study, it is seen that algorithm training positively affects problem solving skills of pre-school children. In this context, it can be suggested that algorithm training can be given within the scope of in-service trainings and seminars in order to use the Activity-Based Algorithm Practices prepared with the content of the MoNE pre-school curriculum in the classroom practices of pre-school teachers.

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THE ONLINE AND DISTANCE LEARNING PROCESS OF THE SCHOOLS IN TURKISH REPUBLIC OF NORTHERN CYPRUS AND IDENTIFICATION OF THE TRAINING NEEDS OF THE SCHOOL MANAGERS IN THESE SCHOOLS

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ABSTRACT

The aim of this research is to find out about the current situation of the online/distance learning, provided during the Covid-19 pandemic, in public and private primary schools, secondary schools, high schools and vocational high schools existing in Turkish Republic of Northern Cyprus and the training needs of the school managers who work in these schools. The research has been carried out with a descriptive survey model and the survey is used as data collection tool. The survey is developed with the advice of experts as well as by means of literature review and it includes 31 items, of which 15 are close-ended and 16 are open-ended questions. The sample of the research includes 42 school managers. Descriptive survey analysis is carried out for the close-ended questions whereas content analysis is carried out for the open-ended questions. According to the findings of the study, it is determined that the school managers are in need of training with regards to the online/distanced learning in the areas of scaling and evaluation, online teaching principles and methods, technologic knowledge and competencies, class management and communication where it is a problematic situation to have the families participate and to motivate the students in the online process. Additionally, the technological infrasturucture is insufficient and the majority of the teachers have not taken any training about distance learning. Although the Covid-19 pandemic period led to problems in the teaching platform, these also led to new opportunities to arise. In addition, being aware of the problems led to opportunities to find solutions. The

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research revealed the fact that the study group are in need of training for measurement and evaluation and for increasing the motivation of the students. The pandemic period led to problems in the teaching platform, but the online - distance learning process can be developed by re-evaluating the current systems, by updating the methods that might be no longer in use and by solutions to problems being encountered.

Keywords: Distance education; school managers; pandemic period; covid-19

KUZEY KIBRIS TÜRK CUMHURİYETİNDE FAALİYET GÖSTEREN OKULLARDA UYGULANAN UZAKTAN EĞİTİM SÜRECİ VE BU OKULLARDA GÖREV YAPAN OKUL MÜDÜRLERİNİN EĞİTİM İHTİYAÇLARININ BELİRLENMESİ

ÖZET

Bu araştırmanın amacı, Kuzey Kıbrıs Türk Cumhuriyeti'nde bulunan resmi ve özel ilköğretim okulları, ortaokullar, liseler ve meslek liselerinde Covid-19 pandemi sürecinde sağlanan çevrimiçi/uzaktan eğitimin durumunun incelenmesi ve bu okullarda görev yapan okul yöneticilerinin eğitim ihtiyaçlarının belirlenmesidir. Araştırma betimsel tarama modeli ile yürütülmüş olup, veri toplama aracı olarak anket kullanılmıştır. Alan yazın taramasının yanı sıra uzman görüşleri ile geliştirilen ankette 15'i kapalı, 16'sı açık uçlu olmak üzere toplam 31 madde bulunmaktadır. Araştırmanın örneklemini 42 okul yöneticisi oluşturmaktadır. Kapalı uçlu sorulardan elde edilen veriler için betimsel analiz, açık uçlu sorulardan elde edilen veriler için ise içerik analizi yapılmıştır. Araştırma bulgularına göre okul yöneticilerinin çevrimiçi/uzaktan öğrenme ile ilgili ölçeklendirme ve değerlendirme, çevrimiçi öğretim ilke ve yöntemleri, teknolojik bilgi ve yeterlilikler, sınıf yönetimi ve ailelerin katılımının sorun oluşturduğu durumlarda iletişim ve çevrimiçi öğrenme sürecinde öğrencileri motive etme konularında eğitime ihtiyaç duydukları belirlenmiştir. Ayrıca teknolojik altyapının yetersiz olduğu ve öğretmenlerin büyük çoğunluğunun uzaktan eğitim konusunda herhangi bir eğitim almadığı tespit edilmiştir. Covid-19 pandemi süreci öğretimsel açıdan sorunlara yol açsa da bunlar yeni fırsatların da doğmasına olanak sağlamıştır. Ayrıca sorunların farkında olmak, çözüm bulma fırsatlarını da beraberinde getirmiştir. Araştırma, çalışma grubunun ölçme ve değerlendirme ve öğrencilerin motivasyonunu artırma konusunda eğitime ihtiyaç duyduğunu ortaya koymuştur. Pandemi dönemi öğretim platformunda sorunlara yol açmıştır; ancak mevcut sistemlerin yeniden değerlendirilmesi, artık kullanılmayabilecek yöntemlerin güncellenmesi ve karşılaşılan sorunlara çözüm bulunmasıyla çevrimiçi - uzaktan eğitim süreci geliştirilebilir.

Anahtar Kelimeler: Uzaktan eğitim; okul müdürleri; pandemi süreci; Covid-19

INTRODUCTION

The Problem Analysis

The coronavirus that evolved in the city of Wuhan - Hubei in China on December 31, 2019 was declared as a global pandemic by World Health Organization (WHO) on March 11, 2020. According to the World Health Organization (WHO)'s statistics, the pandemic, which was diagnosed in 111,499,140 people in 222 countries/regions including TRNC in which this disease led to 2,468,799 deaths by February 20, 2021. According to the statistics of the Ministry of Health, 3,192 people were diagnosed with the pandemic and 22 people died in TRNC by February 20, 2021. The effects of the pandemic on economic, psychological and social life, especially health, continue and there is no definivite data on when it will end. The Covid-19 pandemic also affected the education sector in a negative way. The

factors which complicate the period even more are; not having equal opportunity in education, lack of experience of the governers,, deficiencies in the infrastructure and technology (Erbil & Kocabaş, 2019; Doğan, 2014).

In order for the children to complete their development stages in a healthy way; the government, families and teachers, which are the stakeholders of the education sector, have certain responsibilities (Çaykuş & Çaykuş, 2020). Fullfilling these responsibilities will contribute to the continuation of the learning process which is an indispensible part of human's life and is required for the healthy development period. For this reason, it is crucial to identify a roadmap and take quick actions to overcome the shortcomings that might arise in the education of the children and youngsters during the Covid-19 pandemic period (Gündüz, Türker, Karabekir & Altun, 2020). Accordingly, one of the most important and prioritized goals of the countries with the pandemic is to provide uninterrupted education system. It has been found that, during this period the countries use current distance learning opportunities that are supported by different technological infrastructures.

With the Covid-19 pandemic arising, the local governments has set up coordination platforms and online classes within a short period of time. Studies have also been carried out about which learning platforms should be used, how to assist the teachers in online teaching applications, how to reach the ones with little or no internet access and how to monitor and evaluate the learning outputs (Atchoarena, 2020). As a result, the need and approach for online and distance - learning became globally important with important changes and effects on education system. According to Ağaoğlu, İmer and Kurubacak (2002) '*the distance learning is the condition providing learning opportunities to everyone at any place, time and age, where the ones who are being taught and the ones who are teaching are far away from each other*'. The online and distance learning applications are taken into account by the education managers not only with the purpose to support the face-to-face education as it was in the pre-pandemic time but also due to the fact that in certain crisis situations (epidemic diseases, wars, disasters, forced migration, etc.) it has important advantages (Can, 2020). With this progression, the strategies and methods used in education are changed and new teaching methods and applications are started to be used widely. In addition, the research is carried out to find out the contribution of these strategies in developing high quality teaching opportunities and ensuring equal access to everyone. It has been observed that the distance learning platform is not convenient for the ones with no accessibility and network connection. This situation leads to decrease in economic opportunities in the human capital (Azzi-Huck & Shmis, 2020). Therefore, the pandemic has forced the educators, parents and students to think more critically, to be a problem solver, to be creative, to set up communication, to coordinate and to be more active (Anderson, 2020). During the pandemic period, the teachers, students and parents were in an effort to get used to the digitilized education. There have been important improvements in the knowledge and experiences of the teachers in the areas of technology and pedagogy (Kırmızıgül, 2020) and an increased demand for online and distance learning. In addition, the community's awareness towards the importance of online and distance learning has increased as well. This pandemic has shown

that, in open and distance learning, not only quantity but also quality is important (Can, 2020). Some students have indicated that, distance learning was not sufficient in consolidating applied courses and that they had difficulties in obtaining the necassary materials (Kahraman, 2020, p. 52; Keskin & Özer Kaya, 2020, p. 65; Tanhan, 2020, p. 12). The World Health Organization (2020) announced that during the crisis period, children need an environment that they can feel safe and which they are aware of the presence of people that can support them. In expected and unexpected crisis situations, it is anticipated by all the related parties from the education management to make a sufficient/effective intervention, to ensure the education institutions and for the members to take the minimum damage possible from the crises. In other words, it is expected that they manage the crisis in a successful way (Aksoy & Aksoy, 2003). It was seen that in the crisis period, , some negative circumstances are experienced such as not having equal learning opportunities due to the lack of technological supplies, difficulties encountered by the teachers and the students in using the technology (Education Reform Initiative, 2020).

There are more questions to be answered regarding the reflection of the distancelearning from the learning environment such as the teachers, parents and school managers readiness, their position to manage the period, and whether the current technical infrastucture is suitable or not. During this pandemic period, it has been found necessary that the problems encountered are identified and solutions are proposed in order to maintain educational activities. Since such studies change from country to country, it is important that it is done seperately for each region. Accordingly, in the current study it is aimed to find the current situation of the distance learning applied in the schools which exist in TRNC and identify the training needs of the school managers. Based on this general purpose, the sub - problems of the research are identified as follows;

1. What is the current situation in distance online learning?
2. What are the training needs of the school managers that manage the distance online learning in TRNC?

METHOD

This study aims to identify the current situation of the distance online learning applied in the schools existing in the TRNC and identify the training needs of the school managers in distance learning. The study is based on descriptive survey model.

Descriptive survey model is: *"a research model which aims to describe a situation, which existed in the past or still exist in the present, in the form that it exists and tries to describe the person, incident or a thing, which is the subject of the research, in its own form and condition"* (Karasar, 2008).

Study Group

The sample of this research consists of the managers that work in the public and private primary schools, secondary schools and high schools in TRNC. During this research, all the school managers (f: 200) that work in TRNC have been reached and 42 feedbacks has been received. Information about these participants are shown in the following table.

Table 1. Descriptive Statistics about the Demograpfic Information of the Participants

Properties	**f**	**%**
Service Year		
1-5	17	40,5
6-10	8	42,9
11-15	4	9,5
15 and more	3	7,91
Total	**42**	**100**
Education level		
Bachelors	23	54,8
Masters	14	33,3
Doctorate	5	11,9
Total	**42**	**100**
School Type		
Primary	23	54,8
Secondary	7	16,7
High School	12	28,6
Total	**42**	**100**

Tools for Collecting Data

In this research,"Identification of the Current Situation in Distance Learning and Training Needs Analysis for School Mangers" survey is used as a data collecting tool, which is developed by the researchers. In the process of developing the survey form, expert opinions are received and literature review is done. After this, questions suitable to the content of the research are formed and a pilot study is conducted. At the end of the study, the survey form is finalized. The form consists of 31 questions of which 16 are open - ended and 15 are close - ended questions.

Analysis of Data

In the reseach, descriptive analysis is used in close - ended questions and content analysis is used in open - ended questions. The analysis of the open - ended questions are conducted with two different experts. For reliability, consensus rate between the coders is calculated by the formula of Miles and Huberman (1994) and found out to be 0,92 in general. In addition, SWOT analysis has been carried out within the scope of the research.

FINDINGS

This section includes the findings of the research. The participants are asked whether distance learning is provided in their schools and the answers received are provided in Table 2.

Table 2: The Findings Related To Whether Distance Learning İs Provided

Providing Distant Learning	**f**	**%**
Yes	41	97.6
No	1	2.4
Total	**42**	**100**

As seen in Table 2, the majority of the participants (41%) provide distance learning. The participants are asked regarding which platform they use to apply distance learning. The answers received are provided in Table 3.

Table 3. The Platforms in Distance Learning

Platforms (N=42)	**f**	**%**
Zoom	31	34,83
Google Meet	21	23,60
Whatsapp	16	17,98
Moodle	9	10,11
Google Classroom	5	5,62
Eba	3	3,37
Jıtsı	1	1,12
Smartschool	1	1,12
Youtube	1	1,12
Class Dojo	1	1,12
Total	**89**	**100**

Most of the participants indicate that they use Zoom, Google Meet and Whatsapp platforms to apply distanced - learning. The sufficiency of the infrastructure in distance learning has been asked to the participants. The answers received are provided in Table 4.

Table 4: Infrastructure Situation in Distance Learning

Infrastructure Sufficient	**f**	**%**
Yes	10	23.8
No	32	76.2
Total	**42**	**100**

As seen in Table 4, the majority of the participants (76.2%) think that the infrastructure in distance learning is insufficient. The participants are asked about the reasons of the insufficiency of the infrastructure in distanced - learning. The answers received are shown in Table 5.

Table 5. Deficiencies in İnfrastructure in Distance Learning

Infrastructure Deficiencies (N=42)	**f**	**%**
Internet deficiency	31	47,70
Communication tools deficiency (such as computer and tablet)	29	44,61
Platform deficiency	5	7,69
Total	**65**	**100**

As seen in Table 5, the majority of the participants indicated deficiences in internet (47,7%) and communication tools (such as computers and tablets) (44.61%) as deficiencies in infrastructure in distance learning. In case the infrastructure is insufficient in distanced - learning, the participants are asked whether any action is taken towards improving the deficiencies. The answers received are shown in Table 6.

Table 6. Actions Taken for Deficiences in Distance Learning

Action for deficiences	**f**	**%**
Yes	35	83.3
No	7	16.7
Total	**42**	**100**

The majority of the participants indicated that no action has been taken in improving the deficiencies in distance learning (%83.3). The participants are asked about the teachability of distance learning. The answers received are shown in Table 7.

Table 7. Teachability of Distance Learning

Viability	**f**	**%**
Yes	21	50,0
No	10	23,81
Partially	11	26,19
Total	**42**	**100**

As shown in Table 7, half of the participants (50%) think that distance learning is viable. The participants are asked whether training is provided to teachers during the distance learning period. The answers received are shown in Table 8.

Table 8. Training Provided To Teachers in Distance Learning

Training provided to teachers	**f**	**%**
Yes	31	73.8
No	11	26.2
Total	**42**	**100**

As shown in Table 8, the majority of the participants (73.8%) received training. The descriptive analysis of the content of the trainings are shown in Table 9.

Table 9. The Trainings Provided To The Teachers During Distance Learning

Trainings Provided (N=42)	f	%
Moodle	14	28,58
Zoom	11	22,45
Software	9	18,37
Distance education management and techniques	8	16,32
Web2	2	4,08
Google Meet	2	4,08
Jıtsı	1	2,04
Protection against distance education bullying	1	2,04
Eba	1	2,04
Total	**49**	**100**

The participants are asked about the problems, that are encountered the most by the teachers. The answers received are provided in Table 10. Accordingly, student problems, internet problems and equipment problems are the problems that are encountered the most.

Table 10. Main Problems That Are Encountered By The Teachers

Problems Encountered (N=42)	**f**	**%**
Student problems	26	36,11
Internet	21	29,17
Communication tools (such as computer, tablets)	11	15,28
Lack of interest of the parents	6	8,33
Lack of knowledge	4	5,55
Systematic organizational problems	3	4,17
Students that do not know Turkish	1	1,39
Total	**72**	**100**

The participants are asked about the problems that the students encounter during the distance learning. The answers received are shown in Table 11. The majority of the participants indicated that the students encounter problems in comminication tools (35,44%) and internet (32,91%).

Table 11. Main Problems Encountered By Students

Problems encountered by students (N=42)	**f**	**%**
Communication tools (such as computer, tablets)	28	35,44
Internet	26	32,91
Student problems	15	18,99
Students not being able to use the technology	5	6,33
Lack of interest of the family	3	3,80
Systematic organizational problems	2	2,53
Total	**79**	**100**

The participants are asked about the participation of the students in distance learning. The answers received are shown Table 12.

Table 12. Participation Ratio Of The Students in Distance Learning

Ratio of Student Participation	**f**	**%**
Low	2	4,76
Medium	13	30,95
High	27	64,29
Total	**42**	**100**

As seen in Table 12, 4,76% of the participants think that the participation is low, 30,95% of the participants think that the participation is medium. Accordingly, the answers regarding the reasons of low and medium participation are shown in Table 13.

Table 13. Reasons Of The Low And Medium Student Participation in Distance Learning

Reasons for Low and medium student participation (N=42)	**f**	**%**
Deficiency in communication tool (such as computer, tablet)	14	33,33
Problems with internet	14	33,33
Decreased student motivation	4	9,52
Technical deficiency of the teacher	1	2,38
Lack of supervision of the student	5	11,90
Lack of knowledge of the family	4	9,52
Total	**42**	**100**

The participants are asked about the problems that the families encountered in distance learning. The answers received are shown in Table 14. The problems that are encountered the most are internet (24.68%), equipment (24.68%) and supervision of children (19.48%).

Table 14. Problems That The Families Encounter in Distance Learning

Problems encountered by the families (N=42)	f	%
Internet	19	24,68
Equipment	19	24,68
Supervision of the children	15	19,48
Lack of education	8	10,39
Lack of interest	6	7,79
No problem	4	5,19
Psycological problems	3	3,89
Problem with the teaching environment	2	2,60
Lack of confidence	1	1,30
Total	**77**	**100**

The participants are asked about the strengths of the distance learning. The majority of the participants had replied to the question of strengths of distance learning as the reflection of the technology to education, making the education possible everywhere, sustainability of the education. Accordingly, the descriptive analysis of the answers received is provided in Table 15.

Table 15. Strenghts Of The Online Learning

Strenghts of distance learning (N=42)	**f**	**%**
Usage of technology in education	13	22,81
Making education possible everywhere	11	19,30
Sustainability of education	11	19,30
Minimum cost	6	10,53
Traceability of the course material	6	10,53
Participation of the families in teaching	4	7,01
Continued communication with the teachers	3	5,26
Continuing motivation	2	3,51
Staying healty	1	1,75
Total	**57**	**100**

The participants are asked about the weaknesses of the distance learning. The descriptive analysis of the content of the answers provided are shown in Table 16. The majority of the participants gave these answers: not replacing face-to-face education (17,46%), negative effects on social development (17,46%) and difficulty in managing class (14.29%).

Table 16. Weaknesses Of The Online Learning

Weaknesses of distance learning (N=42)	f	%
Not replacing face-to-face education	11	17,46
Negative effects on social development	11	17,46
Difficulty in managing class	11	14,29
Internet	8	12,70
Unequal opportunity	7	11,11
Communication problems	6	9,52
Deficiencies communication tools (such as computer and tablet)	4	6,35
Not being able to do applied lessons	3	4,76
Lack of interest of the family	2	3,17
Total	63	100

The participants are asked about the threats of the distance learnings. The descriptive analysis of the content of the answers are shown in Table 17. Based on this, according to the participants, the threats of distance learning are negative effects on social development (25%), cause to health problems (17.86%), technological addiction (16,07%) and threats due to the lack of related laws (16,07%).

Table 17. The Threats Of Online Learning

Threats of distance learning (N=42)	**f**	**%**
Negative effects on social development	14	25,0
Technological Addiction	9	16,07
Threats due to lack of laws	9	16,07
Cause to health problems	10	17,86
Unequal opportunity	5	8,93
Cause to decrease in motivation	4	7,14
Not ensuring student supervision	3	5,36
Not being able to do applied lessons	2	3,57
Total	56	100

The participants are asked whether the students have received trainings about online learning. The answers received are shown in Table 18.

Table 18. Training Provided To Students During Distance Learning

Training provided to Students (N=42)	**f**	**%**
Yes	12	28.57
No	30	71.43
Total	42	100

As seen in Table 18, the majority of the participants (71,43%) stated that no training is provided to the students. The descriptive analysis of the content of the trainings provided are shown in Table 19.

Table 19. Training Provided To The Students in Online Learning**.**

Trainings to Students (N=42)	**f**	**%**
Methodology and techniques	7	46,66
Programs to be tsed	6	40,0
Accessibility to the teacher	1	6,67
Participation to Education	1	6,67
Total	**15**	**100**

The participants are asked whether the families are trained about distance learning. The answers are as shown in Table 20.

Table 20. Training Provided To The Parents About Distance Learning

Training provided to parents (N=42)	**f**	**%**
Yes	8	19.05
No	34	80,95
Total	**42**	**100.0**

As seen in Table 20, the majority of the participants (80,95%) stated that no training is provided to the families about distance learning. The desriptive analysis of the contents of the trainings provided to families are shown in Table 21.

Table 21. Trainings Provided To The Parents About Distance Learning

Trainings to Parents (N=42)	**f**	**%**
Program to be used	4	36,36
Communication	3	27,27
System to be applied	3	27,27
Prevention against bullying	1	9,09
Total	11	100

The participants are asked about the positive effects on the participants. The answers received are shown in Table 22.

Table 22. Positive Effects Of Online Learning

Distance Learning has positive effects?	**f**	**%**
Yes	33	78,57
No	9	21,43
Total	**42**	**100**

As seen in Table 22, the majority of the participants (78,57%) indicated the positive effects of distance learning. The descriptive survey analysis of the answers are shown in Table 23.

Table 23. Positive Effects Of Online Learning On The Students, Parents And Teachers.

Positive Effects of Distance Learning (N= 42)	**f**	**%**
Continuation of education	13	32,5
Sustainability of communication	7	17,5
Time for the family and the children	7	17,5
The importance of the technology	6	15,0
Access to research and knowledge	4	10,0
Economic scale	1	2,50
Awareness for the importance of education	1	2,50
Development of the teacher	1	2,50
Total	**40**	**100**

Distance learning opportunities are asked to the participants. The descriptive analysis regarding the answers are provided in Table 24.

Table 24. The Opportunities Of Online Learning

Opportunities of Distance Leaning (N=42)	**f**	**%**
Positive usage of technology	15	24,19
Easy access to knowledge	10	16,13
Teacher-student development	10	16,13
Continuation of education	8	12,90
Fast communication/time saving	6	9,68
Student permanance	4	6,45
Location problem	4	6,45
Economic	3	4,84
Control of the student by the family	1	1,61
Revision of the lesson	1	1,61
Total	**62**	**100**

The participants are asked what kind of activities were planned towards students with special needs in distance learning. The descriptive analysis of the answers received are as shown in Table 25.

Table 25. Activities Organized For Students With Special Needs in Distance Learning

The needs of the students with special needs (N=42)	**f**	**%**
No activity done	19	48,72
The special needs teacher is doing lessons	14	35,90
Materials are sent to the parents	4	10,26
Special training class is formed/lessons are provided	2	5,13
Total	**39**	**100**

The participants are asked whether they have received training during distance learning period. The answers received are in Table 26.

Table 26. The Findings Related To Receiving Training During Distance Learning

Received training	**f**	**%**
Yes	26	61.9
No	16	38.1
Total	**42**	**100**

As seen in Table 26, the majority of the participants indicated that they have received training during distance learning period (% 61,9). The descriptive analysis of the content of the trainings are shown in Table 27.

Table 27. Trainings Received During Distance Learning Period

Trainings received (N=42)	**f**	**%**
Moodle	14	25,00
Online Education Information	12	21,43
Zoom	10	17,86
Google Meet	6	10,71
Web2	5	8,93
Eba	5	8,93
Measurement and evaluation methods	3	5,36
Jıtsı	1	1,78
Total	**56**	**100**

The participants are asked about their training needs about distance learning. The answers received are shown in Table 28.

Table 28. Training Needs For Distance Learning

Need for Trainings (N=42)	**f**	**%**
Yes	34	81.0
No	8	19.0
Total	**42**	**100**

As seen in Table 28, the majority of the participants (81%) are in need of trainings. The descriptive survey analysis of the training needs are shown in Table 29.

Table 29. Needs For Trainings in Online Learning

Need for Distance Learning (N=42)	**f**	**%**
Measurement and evaluation in D.E.	34	17,17
Methods for Increasing Student Motivation in D.E.	32	16,16
Teaching methods and techniques in D. E.	30	15,15
Tecnological knowledge and competences	29	14,65
Material development in D.E.	28	14,14
Class management competences	22	11,11
Communication	20	10,10
Others	3	1,52
Total	**198**	**100,00**

*Distance Education (D.E.)

DISCUSSION AND CONCLUSION

This research aims to identify the current situation of the distance learning applied in schools in Turkish Republic of Northern Cyprus and to analyze the training needs of the school managers working in these schools with regards to distanced - learning. In this section, the results of the research will be presented and discussions will be based on literature review.

As a result of the research; it is found out that there is a problem with the infrastructure of the schools in TRNC. It is observed that the internet infrastructure problems have existed before and during this period, the problems have been experienced again. It was figured out that these problems do not only exist here and about this subject, Süral (2015) highlighted the importance of maintaining a robust technological infrastructure; emphasized the necessity for selecting and reforming all the components in an appropriate way for a successful and sustainable distanced - learning infrastructure. Davis, Little and Stewart (2011) stated that it is necessary to consider many factors in order to set up the infrastructure of an online and distance - learning and thus, emphasized that it is challenging to prepare a simple control list or a recipe for the actions to be taken to set up the infrastucture.

In addition to this evaluation, unlike the normal education at school done with the leadership of the teacher, family factor is found important for distance learning in the research. Accordingly, the competences of the families have been analyzed, who take the role of supervising and motivating the students during the pandemic period. The importance of the role of family have been emphasized in growing up as a “good” person. Thus, it is observed that configuration is needed in informing the families in distance learning and in ensuring that they are involved in the teaching in a direct way. Within this scope; similar results have been obtained in the researches of Tümkan and Tümkan (2020). As a result of the study, regarding the contributions, the teachers noticed the contibution of the families to the education the most and came to the conclusion that coordination in education is crucial. The current research revealed problems such as the careless attitude and behaviour of the family, problems that the

families encounter in the distance learning and inability of the families to get involved in the teaching process. For an effective distance learning, it is not enough to put the teaching materials online but the students also need a teaching environment that fullfill their attention, sympathy and emphaty needs (Bozkurt, 2020).

The research revealed that there is a training need for the school managers about distance learning in the subjects of technical support, developments about infrastructure, low motivation of students and family participation. This period, that we are going through, should ensure permanet plans, because even if this pandemic ends, new pandemic periods might arise. Therefore, there might be a need for the continuation of distance learning. The teachers and school managers should definitely receive the necessary trainings. For this, it is recommended that planning is done. In the researches of Öznacar, Yücesoy, Demir (2020, p. 100), it is recommended to make studies in order to increase in-service trainings about technology, media and knowledge for the school managers working in Turkish Republic of Northern Cyprus and also to ensure their increased participation. Gündüz , Türker, Karabekir & Altun (2020), emphasized the importance of strategic planning in education. Bozkurt (2020) indicated that Covid-19 pandemic affected the education sector directly and indirectly in several ways and there is a need for radical reforms and strategic planning to ensure sustainability of teaching.

Another finding of the reseach is that the school managers need technological knowledge and experience in managing the pandemic period. Based on the opinions of the managers, there is a need to strengthen factors such as internet, tablet/computers and lack of a centralized system. During the distance learning provided, factors such as low student participation, lack of teachers knowledge, lack of experience and communication problems also express deficiences in infrastructure. In the light of these results, it is observed that the teachers and school managers are having difficulties in the usage of technology (Çalık, Çoban & Özdemir, 2019; Hero, 2020). The reason of these deficiencies are generally due to the facts that the school managers are educated towards face-to-face education, most of the schools have not done planning to provide education in distance learning, and thus lack of programming. As part of the studies, considering that the distance learning will always exist, the school managers should take training about this area. Davran (2020) emphasized that during the pandemic period, the importance of online learning will increase over the period of time, where the importance of digital learning and online distance learning will always be on the agenda, it is emphasized that not only the students and the teachers but also the whole community should gain the skills as a comprehensive point of view. This is important to overcome the pandemic crisis and to survive in the globally competing environment (Bozkurt, 2020).

Another outcome of the pandemic is about the interest and motivation of the students (Karalis & Raikou, 2020). The care, sympathy and empathy approach, that are needed by the students, is not necessary only for the pandemic period, but it is a primary need that is required all the time for people (Noddings, 2002). In the research regarding the problems of the students, in addition to the equipment and internet problems; other problems encountered are related to the interest of the students towards the

process, behaviour and attitude, lack of communication, lack of motivation in the current education system. Since education with an online group is done through technology, group interaction is difficult to be obtained. This situation leads to a deficiency in success compared to face-to-face education. Since the students cannot interact, they develop different behaviour and opinion manners. In addition, it becomes difficult to divert the knowledge transfer depending on the characteristics of the group (Gökçe, 2008). Because it is difficult for the trainers to understand the individual attitudes during distance learning (Birkök, 1998).

The research, which included investigation of the findings on the countries economic, social and technical infrastructure; analyzed the sufficiency of the government about the topic in addition to schools and teachers, and therefore had the opportunity to see the right actions done as well as the deficiencies. The research, which studied the situation in special training, provided the current situation about this subject as well. As part of the study, it was found out that the government have not done any studies in ensuring students with special needs received distance learning. The research found out that the special education teachers' efforts contributed to the education of the children with special needs. Şenol and Yaşar (2020) stated that the education of the children with special needs was affected in an unfavorable way during the pandemic period. In order to overcome this, it is recommended that an intervention is planned and done with teachers and families.

The research also analyzed the positive effects and opportunities of distance learning among the teachers, students and families. The study also included the weaknesses and strenghts of the distance learning, as part of the SWOT analysis and helped us draw a roadmap in order to prevent the mistakes done before. The pandemic period, which has being going on for more than a year, showed that distance learning will continue to be important and that it is crucial that the government, schools and teaching staff develop themselves in this area. In the research of Can (2020), it is stated that the open and distance learning applications are an important learning source in solving problems faced in education. The fact that the current situation shows an urgent need for planning is a challanging period for all the schools. Also since the students all over the world get online at the same time, the infrastructure conditions are suffering, which makes the distance learning more problematic (Sahu, 2020). This research will enable to find the parties to be developed about distance learning in order to set up a viable distance learning system.

The Covid-19 pandemic period which affected the whole world as well as our country and led to changes in TRNC, also led to big changes in the education sector. During this period, which restricted face-to-face education, both the governers and school managers looked for alternative ways of education. The students, who actively benefit from technology mostly use technological tools to play games, watch videos and rarely use them for research purposes, get involved in an overloaded technological system during this period. The results of the study has shown that the deficiencies affect the education and the students intensely. New ways of applicable learning will ease the procedure. These actions are found necassary at schools supporting the school managers, training the teachers and teacher

candidates, providing the skills required for a dynamic digital environment, doing studies in order to make distance learning system well-qualified; providing the education that will be modified based on the development needs of the children. In service training, technological courses, seminars, online applications will help the people that have deficiencies in these areas to be more successful in the education sector.

The research also revealed the fact that the govenment was not ready for such a phase and was late in taking actions. The reasons that interrupted the education system of the Turkish Rebuplic of Northern Cyprus are that the infrastructural problems could not be overcome in a short period of time, the training of the teachers were not performed in a planned and programmed manner, the students could not be supported based on their social and financial situations and that the planning was not organized by one authority. Before the 2021-2022 academic year, the infrastructural deficiencies of the schools should have been completed, the teachers should have been educated in a planned manner on the applications to be used, the curriculum and the way lessons will be provided should have been planned based on technical problems. Before the education period starts, the students and the families should have been called in groups and informed about the programs to be used and short courses should have been provided about the methodology to be used. The five parts of the distance teaching (Ministry, School Governance, Teachers, Families and Students) should play an active role in education. It is recommended that the government benefit from the experiences and infrastucture of the universities that have solved the problem of distanced - learning by using hybrid system and therefore take support from universities accordingly.

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SHORT-TERM IMPACT OF COVID-19 PANDEMIC ON THE PERFORMANCE OF GLOBAL AND TURKISH SCIENTIFIC PUBLICATIONS

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ABSTRACT

Covid-19 research studies have been performed by a wide variety of research groups in Turkey as well as the rest of the world. This study aims to make a bibliometric analysis of the scientific publications based on the Covid-19 pandemic around the world and in Turkey. The Web of Science database was scanned using the keywords "Covid-19", "Coronavirus", "Coronavirus disease", "Covid-19 pandemic" and "Coronavirus pandemic". This study included all types of scientific publications related to Covid-19 published in all languages between January 1, 2020 and October 30, 2021 without restrictions. Identification and analysis of the data were based on criteria such as countries, scientific publications, institutions, citation count, h-index, and some relationships between these variables. Descriptive features of scientific publications were analyzed in Microsoft Excel. The findings emphasize that the number of scientific publications in the Covid-19 research field steadily increased. However, researchers should increase diversity in some Covid-19 research fields rather than health, such as social and humanities science studies and interdisciplinary studies. So, universities should focus more on these fields.

Keywords: Bibliometric analysis; Covid-19; higher education; scientific publications; Turkey

COVID-19 PANDEMİSİNİN DÜNYA'DA ve TÜRKİYE'DE BİLİMSEL YAYIN PERFORMANSI ÜZERİNDEKİ KISA DÖNEMDEKİ ETKİSİ

ÖZET

Covid-19 ile ilgili çalışmalar Dünya'da olduğu gibi Türkiye'de de çok çeşitli araştırma grupları tarafından yapılmaktadır. Bu çalışma, Dünya'da ve Türkiye'de Covid-19 pandemisi ile ilgili yapılan bilimsel yayınların bibliyometrik analizini yapmayı amaçlamaktadır. Bu amaçla Web of Science veri tabanı, "Covid-19", "Koronavirus", "Koronavirus hastalığı", "Covid-19 pandemisi" ve "Koronavirus pandemisi" anahtar kelimeleri kullanılarak taranmıştır. Bu çalışma, 1 Ocak 2020 ile 30 Ekim 2021 tarihleri arasında kısıtlama olmaksızın tüm dillerde yayınlanan Covid-19 ile ilgili veri tabanında yer alan tüm bilimsel yayınları

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içermektedir. Verilerin belirlenmesi ve analizinde ülkeler, bilimsel yayınlar, kurumlar, atıf sayısı, h-endeksi gibi değişkenler ve bu değişkenler arasındaki bazı ilişkiler esas alınmıştır. Bilimsel yayınların tanımlayıcı özellikleri Microsoft Excel'de analiz edilmiştir. Bulgular, Covid-19 ile ilgili yapılan bilimsel yayınların sayısının giderek arttığını göstermektedir. Ancak bulgular araştırmaların sağlık alanı dışında sosyal ve beşeri bilimler ile disiplinler arası çalışmalar alanında da çeşitliliğinin artırılmasının gerektiğini göstermekte olup, üniversitelerin bu alandaki çalışmalara daha fazla odaklanmaları gerektiğine işaret etmektedir.

Anahtar kelimeler: Bibliyometrik analiz; Covid-19; yükseköğretim; bilimsel yayın; Türkiye

INTRODUCTION

The Coronavirus disease (Covid-19) is a new strain discovered in China in late 2019 that has not previously been identified in humans or the world. On March 11, 2020, the World Health Organization (WHO) officially declared the Covid-19 outbreak as a pandemic due to the global spread and severity of the disease. Before Covid-19, there were four pandemics in the last two centuries: "Spanish Flu" in 1918, the "Asian Flu" in 1957, the "Hong Kong Flu" in 1968, and swine flu in 2009 (Açıkgöz & Günay, 2020). Globally, as of October 29, 2021, there have been 245.373.039 confirmed cases of Covid-19, including 4.979.421 deaths. Besides, a total of 6.838.727.352 vaccine doses have been administered until October 29th, 2021 (WHO, 2021).

The world is still in the midst of the Covid-19 crisis, and many uncertainties remain. In the immediate response to the Covid-19 crisis, science and innovation are playing essential roles in providing a better scientific understanding of the virus, as well as in the development of vaccines, treatments, and diagnostics. Both the public and private sectors have poured billions of dollars into these efforts, accompanied by unprecedented levels of global cooperation (OECD, 2021a). In the short term, governments and researchers have responded strongly and flexibly to the Covid-19 pandemic. Today, they continue their support for science and innovation activities that aim to develop solutions to the pandemic and mitigate its negative impacts, while paying attention to the uneven distributional effects of Covid-19 pandemic. Moreover, it has further opened access to data and scientific publications, increased the use of digital tools, enhanced international collaboration and spurred a variety of public and private partnerships. Hence, these developments have led to an acceleration in the transition to more research (OECD, 2021b).

Therefore, this study aims to analyze the existing scientific studies in the literature on the Covid-19 pandemic in line with the criteria determined by the bibliometric analysis method. Bibliometric analysis was used to determine the distribution of scientific publications by country, institution, publication type, and research fields to provide insight on current studies' descriptive features. Given the urgency of the Covid-19 pandemic and the need to understand and access information about it, a bibliometric analysis was considered suitable for this study. It is believed that it will benefit the literature to reveal the general structure of the Covid-19 research area and thereby propose recommendations for future research on Covid-19. On the other hand, considering the lack of studies in the literature both on a global scale (Lv et al., 2020; Rahim et al., 2021; Wang & Tian, 2021) and in Turkey (Kaya&Erbay, 2020; Çiftçiler, Haznedaroğlu, Tufan, & Zürk, 2021), this study might fill the research gap related to

Covid-19. Besides, scientific publications are key indicators for measuring universities' performance around the world. For example, university rankings such as Times Higher Education World University Ranking (THE) and ShanghaiRanking's Academic Ranking of World Universities (ARWU) use the number of scientific publications published in international indexed journals as a performance indicator for the calculation of ranking scores of universities (THE, 2021; ARWU, 2021). Hence, this study might provide some insights into the performance of the overall higher education system and universities during the Covid-19 pandemic.

In this context, the organization of the paper is as follows: The next section discusses the methodology of this study, while the third section lays out the findings. The next one is focused on the overall analysis of the findings, and finally, the study is concluded.

METHOD

Bibliometric analysis is a widely used research method for detecting the state of the picture in a particular field. This method is capable of utilizing quantitative analysis and statistics to describe patterns of scientific publications within a given period or body of literature (Dereli et al., 2011; Kaya & Erbay, 2020). A bibliometric analysis is defined as a statistical evaluation of published journal papers, books, or other scientific articles, and it is an effective way to measure the influence of scientific publications, scholars, or institutions in the scientific community (Encylopedia, 2021).

One favourable way of conducting bibliometric analysis has been through searching for scientific publications listed on Thomson Reuters' Web of Science (WoS). With this goal in mind, a list of scientific publications on Covid-19 was compiled by searching the WoS with Conference Proceedings, consisting Science Citation Index-Expanded (SCI-E), Social Science Citation Index (SSCI), Emerging Sources Citation Index (ESCI), Conference Proceedings Citation Index-Science (CPCI-S), Conference Proceedings Citation Index-Social Science&Humanities (CPCI-SSH), Art&Humanities Citation Index (A&HCI), Book Citation Index-Science (BKCI-S), Book Citation Index-Social Sciences&Humanities (BKCI-SSH), Index Chemicus (IC) and Current Chemical Reactions (CCR-Expanded) databases (WoS Core Collection, 2021). In order to conduct the analysis, first the criteria for data collection were determined. The keywords used for the data collection are "Covid-19", "Coronavirus", "Coronavirus disease", "Covid-19 pandemic", and "Coronavirus pandemic". These keywords were searched in the "all fields" title in the WoS since the "all fields" searches all of the searchable fields using one query, which allows us to easily find researched search terms in any field. Besides, this study included all document types of scientific publications in the WoS, such as articles, editorial materials, letters, review articles, meeting abstracts, books, book chapters, book reviews, proceeding papers, early access, data papers, expression of concern, corrections, reprints, etc. related to Covid-19 published in all languages between January 1, 2020 and October 30, 2021 without restrictions.

The data was extracted from the WoS database according to the data collection criteria. After setting the suitable output formats, the data was imported into Microsoft Excel, which was used to organize and analyze the data, including the publication number, country, document type, universities, institutions, citation count, WoS index category, and the research area. It is important to note that the total number of scientific publications by countries might not be equal to the total number of overall scientific publications since one study might include authors from more than one country.

FINDINGS

As a result of the database research, it was found that a total of 194.736 scientific publications have been published around the world since the beginning of the pandemic. Firstly, the distribution of scientific publications by countries was assessed, and it was identified that, with 54.684 scientific publications, the United States of America (USA) has contributed to the majority of the research in the Covid-19 field. The USA was determined as the most productive country, followed by China (20.113) and England (18.859). As seen in Figure 1, which shows the top 15 countries in terms of scientific publication distribution in the Covid-19 research field, the rank of Turkey was 12, with 5.216 scientific publications.

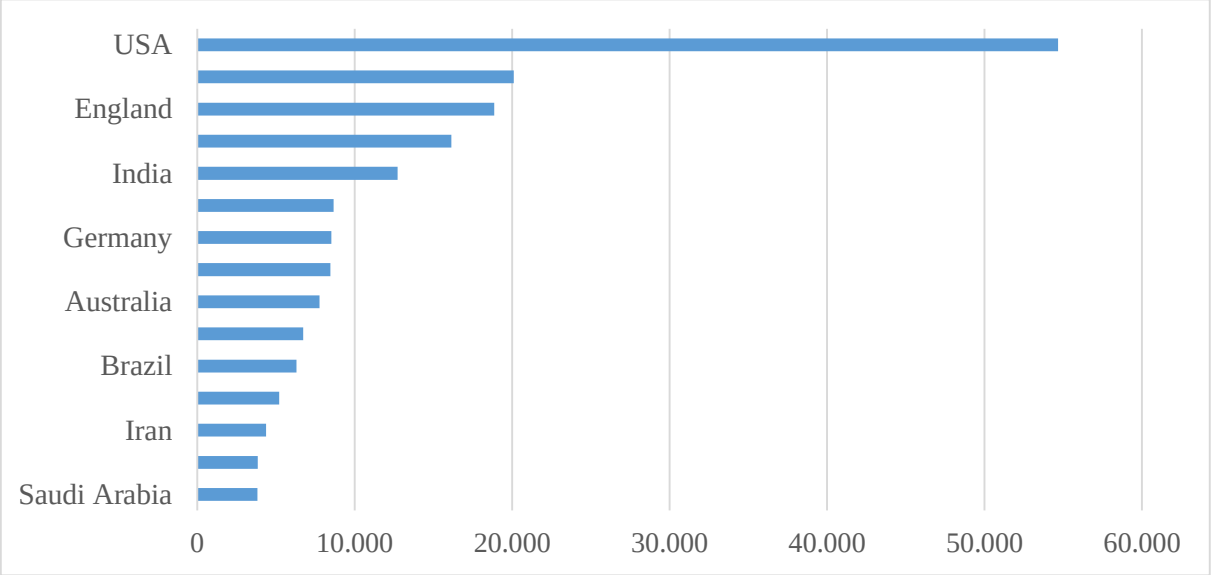

Figure 1. Distribution of Scientific Publications by Country

Descriptive characteristics of scientific publications, including citation count, average citation per publication, and h-index, were also analyzed in Table 1. However, since a citation report is only available for 10.000 records or fewer in the WoS, only countries having fewer than 10.000 scientific publications could be analyzed among the 15 top countries, so the USA, China, England, Italy, and India could not be included in this analysis. Germany (70.046), Canada (63.915), and Australia (62.150) are the top three countries according to the number of cited articles. The top three countries with the highest average number of citations per publication are France (15,61), Germany (15,35), and Australia (12,66).

The top three countries with the highest h-index are Germany (142), France (132), and Canada (128). Besides, the top three countries with the highest number of times cited are Germany (130.957), France (104.993), and Canada (102.286). Turkey is in last place regarding the number of cited articles (20.228), times cited (27.438), average citations per publication (5,26), and h-index (60) in Table 1. Therefore, Turkey's productivity of scientific publications based on the Covid-19 research field is at the bottom among these ten countries.

Table 1. Descriptive Characteristics of Scientific Publications by Country

Country	Publications	Cited Articles	Times Cited	Average per item	h-index
Australia	7.766	62.150	98.334	12,66	122
Brazil	6.316	39.759	56.113	8,89	83
Canada	8.462	63.915	102.286	12,06	128
France	6.726	57.686	104.993	15,61	132
Germany	8.530	70.046	130.957	15,35	142
Iran	4.372	23.240	33.652	7,7	72
Japan	3.846	28.339	38.852	10,1	80
Saudi Arabia	3.837	21.081	28.294	7,37	63
Spain	8.668	49.468	83.995	9,69	108
Turkey	5.216	20.228	27.438	5,26	60

Table 2 displays the distribution of scientific publications by document type. It is important to note that the number of scientific publications presented in Table 2 is slightly different than the total number in Table 1, since most likely some studies might have early access formats or authors from more than one country. Among all global scientific publications, 116.666 were original research articles, 22.540 were editorial materials, and 19.070 were review articles. Similarly, 3.767 of them were original research articles, 677 of them were editorial materials, and 483 of them were review articles in Turkey. As a result, according to the COVID-19 research field, Turkey has a similar trend to the other countries in the distribution of scientific publication types.

Table 2. Distribution of Scientific Publications by Document Type

	World	Turkey
Articles	116.666	3.767
Editorial Materials	22.540	677
Letters	20.868	575
Review Articles	19.070	483
Early Access	13.080	263

Table 3 shows the distribution of scientific publications by the WoS index. Considering this, SCI-Expanded (138.381), SSCI (42.256) and ESCI (36.292) are the top three WoS indexes. On the other hand, SCI-Expanded (3.523), ESCI (1.299) and SSCI (808) are the top three indexes in WoS for

Turkey's Covid-19 scientific publications. Therefore, scientific publications related to the Covid-19 research field in SSCI are lower in Turkey when compared to the world.

Table 3. Distribution of Scientific Publications by the Web of Science Index

	World	**Turkey**
SCI-Expanded	138.381	3.523
SSCI	42.256	808
ESCI	36.292	1.299
CPCI-S	4.165	39
A&HCI	1.437	27
CPCI-SSH	472	2
BKSI-S	120	1
BKSI-SSH	99	-
IC	58	1
CCR-Expanded	9	-

Table 4 lists the top 10 research areas for the Covid-19 around the world. "Medicine General Internal" and "Public Environmental Occupational Health" are the top two research areas according to the scientific publications in the world and Turkey. However, it is important to note that research areas including "Immunology", "Multidisciplinary Sciences", "Environmental Sciences" and "Medicine Research Experimental" are not among the top ten research areas in Turkey. Table 4 indicates that the Covid-19 scientific publication studies are mostly focused on health studies around the world so far.

Table 4. Distribution by Research Areas

	World		**Turkey**	
	Publications	**%**	**Publications**	**%**
Medicine General Internal	21.782	11,186	815	15,625
Public Environmental Occupational Health	16.703	8,577	203	3,892
Infectious Diseases	9.449	4,852	146	2,799
Immunology	7.306	3,752	137	2,442
Multidisciplinary Sciences	6.880	3,533	66	1,176
Environmental Sciences	6.839	3,512	111	1,978
Pharmacology Pharmacy	6.550	3,364	286	5,483
Psychiatry	6.251	3,21	253	4,850
Surgery	5.961	3,061	150	2,876
Medicine Research Experimental	5.730	2,942	105	1,871

As seen in Table 5, the productivity or performance of the institutions during the pandemic can be expressed by analyzing the number of their scientific publications. While the University of London in England (5.184) is the best performer among institutions during the pandemic, the University of Health Sciences in Turkey (613) is ranked first in Turkey. While globally, 15 universities are among the

top 20 most productive institutions on the basis of Covid-19 studies, this number is 18 in Turkey. Besides, eight research and candidate research universities are on the list in Turkey.

Table 5. Top 20 Most Productive Institutions in Covid-19 Scientific Publications

World		Turkey	
Institution	**Publication**	**Institution**	**Publication**
University of London	5.184	University of Health Sciences	613
Harvard University	5.047	Hacettepe University	352
University of California System	4.333	Istanbul University	282
Harvard Medical School	2.979	Istanbul University-Cerrahpasa	215
University of Toronto	2.360	Ankara University	210
University College London	2.318	Gazi University	189
Institut National De La Sante Et De La Recherce Medicale Inserm	2.291	City Hospital Ankara	186
University of Texas System	2.233	Marmara University	153
Johns Hopkins University	2.129	Koc University	147
Huazhong University os Sdcience Technolohy	1.932	Ankara Yildirim Beyazit University	140
University of Oxford	1.926	Sakarya University	135
Assistance Publique – Hôpitaux de Paris	1.915	Istanbul Medeniyet University	134
Egyptean Knowledge Bank	1.912	Ege University	131
Imperial College London	1.836	Selcuk University	123
State University System of Florida	1.797	Ministry of Health Turkey	122
Pennsylvania Commonwealth System of Higher Education	1.706	Erciyes University	121
University of Milan	1.586	Dokuz Eylul University	116
University of Pennsylvania	1.583	Ondokuz Mayis University	114
Columbia University	1.560	Atatürk University	111
Massachusetts General Hospital	1.541	Necmettin Erbakan University	101

DISCUSSION AND CONCLUSION

This study analyzed the scientific publications about the Covid-19 pandemic in the WoS database in the period of January 1, 2020–October 30, 2021. In sum, a total of 194.736 scientific publications related to the Covid-19 research fields were obtained around the world, while Turkey's total number of scientific publications was 5.216 in the same period. Furthermore, while the USA was the most productive country in the world with 54.684 publications, Turkey's rank was 12 in the world. In addition, the top countries with the highest citation count, the highest average number of citations per publication, and the highest h-index are Germany (130.957), France (15,61) and Germany (142), respectively, among the best-performing countries except the USA, China, England, Italy, and India. Turkey had the lowest average number of citations per publication (5,26) and h-index (60) among them. Most published scientific studies were research articles, which were mostly published in SCI-Expanded

around the world and in Turkey. Besides, "Medicine General Internal" was the top research area based on Covid-19 studies both in the world and Turkey. However, the findings show Turkey partially differs from the research area trend compared to the world. Lastly, the findings indicate that universities were the most productive institutions in the Covid-19 pandemic study around the world.

Moreover, this study can help researchers identify research gaps related to the Covid-19 pandemic and conduct studies to fill them. For this purpose, a bibliometric analysis was conducted to search and evaluate scientific publications listed in WoS at the short-term stage of the pandemic. Furthermore, the sample size of WoS is sufficient to illustrate the state of research and quality and identify research gaps related to Covid-19 at the onset of the pandemic since journals indexed in WoS are accepted as the most prestigious ones.

On the other hand, this study also has some limitations. Because of the delay in indexing, some studies published as at October 30, 2021 may not have been identified in the WoS. Besides, because our retrieval time was only until this date, articles published or posted after this date, of which there have been many, have not been included in the analysis. Also, since the citation reports for the USA, China, England, Italy, and India couldn't be reached due to the limitations in the Wos, some of the top performing countries' analysis is missing from this study.

In this study, bliometric analysis shows the current situation of literature published related to the Covid-19 pandemic as of October 30, 2021. The number of scientific publications in this field has steadily increased since the outbreak of the pandemic. However, since health studies dominated the research on Covid-19, more diversity in scientific publications is needed, especially for social and humanities science studies and interdisciplinary studies, to improve evidence for the development of social and economic life guidelines and public policies during the pandemic. Moreover, the findings of this study might be useful to improve universities' performance on Covid-19 studies; hence, their overall research performance might increase.

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INVESTIGATION OF TEACHERS' OPINIONS TOWARDS EFFECTS OF E-TWINNING PROJECT ORGANIZED WITH THE PURPOSE OF GAINING ENVIRONMENTAL AND NATURE VALUES ON STUDENTS

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ABSTRACT

At this study, teachers' opinions towards effects of an Etwinning project on students which is organized with the purpose of gaining environmental and nature values are analyzed. It is an international eTwinning project. At this project it is aimed to gain students awareness of protecting or nature and environment and bring up generations who are respecful to moral, cultural, ethical and insitutive values of society. The Project has started in september of 2019-2020 academic year and ended in June. There are more than 600 students at the Project. Students' age range is 7-11. They are at the first and fifth grade at school. Qualitative method is used and case study pattern is preferred. During data collection, focus group discussion is the preferred method. Study group consists of 10 teachers that have attended to focus group discussion. According to teachers' opinions, it is stated that students' awareness of protecting nature and environment, technological skills, creative thinking, problem solving, co-working and collaboration skills are developed.

Keywords: Environment and natüre; e-twinning; project; values

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ÇEVRE VE DOĞA DEĞERLERİNİ KAZANDIRILMASI AMACIYLA DÜZENLENEN BİR E-TWİNNİNG PROJESİNİN ÖĞRENCİLER ÜZERİNDEKİ ETKİLERİNE YÖNELİK ÖĞRETMEN GÖRÜŞLERİNİN ARAŞTIRILMASI

ÖZET

Bu çalışmada, çevre ve doğa değerlerinin kazandırılması amacıyla düzenlenen bir Etwinning projesinin öğrenciler üzerindeki etkilerine yönelik öğretmen görüşleri analiz edilmektedir. Proje uluslararası bir eTwinning projesidir. Bu proje ile öğrencilere doğayı ve çevreyi koruma bilinci kazandırmak ve toplumun ahlaki, kültürel, etik ve kurumsal değerlerine saygılı nesiller yetiştirmek amaçlanmaktadır. Proje 2019-2020 eğitim öğretim yılı Eylül ayında başlamış ve Haziran ayında sona ermiştir. Projede 600'den fazla öğrenci yer almaktadır. Öğrencilerin yaş aralığı 7-11'dir. Öğrenciler birinci ve beşinci sınıf aralığında öğrenim görmektedir. Çalışmada Nitel yöntem kullanılmış ve durum çalışması deseni tercih edilmiştir. Veri toplama sırasında odak grup görüşmesi yöntemi tercih edilmiştir. Çalışma grubu, odak grup görüşmesine katılan 10 öğretmenden oluşmaktadır. Öğretmen görüşlerine göre öğrencilerin doğayı ve çevreyi koruma bilincinin, teknolojik becerilerinin, yaratıcı düşünme, problem çözme, birlikte çalışma ve işbirliği becerilerinin geliştiği belirtilmektedir.

Anahtar Kelimeler: Çevre ve doğa; e-twinning; proje; değerler

INTRODUCTION

During primary school education the aim is to support childrens' all zone of development, and at a qualified education social values also must take place besides academic skills. Values education like self-confidence, taking responsibility, doing responsibilities, starting a task, comleting a task, teamwork, not telling lie and using courtesy statements bring together other skills that will be used during lifetime. A good values education affects positively not only child's personality development but also academic success. Teaching children values at school is very important in terms of forming a healthy society. Teaching values to children is as important as teaching Math and Turkish. One of the factors that complete the education process in terms of not only cognitive education but also affective education is values education.

Human values is a universal notion that has an important role to ensure continuity and keep alive society regardless of language, religion, race, living quarters and socio-cultural structure. Undoubtedly, determining the frame of the connection and interaction that someone forms with itself, with human, environment and nature and lasts lifetime will make it possible that next generations will have a nice life based on healthy bases. Protecting nature and benefiting from nature are some of human values. It is a social necessity to teach well to children during their education. Education does not aim only to make some behaviors different. Moreover, It also provides the awareness to fight against pronlems that someone faces and aims to bring in behaviors that help him/her to solve the problem. It brings together the environment education and society attendence through collaborater activities which inspire all members of school community (School education Gateway, 2020). In the event of an increase in environmental disruption, such an education underlies the improvement and protection of the environment (Yücel&Morgil, 1999:77). Environmental education improves the

information of individuals and this is the process of teaching. It improves individals' environmental attitudes, skills of problem solving and envirnmental awareness. For this reason, by increasing the awareness and attitudes towards environment, an ethical behavior towards environment will be developed (Kunt & Geçgel, 2013:795). Theredore, teachers must provide leson materials related to environment, improve the information on this subject, develop activities inspiring towards environment, take on their environment and after doing these they must develop value judgement related to environment (Şimşekli, 2004:4). Transforming the given education into attitdes and behaviors will have an important place in terms of environmental protection (Şahin and Gül, 2009:542). It is very difficult to be sensitive to the environment and to gain afterwards the awareness of leaving a livable world to new generations. Environmental awareness and information should be given to people from a younger age. The more environmentally friendly people in the future can be raised and educated starting from pre-school and primary school levels, the more environmental protection will be guaranteed (Armağan, 2006).

In this direction, the eTwinning Project "Into Space With Our Magic Tree" has prepared in order to gain students environment and nature values and it has been completed with attendence of students and teachers from different cities and contries like Mersin, Samsun, Zonguldak, Gaziantep, Italy and Poland. The aim of the project is to draw attention to importance of protecting nature and environment with our national, moral and cultural values, to develop awareness of protecting environment at primary school students and their families, to take on social values, to be aware of effects of global climate and to support foreign language learning. It is important to determine whether goals are reached or not, so at this study it is analyzed teachers' ideas towards the effects of project on students.

METHOD

Qualitative method is used and case study pattern is preferred. Focus group interview, one of the qualitative research methods, was used in the research. Focus group interviews are a method carefully planned (Kruger and Casey, 2000) and conducted by a subject expert (moderator, consultant) in the light of predetermined questions in order to obtain perceptions about a predetermined topic.

Study Group

Focus group interview study group is consist of teachers who are teachers at state schools depend on Ministry of National Education. All of these teachers acted actively at the eTwinning project.

Data Collection Tool

What the effects on students of an eTwinning project organized in order to gain nature and environment values are obtained by analyzing datas got from 8 volunteer teachers via focus group interview. Accordingly, obtained datas are important in terms of forming needs analysis in that it is guide and instructive for projects that will be prepared to gain awareness of nature and environment.

Two teachers analyzed questions in terms of content validity and came to an %100 agreement.

Analysis of Data

Teachers' views obtained by focus group interview are stated as they are without digitised. Findings are given under the determinated theme. While reporting focus group interview, numbers are not important but teachers' views are (Creswell, 1998). According to Suler (1995), while analyzing focus group interviews, finding must not digitise, and must not be given percentage, frequency, statistical test or tables. Accordingly, recorded views are analyzed and given as teachers stated.

Implementation Process of Focus Group Interview

Focus group interview applied as 2 sessions via internet. First session has organised before the project and the second after the project. At the first session teachers has answered questions like "Why have you attended the project?", "What are your expectations from project?". At the second session, teachers answered questions like "What are the affects of project on or students?", "What are the differences you realize at your students?".

Project Implementation Process

Activities related to our values of patriotismi solidarity, love, respect, tolerance, compassion, responsibility, health environmental, protection, cleanliness were held and the importance of protecting our nature and environment with our cultural heritage values was emphasized. The social media institutions of the project were created, preliminary surveys were made in the forum section, the opinion of the partners and students were taken and the business process was provided. School, province, country and student preentations of the project partners were made. Mixed country teams were formed and the students working in these teams were allowed to conduct joint research on our values in cooperation. The process was evaluated with online activities. In cooperation with TEMA, citrus seeds were planted, saplings were grown, and activities were carried out to protect our national, moral and cultural values with environment and nature-friendly activities. The projet is integrated into all courses with different disciplines.

Figure 1. Activity Examples

The project partners greeted other participants in their own language and wrote down our important values in society using Mentimeter tools. Various events were organized during the European Code Week. Visual Works containing teacher and students slogans were created using the

web 2 tool Book Creator. The collaborative work, consisting of student logos and teacher slogans was created with the Book Creater tool. Acrostic poem about the project was created and turned into a book. Viirtual forest was created by the project partners and tree studies related to the forest were made by the students. A common dance activity related to values was made. Each line was played by students. The joint activity of student slogans on the world map with the Thinglink tool was created as a virtual exhibition with the Artsteps tool at the end of the project due to the Covid 19 pandemic process.

Visibility Studies

Wıthin the scope of the project, the final products of the project, such as “project evaluation report book, joint song, joint poem, virtual forest, virtual exhibition and project calendar (Figure 5)”, in which each project partner completed by taking part and products realized month by month were revealed and displayed on the eTwinning project pages promoted by sharing links. As seen in Figure 3, a movie about our values was shown to the students. The importance of ur nature was empahasized by planting seeds and growing saplings (Figure 4). The school exhibitions on Safe Internet Use were presented to all school students and parents, as seen in Figure 2. Due to the Covid 19 Pandemic process, a virtual project exhibition and virtual forest were held, in which the products realized month by month and the project final product were presented together. Project certificates were prepared for the project partners.

Figure 2. School Exhibition **Figure 3.** Watching Movie **Figure 4**. Importance of Nature **Figure 5.** Calendar

Professional Development

Since the founders knew web 2 tools very well, teachers who did not know how to use web 2 tools in the project group were supported to dominate the field by providing all kinds of information and promotion activities about basic coding, worksheet preparation tools and many web 2.0 tools. After the Professional development studies carried out, teachers were provided with the opportunity to learn web 2.0 tools from different fields that they can use in their lessons and projects. By sharing information with teachers in different cities and countries, new learning methods were started to be implemented in the classrooms. As a result of our activities to protect nature and the environment with

our values, necessary attempts have been mad efor our partners to become members of organizations such as TEMA, KIZILAY and SIFIR ATIK so that they can contribute to the development of teachers in their own schools.

PROJECT PLAN

SEPTEMBER

Teacher, school, student introduction

introductions:

All our partners have promoted themselves, their students, their schools, the city they live in, and their country.

Poster, logo, slogan works:

All our partners have done logo and poster works for our project.

Poster, logo, slogan competitions: Poster and logo competitions were organized for our project and the logo with the highest number of votes was chosen as the project logo.

Values survey of our project: While starting our project, a questionnaire was conducted on our values and our project's annual plan was prepared accordingly.

OCTOBER

Partner's Map:

Partners map has been prepared for our European partner project.

Our Thoughts About The Project

All of our partners stated their ideas and expectations when starting our project.

Parents permission petitions

All of our project partners received a petition from their parents for permission to participate in the project.

Project introduction trailer

All of our project partners have prepared our project promotion trailer using web 2 tools.

Distribution of task/Görev dağılımı

The distribution of duties of all our project partners has been made and stated on the related page.

NOVEMBER

Patriotism/Vatanseverlik

Patriotism is one of our most important values. This enthusiasm was experienced in the most beautiful way during the National Holidays and it was kept alive around us.

Our opinions about our values

Our project partners, parents and students were surveyed and asked about their opinions about the project.

Writing Common Acrostic Poem

All of our project partners wrote a common poem by using acrosthesis using our project name

DECEMBER

Compassion - Mercy/ Şefkat - Merhamet

Our value of compassion / compassion is a value that we constantly instill in our students and integrate into every subject in the curriculum since the first day schools are opened.

Our Values Mindmap

Collaboration in students' words about our values

New Year Card Match

Card matches were made between schools

International Human Meeting Day

20 December Human Solidarity Day importance was transferred to our students and aid campaigns were organized for those in need.

JANUARY

Cleaning - Let's do good/Temizleme - haydi iyi yapalım: It is our basic teaching that we need to keep both our body and the environment clean to be healthy.

Our Values World

Our students found quotes and Proverbs about our values and made pictures of them.

It is shown on our world map with web 2 tool.

Activities Of Mixed Country Teams

10 teams were created with our project partners, in which 10 different values were processed, and these teams continued their work with mixed students.

Our common song "Our Values"

Our song titled "Our Values" was voiced by the project students and a common product was created.

FEBRUARY

Cultural Heritage/Kültürel Miras

Our Cultural Heritage values have been instilled in our students, museums and historical sites in the region we live in have been visited.

Painting studies have been done.

Safer İnternet Day 11.02.2020

Internet Security week has been supported by videos and visuals. Security rules and the importance of personal information have been transferred.

Value Issues Of Teams

Responsible teachers, team work subject and team officer students were determined for team work.

MARCH

Solidarity/Dayanışma

Each of our teachers shared their activities on the page about the solidarity on our page.

World Water Day/Dünya Su Günü/22.03.2020

Due to the pandemic, our 22 March World Water Day activities have been done by preparing banners with their families at home and hanging them around the sink.

Our common games about our values

Our partner teachers prepared games and competitions using web 2 tools related to our project and our students reinforced our values by playing these games.

APRIL

Let's protect our environment/ Çevremizi koruyalım

Activities for environmental cleanliness and protection of our natural environment have been carried out.

Our digital games about our values

Efforts have been made to strengthen our values with Matching Game, Word Stack and Kahoot digital games.

MAY

Democratic participation-Global climate change/Demokratik katılım/Küresel iklim Değişikliği:Poster studies were conducted on Global Climate Change and these studies were published using video and web 2 tools.

eTwinning Day 9 May 2020

May 9 eTwinning day was celebrated with various activities and our students made banners.

World Environment Day June 5

Due to the Environment Day of June 5, a virtual forest was created and published with the trees drawn by our students.

Evaluation

Project evaluation was done with surveys and monthly working activities report.

FINDINGS

Table 1. Teacher Opinions

	Teachers' Opinions Before The Project	Teachers' Opinions After The Project
1	The reason ı attend this project is because I like the work on the project and matching page. I think my students will have more creativity and Express themselves more easily in their classrooms. I prefer the project to be an international project. I am also happy to join this project. I believe we will do well. I wish my project success.	I was very hopeful when I started this project. I was thinking of the environment and our values as the most important elements that we need to protect for our future. As the work progressed on the project, we produced great activities with our students on these topics. During this process, my founder friend and all our valuable project partner teachers worked unselfishly. When I looked back at the goals of the project, I observed that our students demonstrated that these goals were achieved through their behaviors and activities. Although we were away from school for a few months due to the pandemic process, I saw how my own students and other partner school students are willing to work, how determined they are to protect the environment and leave a good tomorrow to future generations. They attended the activities from their homes. They drew pictures. They make videos. They got the opportunity to know Web 2.0

		tools. In our students, we as teachers, and their parents have seen that their skills in using technology have improved. In addition, being more sensitive towards the environment and the living creatures showed met hat the project achieved its goals. Finally, I am honored to work with such a wonderful founder and mutual friends, such a nice student group on such a meaningful project. I would like to thank my entire team and students.
2	Working on our values in our project will improve students' relationships.	
3	Rapidly increasing technological developments cause negative effects as well as positive effects. Neglecting nature will mean that over time, there will be no living space for living things. Creating this awareness will enable us to raise environmentally sensitive individuals. The values that create societies and the geography they live in. The importance of these two concepts will be reinforced in our project. At the same time, it will provide children with the development of a sense of sharing, solidarity and responsibility along with our values. The two concepts in which they will be reinforced.	
4	Gaining our values to students learning more fun in the classroom. I am in this project. My students contribute to the project with our beautiful work I believe we will provide. Thanks.	The active participation of our students in the project has shown that our project has reached the desired goal. Now, my students will continue on their way as individuals who embrace their lifetime values and are more sensitive to nature.Me and my students carried out this project with great fun, so we are very happy.I would also like to thank my project founders and partners for good solidarity.
5	The project aimed to develop and reinforce the values accepted by the society by creating an appropriate school environment and to develop students' sense of responsibility.	
6	What prevent societies from breaking apart are their cultural values. Because of that I think it is really important for children, who are the future of our world, to grow up with these values and embrace them. This is why we have decided to take part in this project. I reckon that we are going to do impressive works	I personally think that our project has reached its aim of raising well-behaved individuals. With the help of the activities within the framework of our project our students has become more sensitive about environmental issues and the preservation of our moral, national and cultural values. Thanks to the project work that is done at home during quaratine also the awareness of our students' people about our values has as expected increased. By courtesy of our project founders' and partners' constructive approach towards cooperation our project has succeed. I am very happy to be a part of this project.
7	As a result of the rapid development of technology in today's conditions, the increasing pace of life and the rapid race against time, our nature is neglected by all humanity and is increasingly damaged. Children are our future. It is the duty of all educators to raise a high awareness of nature at an early age.	
8	Our values are important for protecting nature and environment. Because the pupils who know their values	Our project has reached its goal in line with the determined targets. The activities in our project

	they are so sensitive to their nature anyway.	greatly contribted to the formation of environmental awareness in our students. Our students participated in the activities of the project with great enthusiasm despite the pandemic process. In addition, our project enabled the development of the concept of values in students to a great extent. I would like to thank our project founders and partners for their help.
9	It is very important form e to be involved in this project based on our valuesAS the proverb "The tree bends when it is wet." Wants to Express, I think that it will be easier to teach many facts and values when they are young, and to raise them at school with such projects. Our children, who are small members of the society, will have a say in the functioning of the society they live in when they grow upFor this reason, it is important fort hem to grow up with values unique to their society. While doing this, it is necessary to give respect and tolerance to different societies in the first place. I wish success and convenience to all participiants in this project, which I think will be very useful.	
10	My school is one of the green school of Italy, we are working on environmental sustainability and recycling. With a famous artist and painter we tried to trasform trash and waste material in works of art.. Everyrthing because the seeds planted today will become trees full of respect for the nature and the world of tomor	

According to the opinions of the teachers in Table 1, at the end of the project, the students' awareness of protecting nature and the environment, their technological skills, creative thinking, problem solving, working together and cooperation skills have developed.

DISCUSSION AND CONCLUSION

According to the opinions of the teachers, it was emphasized that at the end of the project, the students became more sensitive to nature and the environment, and accordingly they became individuals who took care of their environmental values more. It has been observed that students develop basic human characteristics, social relations and sense of responsibility. Parallel to the result of this study, there are some studies showing that environment and nature education have positive effects on students (Özdemir, 2010; Sungurtekin, 2001; Kılıç & İnal, 2010). According to the teachers' opinions, at the end of the project, the students got to know the different cultures of the project partner countries and their communication skills with the students of different countries improved.

Our education system aims to raise individuals who have the knowledge, skills and behaviors integrated in competencies. For this reason, the students were provided to write stories and poems by applying the verbal instructions in the Turkish lesson. Regarding the Theme Acquisitions in the project, the students; They participated in certain days and weeks, club activities, school council works, and took an active role in the decision process in the works related to the project. In this direction, it was observed that the self-confidence development of the students who participated in the group work in the project activities increased. In the studies on the cultural heritage value, in the poster

and picture studies on all values, in the coding activities, the acquisition of creating visual art works from different written sources and concepts by using their imagination was applied. With the musical achievements, the common song of the project was created and sang together. As a result, it was observed that the students' ability to create common products improved. Educational films about Internet Safety, cleanliness, national and moral values were watched and project topics were reinforced. It has been observed that the students have achieved the competence of creating a virtual forest, which is the common product of the Project. At the end of the project, it was seen that the determined goals were achieved. In addition, the teachers stated that at the end of the project, the students gained basic verbal, numerical and scientific reasoning, social skills and aesthetic sensitivity that they would need in daily life.

According to the results we obtained as a result of the applcations in our project, it has been seen that students and their families can be effective in protecting our nature and environment with our social values. Thanks to the activities in our project, it is thought that the values of love, respect, sharing, solidarity, benevolence, tolerance, responsibility, sompassion and environmental awareness are important in order to protect our nature and our environment with the participation of families. With our project, it has been observed that if students are given the opportunity, they can do very good work. The importance of protecting nature and the environment with our values should be emphasized in our schools and more students should be reached. It is also recommended that future studies be conducted with a larger number of students and teachers.

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