

The Effect of Educational Games on Dealing with Shyness of Elementary School Children (7-11 Years Old)

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ABSTRACT The aim of this research is to examine the effect of educational games on dealing with the childhood (7-11) shyness. The research was carried out based on experimental model with pretest-posttest control group as 3x(2) split-plot design. Shyness scale was applied to 440 students in elementary school. 45 students who were decided to experience shyness problem were included in the study. Three educational game groups which are control, individual and team were formed with randomization method. 24 different individual and group education game programs were applied to the children for 12 weeks and twice a week. Obtained data was evaluated with techniques of repetitive measurements MANOVA and Comparison (Bonferonni Correction) test. It was found that educational games are effective to deal with childhood shyness. Team educational games were found to be more effective than individual educational games. This result puts forth that group activities are more effective in dealing with childhood shyness.

1. INTRODUCTION

Being one of the obstructive factors in social interaction, shyness means introversion which is mostly referred to babies, children and adolescents, being circumspect about the foreigners, bashfulness and anxiousness (Buss 1986), restless within people (Jones et al. 1986), timidness, anxiety and an innate personality trait (Asendorpf 2008) and a disorder which affects the social interaction, success of the child, and which may result in major depression and anxiety disorder (Wessely 2008). Shyness which damages the speaking and communication skills in the children (Strand et al. 2011) is a behavior that the child learns based on his/her life (Amico et al. 2004).

Studies prove that shy children are negatively affected by the overprotective attitude of their families (Coplan et al. 2008). Since such families are tend to overprotect their children against

harmful situations from foreign people and they are sad because their children are shy, it is seen that they over control the behaviors of their children. Another reason why families exhibit overprotective behaviors for their children is that they are also shy and they experience social anxiety (Kaitz and Maytal 2005). This type of overprotective attitude causes the children to withdraw in their social interactions and experience increasing shyness problem (Mills and Rubin 1998). According to Barber (1996), some families exhibit over-interfering behaviors. Over-interfering families cause shyness in children by using psychological control techniques such as intruding the emotional worlds of the children, and changing the emotional world, withdrawing love when their desires are not met by their children and blaming them with guiltiness. Another reason why children develop shy behaviors is the problems caused by developmental process. Biological changes such as having pimples on face, non-proportional growth of the body occurring in development process as well as environmental factors cause the children to turn in upon themselves and prevent them from entering into friend and social groups. This situation naturally results in developing shy behaviors (Ford and Lerner 1992).

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1. 1. Theoretical Structure

1. 1. 1. Social Learning Theory

According to Bandura (1977), all learnings emerge by taking others' behaviors as models in social environment. Especially children tend to learn by observing the behavior of adults and imitating the behaviors. The first society the child is affected by is the family and family members with regards to shyness behavior. If there are individuals experiencing such kinds of problems within the family members taken as models, the child may learn by taking such behaviors as model. In the researches, it was observed that the children of shy families generally show shyness symptoms (Gudino and Anna 2010; Volbrecht and Goldsmith 2010), the children with problematic family lives are shy and focus of external supervision and they have low self-respect (Farahati 2011), and cultural features and child raising style of the family cause the children to exhibit shy behaviors (Scott et al. 2011).

1. 1. 2. Shyness in Psychoanalytic Approach

According to psychoanalytic approach, individuals unconsciously experience the desire to draw attention and get approving reactions from those around them. This reaction brings along the arising of the feeling of getting embarrassed or being criticized by the non-approving parents. The individual restrains from situations and environments where he/she considers that he/she cannot be approved by others. This may result in shyness in the children. In addition, separation anxiety and the difference between real self and ideal self create anxiety in the individual and this anxiety results in being shy (Türkçapar 1999).

1. 1. 3. Psychosocial Development Theory

According to the theory, autonomy period between 1 and 3 is a period where independence desire is dominant. Children who are not allowed to explore and impact the objects and events around them develop feelings of shyness and doubt and they become individuals who are not sure of themselves and who live depending on other people (Ersanli 2005).

1. 1. 4. Cognitive, Emotional and Physical Results of Shyness

Shyness causes serious emotional and physical problems in children. Among these problems

are as follows: reduce in social interaction, not being able to meet new people, make new friends, avoiding new lives, quietness (Zimbardo 1977; Xu et al. 2009), restraining in relations, introversion, experiencing difficulty in making an eye contact and blushing (Zimbardo and Radl 1981), feeling bad, low communication competency (Arroyo and Harwood 2011), recalling negative statements about himself/herself more, not finding himself/herself attractive and associating his/her achievements more with external factors (Mash and Wolfe 2005), incapable, cold and insufficient perception in relations, talking little or not being able to start a talk, turning his/her eyes away and using few gestures, choosing to reconcile rather than to argue (Henderson and Zimbardo 1998), being concerned about not being able to succeed and being criticized since their self-respect is low (Cheek and Stahl 1986), more sleeplessness, health problems such as bowel obstruction, thyroid, loneliness, depression, low self-respect (Bell et al. 1993), experiencing problems in in-class responsibilities and failing to fulfill these responsibilities (communication, sharing, participating in non-scheduled social activities, etc.) (Hughes and Coplan 2011).

1. 1. 5. An Effective Method in Dealing With Shyness: Educational Game

The main purpose of helping children in dealing with shyness is to assist children in entering a group of friends developing interaction skills and thereby dealing with shyness. One of the effective methods in gaining such behaviors and dealing with shyness is educational game activities. Game is the most efficient learning process which is intended for a purpose, which is performed with or without rules, in which the child participates intentionally and liking, which is the basis of physical, cognitive, linguistic, emotional and social development and which is a part of real life (Dönmez 1992). It is revealed by meta-analysis that educational games influences learning both changing cognitive processes (Wouters et al. 2013). The child learns how to control his/her feelings, get away from problems, confidence, feel joyful and enjoy and also develops love and favor with game. This is an important contribution for emotional development (Akdere 2004; Kuru 2009). Game teaches the children to deal both with the objects and people in the external world and with the thoughts and feelings

in the inner world (Artar 2004). Game is an efficient way to deal with depression (Boone and Leadbeater 2006) to reduce anxiety (Wipfli et al. 2008), to increase emotional well-being (Fox 1999) and to gain social skills especially for the children (Findlay and Coplan 2008). Games which allows for modeling peers and interacting with other social groups play an important role in character education and social development of children (Shields and Bredemeier 2007) and are effective in providing a healthy physical development, being disciplined and learning to obey the rules. According to Smith (2003), sport makes a positive contribution to social development, obeying rules, learning to cooperate with others and gaining the social communication skills necessary for daily life. When the research results on shy children are analyzed, it is seen that self-respect, valuableness, favor, success and appreciation perceptions are quite low. In this sense, success gained in sportive competitions makes a positive contribution to changing these feelings in children (Slutzky and Simpkins 2009). According to Larson (2000), these sportive activities make a positive contribution to learning truth, discipline honesty as well as gaining a positive physical image and thereby their psychosocial development.

Reinders and Wattana (2015) reported that gameplay had a number of benefits for students in particular in terms of lowering communication anxiety, increased perceived communicative competence. Tajima et al. (2014) developed a massively multiplayer online role playing game training program for alleviating shyness. Results show that training programme has a short term benefit to decrease shyness. Generally sportive activities help to eliminate feeling of shyness by helping them to gain skills to deal with social anxiety and communication skills. With such skills, child both increases his/her success in courses and gains skill to deal with shyness more effectively. The aim of the research is to put forth the effect of educational game studies based on individual and team activities on dealing with shyness of elementary school children (7-11).

2. METHODOLOGY

The research uses a pretest-posttest control group experimental design in order to define the effects of individual and team educational game activities on childhood (7-11) shyness. Depen-

dent variable of the study is shyness. Independent variable of the study is educational games. Independent variable has three conditions. These are individual educational game, educational game with group and no educational game (control group). In this context, the study was performed with 3x(2) split-plot design. First factor indicates three different experimental conditions and second factor indicates time-based measurement (pretest-posttest).

2.1. Study Group

The study group consists of 45 children who were selected as fit for the study in Aksaray central elementary schools in 2010-2011 education year.

2.2. Process of Forming Groups

The following stages were applied to determine the study group of the research:

In the first stage, Shyness Scale, developed by Cheek and Buss (1981) and adapted to Turkish by Güngör (2001) was applied to 440 elementary school students whose ages vary between 9 and 11.

In the second stage, 74 students obtaining the highest scores from the Shyness scale were determined.

In the third stage, one of the requirements for pretest-posttest control group design according to Eckhardt and Ermann is that the design has a subject pool and the subjects selected from the pool are divided into groups with unbiased selection (cited by: Büyüköztürk 2001). 45 students, 27 males and 18 females, who were decided to be shy by interviewing with their families and teachers were included in the subject pool for the study. Students in the subject pool were divided into three groups of 15 and these groups were determined to be individual, team educational game groups and control group by lot (see Table 1).

Table 1: Demographical data of control group, individual and team educational game groups

Groups	Age		Gender	
	N	X	Female	Male
Control group	15	10.10	6	9
Individual	15	10.6	7	8
Team	15	10.2	5	10
Total	45	10.3	18	27

2. 3. Measuring Tool

2. 3. 1. Shyness Scale

Originally developed by Cheek and Buss with 9 items in order to determine the shyness levels of individuals, the scale was then revised to include 13 items by Cheek in 1983. In validity study of the scale, criterion scale method was selected and Social Anxiety Scale was used as criterion scale. As a result, correlation of .77 was found between shyness and social anxiety and .86 between shyness and social anxiety. In addition, the individuals were asked “how problematic is shyness for you?” and a correlation of .68 was found between the obtained replies and shyness scores. In reliability study of the scale, Cronbach’s alpha was calculated as .90 to determine the internal consistency. In order to determine the reliability of the scale, it was applied twice with an interval of 45 days using test-retest method as second method and the correlation between two applications was found as .88. Shyness scale was adapted to Turkish by Güngör (2001) in Turkey and its validity and reliability were carried out. In adaptation studies of the scale, the scale was translated into Turkish as the first step and expert opinion was received to measure whether the statements in this translated scale reflected “shyness” or not. In the second step, 300 university students were asked an open-ended question “In what conditions do you feel yourself shy?” and a list was generated. The items obtained from the answers of the students which are same with or similar to those in shyness scale of Cheek were eliminated and 7 items obtained from the answers of students were added to 13-item scale of Cheek and a new scale of 20 items was formed. Güngör (2001) found the reliability coefficient of the scale as .83 with retest method and Cronbach’s Alpha coefficient as .91 to determine the internal consistency. For the validity of the scale, method of “Convergent Scale Validity” was applied and to this end “Self Evaluation Inventory in Social Situations” was used and the relationship was found as .78. As a result of factor analysis for structure validity, it was concluded that the scale will be evaluated as unidimensional. Shyness scale is a 5-point likert type scale of 20 items which includes statements for emotions and behaviors individuals may exhibit to show how shy they perceive themselves. Shyness scale is scored by giving scores

of “Not Applicable At All” 1 (One), “Not Applicable” 2 (Two) “Indecisive” 3 (Three), “Applicable” 4 (Four) and “Very Applicable” 5 (Five). The highest score which can be obtained is 100 and lowest one is 20. High scores indicates that the individual perceive himself/herself as “shy”.

2. 4. Procedure

2. 4. 1. Preparation Stage

In the first stage, two physical education and sports teachers, two psychological counselors and researchers worked together and prepared 24 educational game activities consisting of various sportive games to help children deal with shyness. Before starting the study, the parents and teachers of the students to be taken into the application were cooperated with and necessary permissions were taken. In addition, a meeting was held with all students in experiment and control groups and they were informed about the aim and duration of the study and activities to be made, and a planning was made. Shyness scale was re-applied to the participants.

2. 4. 2. Application Stage

Individual and team educational games which were prepared were put into practice in company with two physical education and sports teacher and their assistants.

2. 4. 2. 1. Studies for Educational Games

Aims: The aims which will be gained through games based on team activities; increasing social interaction, meeting new people, skill to make friends, gaining and maintaining new lives, making and maintaining effective communications, expressing oneself in a group, developing the feeling of achievement and feeling good, increasing confidence, recognizing positive traits about oneself and using them effectively, gaining the feeling that successes and failures belong to oneself, defending oneself.

Team Study: Study was applied once in a week and two different educational games were played in every application. The applications lasted 90 minutes in average.

Individual Study: The study was performed personally for each individual once in a week and two different educational games were played in

each application. The study took about 50 minutes in total, 25 minutes for each educational games.

Application Process: The participants and educators met on the day and at the time determined in the gym. The educators made the necessary explanations about the games before starting. The educators paid attention to the participation of each member to the activities and helped them for the games as necessary. At the end of activities, the researcher and children met and evaluated the activities and gainings about the shyness were shared.

No study was made about the control group in the application stage.

2. 4. 3. Last Stage

At the end of applications, individual, team and control groups were reunited and Shyness scale applied at the beginning was reapplied as posttest. The participants were told that they would interview at any time they want and the study was ended. Research Design is presented in Table 2.

2. 5. Data Processing

Firstly, homogeneity test was applied to pretest posttest descriptive scores of the groups to evaluate the data in the research. At the end of the test, it was seen that the results were homogeneous. To determine the difference between pretest posttest results of the groups in the study, properly repeated measurements for 3x(2) designs were applied with MANOVA technique and Comparison (Bonferonni Correction) test. In order to materialize the results obtained, the data is also shown as figures. In the study, SPSS 16.0 statistic package program was used for the statistical methods.

3. FINDINGS

The shyness pretest posttest results of Control group, Individual and Team Educational

Game Groups are given in Table 3. It is seen that the shyness pretest averages of the groups were close before starting the study, shyness average of Individual Educational Game Group and Team Educational Game Group decreased according to the posttest carried out at the end of study and there is no significant change in average of Control Group. Statistical results regarding the fact that the difference emerging in the posttests of Individual Educational Game Group and Team Educational Game Groups is significant or not is given in Table 4.

Table 3: Averages and standard deviations of shyness scores of individuals in experiment and control groups

	Groups	\bar{X}	S.d.	N
Pretest	Control	82.06	4.09	15
	Individual	80.80	7.61	15
	Team	81.20	6.21	15
	Total	81.35	6.03	45
Posttest	Control	80.26	5.96	15
	Individual	54.33	8.87	15
	Team	43.80	4.50	15
	Total	59.46	6.44	45

When Table 4 is analyzed, there are significant differences in the shyness levels of students participating in experiential group educational game program before and after the experiment when compared with the control group. This finding shows that participating in individual and group educational activities is effective in reducing the shyness level. According to the Table, the shyness levels of children participating in the games differ based on the individual or in-group application of the educational games. It was found that the common effects of repetitive measurement factors were significant in decreasing the level of shyness [$F_{(2,42)}=858.33, P<.001$] by performing the games individually and with groups. The results of Dual Comparison (Bonferonni Correction) test performed to determine from which group this difference resulted from were given in Table 5.

When the results in Table 3 and Bonferonni correction comparison results in Table 5 are ex-

Table 2: Research design

Groups	Pretest	Procedure	Posttest
Ind. Educational Game Group	1-Shyness Scale	24 individual educational game activities	1-Shyness Scale
Team Educational Game Group	1-Shyness Scale	24 team educational game activities	1-Shyness Scale
Control Group	1-Shyness Scale	-	1-Shyness Scale

Table 4: Repeated measurements MANOVA results for shyness pretest-posttest scores of individual educational, team educational game groups and control group

Source of variance	<i>KT</i>	<i>Df</i>	<i>KO</i>	<i>F</i>	<i>P</i>
Intergroup	11713.62	44			
Groups(Individual/Team/Control)	8432.08	2	4216.04	53.96	.000
Error		3381.53	42	78.13	
Intragroup	20209.5	45			
Measurement(Pretest-Posttest)	12133.61	1	12133.61	2642.30	.000
Group*Measurement	7883.02	2	3941.51	858.33	.000
Error	192.02	42	4.59		
Total	31923.12	59			

Table 5: Results of Comparison (Bonferonni Correction) Test for Shyness pretest-posttest score averages of individual and team educational game groups and control group educational game group

<i>Bonferonni test results</i>							
		<i>Individual</i>		<i>Team</i>		<i>Control</i>	
		<i>Pretest average difference (I-J)</i>	<i>Posttest average difference (I-J)</i>	<i>Pretest average difference (I-J)</i>	<i>Posttest average difference (I-J)</i>	<i>Pretest average difference (I-J)</i>	<i>Posttest average difference (I-J)</i>
<i>Individual</i>	Pretest	-	22.95*	6.17	13.46*	4.36	22.27*
	Posttest	-	-	-	26.47*	-	37.74*
<i>Team</i>	Pretest	4.55	-13.46*	-	29.12*	5.42	27.24*
	Posttest	33.46*	-26.47*	-	-	27.24*	35.41*
<i>Control</i>	Pretest	-4.36	-	4.22	-	-	1.04
	Posttest	-	-	-	-	2.01	1.47

amined, it is seen that the difference between score averages obtained from pretest measurement of Individual educational game group ($\bar{X}=80.80$) and posttest score averages ($\bar{X}=54.33$) is significant ($p<.001$). Similarly, it is seen that the difference between score averages obtained from individual educational game group posttest measurement ($\bar{X}=54.33$) and Control group posttest score averages ($\bar{X}=80.26$) is significant ($p<.001$). Accordingly, it can be said that individual educational game activities are effective in dealing with childhood shyness.

When the results in Table 3 and Bonferonni correction comparison results in Table 5 are examined, it is seen that the difference between score averages obtained from pretest measurement of team educational game group ($\bar{X}=81.20$) and posttest score averages ($\bar{X}=43.80$) is significant ($p<.001$). Similarly, it is seen that the difference between score averages obtained from team educational game group posttest measurement ($\bar{X}=43.80$) and Control group posttest score averages ($\bar{X}=80.26$) is significant ($p<.001$). Accord-

ingly, it can be said that team educational game activities are effective in dealing with childhood shyness.

When the results in Table 3 and Bonferonni correction comparison results in Table 5 are examined, it is seen that the difference between score averages obtained from posttest measurement of individual educational game group ($\bar{X}=54.33$) and score averages obtained from posttest measurement of team educational game group ($\bar{X}=43.80$) is significant ($p<.001$). Accordingly, it can be said that team educational game activities are more effective in dealing with childhood shyness when compared to individual educational game activities.

While shyness scores of all groups were the same in pretest, levels of posttest carried out at the end of study differ in Figure 1. It is seen that most change occurred in Team Educational Game group, there was less change in Individual Educational Game group than team educational game group and there was no such change in Control group. When this situation in Figure 1 is ana-

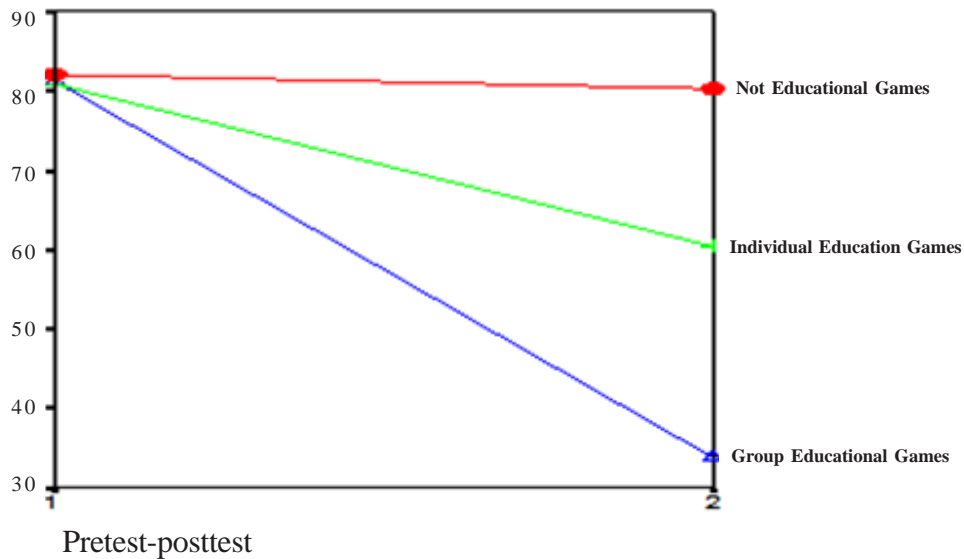


Fig. 1. No educational game, individual and group's pretest-posttest levels

lyzed, it can be said that educational games performed in teams is more effective in decreasing the shyness of the children.

4. DISCUSSION

Shyness is one of the problems which affect the emotional and social developments of the children. When the studies are examined, although there biological tendency is important, it is seen that shyness is basically a learned behavior. Eliminating wrong learning, belief and thoughts, psycho-training programs for gaining social skills, sports and game activities consisting of various social interactions are effective assistance skills in dealing with shyness.

In this study, it was aimed to put forth the effect of educational games on childhood shyness. In this experimental study, shyness levels of children participating in educational game activities decreased by a significant level when compared the ones who did not participate. This result proves that educational games are an effective method to deal with shyness by increasing social skills of children.

Studies prove that doing sports is a significantly effective way to heal mental health, especially to decrease depression and anxiety. It was concluded that doing regular sports decreases depression level (Boone and Leadbeater 2006),

increases self-respect (McHale et al. 2005) and subjective wellbeing (Fox 1999), decreases shyness by increasing social skills (Hasdemir 2005; Kozanoglu 2006; Yildirim 2006; Arroyo and Harwood 2011), is effective in decreasing anxiety (Wipfli et al. 2008). It was seen in an experimental study that shyness levels differ in experimental group doing sports when compared to control group, shyness levels of children participating in game activities decrease and social skills increase, in addition game creates a protective effect for shyness (Findlay and Coplan 2008). The present research findings are in line with literature findings. It was found that the Students' shyness level can be reduced with the help of individual and team educational game groups.

In the study, it was found that team educational games are more effective in dealing with shyness. It can be said that the reason of this difference is that there are more interaction, more sharing and more self-expressive behaviors between the individuals in group study. Group activities enable the children of the same age to deal with shyness by interacting with each other. When the researches on the obtained result are examined, it was seen that sport activities in teams are more effective in dealing with anxiety than not doing sports and individual sport activities (Polvi and Telama 2000; Smith 2003; Schumacher and Seiler 2011), extracurricular team sport

activities have a positive effect on decreasing anxiety resulting from social interactions of children (Dimech and Seiler 2011); in a study on victims of peer bullying, it was seen children who participate in team sports activities experience serious decrease in depression levels and outlook of the depression when compared to those who do not (Perron et al. 2012). This findings support the result of the study.

5. CONCLUSION

As a result of the research, it was found that the individual and team educational game group were effective in reducing the level of shyness. As a result, as parallel to the existing literature, when compared to the students in individual educational game group, further decline was observed in the shyness level of the students in team educational game group. In the light of this information, it was concluded that the team educational game group was more effective than the individual educational game group in reducing the students' level of shyness.

6. RECOMMENDATIONS

Consequentially, educational games, especially the ones played in teams, have a supportive and protective effect in their physical and mental developments to deal with shyness. Based on all studies, the following can help the children to deal with their shyness problems;

1. Initial family and friend support for the shyness,
2. Social skill education programs to develop their social skills,
3. Therapies such as Reality and Cognitive-Behavioral,
4. Informative studies about the shyness situations,
5. Various competitions, cultural activities based on in-group interaction,

These will help the children to deal with shyness.

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