

The Analysis of Decision Making Behaviors and Perceived Problem Solving Skills in Adolescents

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Abstract

The aim of the study is to analyze decisional self-esteem, decisional stress and perceived problem-solving skills of secondary education students and to find out whether there is a significant difference in adolescent's decision-making behaviors, and problem-solving skills from the aspect of some socio-demographic variables (gender, age, school type and education level of the parents). For this purpose, 498 subjects (273 female, 255 male) from secondary education students were given The Scale of Decision Making Behaviors (Radford, Mann, Ohta and Nakane, 1993) and Problem-Solving Inventory (Heppner and Petersen, 1982).

According to the findings of the study, significant differences were observed among male and female adolescents considering decisional self-esteem and decisional stress, but on the other hand, no difference was observed when their perceived problem-solving skills were considered. Gender and school type were found to be as effective variables on the behaviors of decision-making and also the school type and the education level the mothers were found to be as effective variables on perceived problem-solving skills. The study has indicated that students from private schools are more skillful in cognitive processes such as decision-making and problem-solving than the students from Anatolian high-schools and State-high schools.

Key Words: *Adolescents, decision-making and perceived problem solving skills.*

A considerable part of the role and functions of citizens in democratic societies consists of critical thinking, discussion of opinions, problem solving, and decision-making skills. In order to be functional, trained citizens of the 21st century must be able to find logical solutions to the problems they face and they also must be able to give effective decisions. The skills of decision-making and problem solving are not only the results of development and socialization, but also inevitable processes that go on throughout the life of an individual. Modern education systems aim to develop the competency to approach problems with responsibility and make the right decision about the solutions.

A school, which is an institution of socialization, is the best place where the new generations can be taught the skills of problem solving and effective decision-making. Researchers in this field point out that it would be too late to wait for the adulthood in order to give critical decisions about the type of education, job selection and social issues. Instead, adolescence would be the best time to teach the habits of giving decisions freely and in a responsible manner (Mann, Harmoni and Power, 1988). McCandless and Coop (1979) claim that it is difficult to learn how to give effective decisions and that it takes a long time. However, these are the most important skills expected from adolescents.

Adolescence, the turning point at the transitional stage of life prior to full maturity, results from the rapid changes in the physical, cognitive, social, and emotional development. According to Schvaneveldt and Adams (1983), this is a period of development, but it is a period with limited experiences in terms of cognitive processes of decision-making and problem solving skills. During childhood, almost all decisions are given for them by adults. In the second decade of life, it is believed that they are either not ready or too inexperienced to carry such responsibility.

It is believed that adolescents need to be protected and that they need to be kept under control in cognitive processes such as decision-making. They are especially not encouraged to give important decisions about their lives. In fact, they are not given the opportunity to do so. In cases where they are given the responsibility to make decisions, they are provided with too little support and help. Therefore, they mostly develop the habit of not being able to give effective decisions, which they carry with them to adulthood. As a result, many adolescents may take faulty decisions, which will affect their future. They may drop out of school to earn their life as soon as possible, but with a rather limited point of view of academic and occupational orientations.

Mann (1989) points out that there are considerable changes in the development of decision making skills in adolescence. These include the changes in applying cognitive processes in decision making, considering the

targets that can be reached, revising information at hand reasonable, thinking of the possible consequences of decisions, and being faithful to the decisions given. Studies on decision-making and problem solving have reported that such skills develop based on age and that some cognitive processes can be learned.

The processes of decision-making and problem solving appear conceptually similar, and both processes have been characterized as complex processes in which an individual identifies and evaluates several alternative courses of action and selects an alternative for the purpose of implementation (Phillips, Paziienza and Ferrin, 1984). The process of decision making, consists of cognitive processes such as solving problems setting goals, and evaluating alternative actions.

D’Zurilla and Nezu (1987) regard decision making as a stage of problem solving process. They point out that solving problems consists of the following stages:

1. Facing the problem,
2. Identifying the problem,
3. Generating alternatives for the solution,
4. Making decisions considering the possible consequences of the alternative courses of action, and
5. Implementing the decisions and evaluating the possible consequences.

The aim in making decisions is to evaluate the solutions that could be realized and to attain positive results by implementing them. According to Charles and Morris (200), making decision is a special type of solving problems the possible solutions of which are already known. Therefore, the aim is not that best fits with our goals basing the pre-determined criteria. The more the criteria and choices are the harder it becomes to decide.

In general, making decisions involves identifying the goals for the purpose of meeting the need gathering the necessary information related to the goals and forming alternatives by considering and evaluation such information, and selecting the one that best fits with our goals. Janis and Mann (1977) state that there is a set of processes that follow each other in decision-making and that effective decisions are the results of such processes. These are as follow:

1. Identifying problems,
2. Generating alternatives,
3. Considering the possible consequences of every decision,
4. Gathering information so as to be able to evaluate the alternatives better,
5. Evaluating the data that relate to the alternatives,
6. Identifying the suitable alternative
7. Implementing the decision given and evaluating the consequences by making the necessary plans.

When an individual considers the above mentioned processes in the process of making a decision, Janis and Mann (1977) state that this behavior is a vigilant information processing. They point out that the stress experienced in decision-making process directly influences the decision-making behavior and that there is an increase in stress when the possible risks are considered after the decision given. This, in turn, causes an individual to give less vigilant or inappropriate decisions. When the risks are not conceived or neglected, the alternatives might not be evaluated sufficiently and this will cause an individual to give inappropriate decisions. Stress at middle level most probably results in more vigilant decisions.

Patterns of coping with stress experienced in decision-making are different styles of making decisions. These patterns can be grouped under two main categories: Vigilant and non-vigilant. The vigilant type is considered to be adaptive, whereas the non-vigilant is maladaptive (neurotic). An individual who handles a problem carefully in decision making evaluates the alternative courses of action, generates alternatives, selects the one that most fits the situation and implements it. It is pointed out that such a kind of making decisions is related to appropriate problem-solving skills and high self-esteem (Phillips, Paziienza and Ferrin, 1984; Mann, Harmoni and Power, 1989; Radford, Mann, Ohta and Nakane, 1991; Friedman and Mann, 1993; Radford et al., 1993).

Decisions made in adolescence have life-long impact on the individual’s health, psychological well-being, job and acceptance into society (Ersever, 1996). The decisions made in adolescence may generate suitable conditions for life or else they impose limitations on the conditions (Mann, et al., 1989). Psychological counseling, which aims to facilitate giving suitable decisions, solving problems effectively, and choosing

reasonable alternatives, supports the research efforts exerted to study the factors that affect an individual's skills of solving problems and giving effective decisions.

Decision-making and problem-solving skills have been studied in the literature of the West for some time. It could be said that such empirical studies on adolescent's skills in making decision and solving problems are rather recent in Turkey. Decision-making is one the subjects most frequently studied in administrative sciences, industrial psychology, and psychological counseling. In spite of the awareness of the importance of making decisions and solving problems, the processes of making decisions, especially those of adolescents, have not been widely studied.

There are many studies on the impacts of personal characteristics and socio-demographic ones in solving problems and making decisions (Heppner, Hibel, Neal, Weinstein and Rabinowitz, 1982; Brown and Mann, 1991; Naftel and Driscoll, 1993; Eldeleklioglu, 1996). However, most of the information about such effects comes from western literature. Although Turkey is culturally and socially different from those countries, we might expect to find similar findings on this subject in Turkey. We might also expect Turkish adolescents to display different developmental features basing on the differences of family structures, ways of child raising, education systems and school types (Anatolian high schools, state high schools and private high schools), and socio-economic status. This study attempts to investigate whether decisional behaviors might vary in some demographic variables. It is hoped that the results of this study will provide practical and objective data on the development decision-making and problem-solving skills of the new generations, which is the main aim of modern education.

Purpose

This study investigates the high school students' (aged 15-18) decision-making behaviors and problem-solving skills, which are indicators of psychological development of human beings. This study aims to study the relationship of these qualities to socio-demographic variables such as gender, age, school type, and the level of education of parents. This preliminary study aims to identify the factors that affect the cognitive process of Turkish adolescents.

Method

Subjects

The data in this study were gathered from the first-year classes (n=199; 40%), second-year classes (n=201; 41%) and third-year classes (n=98; 19%) of the high schools in Adana and Mersin. The subjects were selected by means of clustered random sampling and consisted of three state high schools, two Anatolian high schools, and two private high schools. There were 156 (31.3%) students from Anatolian high schools, 239 (48%) students from state high schools, and 103 (20.7%) students from private high schools. Out of the 498 subjects, 273 (54.82%) were females and 225 (45.18%) were males. Of these students, 76 (15.3%) were 15, 177 (35.5%) were 16, 174 (34.9%) were 17, and 71 (14.3%) were 18 years old. When we look at the education level of their parents, we see that 72 (14.5%) mothers and 15 fathers are illiterate. Almost half of the mothers (n=228; 45.7%) and fathers (n=204; 41%) are graduates of primary schools. Some of the mothers (n=137; 27.5%) and fathers (n=148; 29.7%) are graduates of high schools. The number of mothers who are graduate of colleges or universities is 61 (12.2%); whereas, the number of fathers who are graduate of colleges or universities is 131 (26.3%).

Instruments

The instruments used in this study are Personal Information Form, Decision Behaviors Questionnaire (DBQ), and Problem Solving Inventory (PSI).

Personal Information Form: The researcher prepared a list of questions to gather information about the socio-demographic characteristics of the students. The questions aimed to elicit answers about the student's age, gender, type of school, and parents' education level.

Decision Behavior Questionnaire (DBQ): DBQ was developed by Radford et al. (1993) for their study. The DBQ included three sections: Decisional Self-Esteem (6 items) (self-esteem as a decision maker), Decisional Stress (10 items) (degree of stress or anxiety that is normally aroused by having to make a decision), and Decision Response Styles (24 items) (the way in which a person normally makes a decision). In its original form, this scale used a three –category response system; however, as a result of a pilot study that uses all sections of DBQ, a four- category response system was adapted (3: almost always true, 2: often true, 1: sometimes true, and 0; not at all true). In this research was used Decisional Self-Esteem and Decisional Stress Scales.

Decisional Self-Esteem Subscale was adapted Decision Making Questionnaire I (DMQ I) developed by Mann (1982), The Cronbach alpha coefficient for this scale was $.77$ ($n=950$). Decisional Stress Subscale was adapted from the State-Trait Anxiety Inventory (STAI) developed by Spielberger and colleagues (1970). The Cronbach alpha coefficient for this scale was $.82$ ($n=950$).

DBQ was adapted in Turkish by Güçray (1996). The data related to DBQ showed that it was a reliable and valid instrument in Turkish adolescent sample ($N=800$). Concurrent validity, variability of its subscales according to gender and age, test-re-test reliability and internal consistency of DBQ were investigated. The Cronbach alpha coefficients for DBQ Subscales were as follows: Decisional Self-Esteem $.74$; Decisional Stress $.72$. Test-re-test correlations (three week interval) for these are $.66$ and $.88$. The results suggested that the Turkish version of the DBQ could be used as an assessment instrument in researches.

The Problem Solving Inventory (PSI): PSI was developed by Heppner and Petersen (1982) to measure people's perceptions of their personal problem solving behaviors and attitudes. The PSI is composed of thirty-two 6-point Likert-type items, ranging from strongly agree (1) to strongly disagree (6). Lower scores indicate assessment of oneself as a relatively effective problem solver, whereas higher scores indicate assessment of oneself as a relatively ineffective problem solver. The PSI is a self-rating questionnaire, and this information should not be considered synonymous with actual problem-solving skills.

An earlier factor analysis revealed that three distinct constructs: Problem solving confidence (11 items) (trust in one's ability to solve new problems), approach-avoidance style (16 items) (active searching for a variety of alternative solutions and reviewing of previous problem-solving efforts for future reference) and personal control (5 items) (ability to maintain self-control in problem situations) Reliability estimates revealed that the constructs were internally consistent ($.72$ to $.90$) and stable over time ($.83$ to $.89$) (Heppner & Petersen, 1982). The PSI has been used in variety of studies, which have served to provide evidence of its validity.

The reliability analyses of the Turkish version of the PSI showed the instrument to have satisfactory reliability. An estimate of internal consistency (Cronbach's alpha) revealed alpha coefficients of $.88$ for the total inventory, and $.76$, $.78$, and $.69$ for the three factors (Problem-Solving Confidence, Approach-Avoidance, and Personal Control). The inter-item correlations within the scales ranged between $-.46$ and $.52$. Split-half reliability coefficient is $.81$. Pearson product-moment correlations revealed that the total PSI score was statistically significantly correlated with the Beck Depression Inventory (BDI), $r(222)=.33$, $p<.001$, and the STAI-T, $r(222)=.45$, $p<.001$. The discriminative validity of the PSI was initially explored by creating extreme groups on BDI, STAI-T, and PSI scores.

Procedure

In cooperation with the school directors, the subjects and date of the application of the questionnaire were determined. The participants were informed about the study on pre-determined days and hours. The volunteers were given Personal Information Form, Decision Making Questionnaire and Problem-Solving Inventory booklet. The subjects were illuminated on the points, which should be paid attention while answering questions and they were ensured that all their answers will be kept confidential. They were allotted 25 or 30 minutes to answer the questionnaire. Since the study aimed at making a general evaluation on adolescents, no analysis of classification was carried out. Instead the total scores of PSI, which has subscales, was taken into consideration.

Results

SPSS (version 9.0) was used to analyze the data from the Personal Information Form, DBQ, and PSI. The means and standard deviations of the raw scores that the students received from the scales (Decisional Self-Esteem, Decisional Stress and Perceived Problem-Solving Skills) were calculated. Based on the gender, age, type of school and the level of education of parents, the means and standard deviations were calculated for each dependent variable (decision-making and perceived problem-solving skills). "t" test was used to find out the statistical significance of the differences among the groups' mean scores. One-way ANOVA was used in groups more than two. In cases where the difference of means was statistically significant, Tukey test – one of the post-hoc tests – was used to identify among which groups the difference was. When the mean scores were calculated, we saw that DSE mean was 12.33 (S: 2.95), DS mean was 11.76 (S: 5.49) and PSI total score mean was 88.14 (S: 20.26). The highest score for DSE was 18, for DS 30, and for PSI 192. Students mean scores and standard deviations according to sex, age, type of school and education level of the parents have been shown in Table 1.

Table 1

Means and Standard Deviations of the Scores of DSE, DS and PSI Based on the Gender, Age, School Type, and the Education Level of Parents of the Subjects.

VARIABLES	n	DSE		DS		PSI	
		\bar{X}	S	\bar{X}	S	\bar{X}	S
GENDER							
Female	273	12.08	3.00	12.85	5.57	87.22	20.04
Male	225	12.64	2.86	10.48	5.11	89.25	20.51
AGE							
18	71	12.39	2.74	11.68	5.08	88.92	20.52
17	174	12.36	3.07	11.60	5.88	87.07	21.13
16	177	12.30	3.06	11.91	5.56	87.65	19.59
15	76	12.28	2.64	11.94	4.81	91.00	19.58
TYPE of SCHOOL							
State High Sch.	239	12.13	2.73	12.45	5.33	93.49	18.73
Private High S.	103	13.243.09	9.86	5.84	80.48	20.09	
Anatolian H. S.	156	12.05	3.09	12.00	5.28	85.01	20.46
EDUCATION LEVELS of MOTHERS							
Illiterate	72	12.10	2.79	11.97	4.94	93.18	20.58
Primary	172	12.10	2.72	12.26	5.28	89.46	18.75
Secondary Sch.	56	12.55	3.37	11.91	6.61	85.76	22.34
High School	137	12.40	3.02	11.73	5.38	86.53	20.85
College/Univ.	67	12.923.20	10.16	5.68	84.28	19.78	
EDUCATION LEVELS of FATHERS							
Illiterate	15	12.47	2.62	12.20	4.28	92.63	16.46
Primary	138	12.17	2.92	12.00	5.51	91.65	20.86
Secondary Sch.	66	12.62	3.15	10.97	5.36	85.98	18.12
High School	148	12.18	2.89	12.16	5.43	87.30	20.12
College/Univ.	131	12.533.01	11.46	5.49	85.97	20.88	
TOTAL	498	12.33	2.95	11.78	5.49	88.14	20.26

When we analyze the results in Table 1, we see that female students have a higher mean score of decisional self-esteem ($\bar{X} = 12.85$) than male students ($\bar{X} = 10.48$). Concerning self-esteem in decision making, however, both groups have closer means ($\bar{X} = 12.08$; $\bar{X} = 12.64$). PSI mean of the female students in problem solving is 87.22 while that of males is 89.25. "t" test was used to see whether the differences between sexes were statistically significant. The analyses indicated that adolescent male students had a higher level of self-esteem ($t_{1,96} = 2.08, p < .05$), than female students, and that their level of stress was lower than that of the female students ($t_{3,29} = 4.91, p < .000$). There was not a statistically significant difference between them concerning their perception of problem solving skills ($t_{3,00} = 1.12, p > .05$).

When we look at the DSE scores based on age, we see that 18 year-olds have the highest mean ($\bar{X} = 12.39$) and that 15 year-olds have the lowest ($\bar{X} = 12.28$). One-way ANOVA analysis indicated that there was not a statistically significant difference among the age groups ($F_{2,38} = .03, p > .05$). When we look at the DS mean scores, we see that 15 year-olds have the highest score ($\bar{X} = 11.94$) and that the 17 year-olds have the lowest ($\bar{X} = 11.60$). Analyses showed that there was not a statistically significant difference of decisional self-esteem among age groups ($F_{2,38} = .13, p > .05$). Concerning the perceived problem solving skills, 15 year-olds have the highest mean ($\bar{X} = 91.00$) while 17 year-olds have the lowest ($\bar{X} = 87.07$). Analysis of variance indicated that there was not a statistically significant difference ($F_{2,38} = .74, p > .05$).

The mean scores that the adolescents received based on the type of schools that they attended are as follows: State high schools, Anatolian high schools, and private high schools. The students in Anatolian high schools have the lowest DSE mean scores ($\bar{X} = 12.05$) while those in private schools have the highest ($\bar{X} = 13.24$). One-way ANOVA indicated that there was a statistically significant difference between the groups ($F_{3,83} = 6.33, p < .002$). Tukey test indicated that the students in private high schools had a higher DSE mean ($\bar{X} = 13.24$) than those in Anatolian high schools ($\bar{X} = 12.05$) and those in state high schools ($\bar{X} = 12.13$). The result shows that students in private schools are more self-esteemed in decision-making.

When we look at the DS score means of the students according to the type of school they attend, we see that those in private schools have the lowest ($\bar{X} = 9.86$) level of decisional stress and that those in state schools have the highest ($\bar{X} = 12.45$). Analysis of variance indicated that the result was statistically significant ($F_{3,83} = 8.44, p < .000$). Tukey test indicated that the students in state high schools ($\bar{X} = 12.45$) and in Anatolian high schools ($\bar{X} = 12.00$) had a higher decisional stress mean score than those in private high schools ($\bar{X} = 9.86$). This result indicates that the students in private schools feel less stressful in situations decision-making than the others. Concerning the PSI scores based on the types of schools, students in state high schools had the highest PSI mean ($\bar{X} = 93.49$) while those in private schools had the lowest ($\bar{X} = 80.48$). Analysis of variance indicated that the result was statistically significant ($F_{3,83} = 18.81, p < .000$). Tukey test indicated that students in state high schools had higher PSI mean score ($\bar{X} = 93.49$) than those in private high schools ($\bar{X} = 80.48$) and Anatolian high schools ($\bar{X} = 85.01$). (Higher scores point to the incompetence of perception in problem solving). This result indicates that students attending state high schools have lower level of perception of competency in problem solving than the others.

The changes in DSE, DS and PSI scores of the adolescent based on the education level of their parents have been analyzed. When we analyze DSE mean scores, we see that those whose parents are either illiterate ($\bar{X} = 12.10$) or graduate of primary school ($\bar{X} = 21.11$) have the lowest mean while those whose parents are graduates of colleges/universities have the highest ($\bar{X} = 12.92$). One way ANOVA indicated that there was not a statistically significant difference among the groups ($F_{2,23} = 1.08, p > .05$). When we analyze DS mean scores of groups, we see that there is not a statistically significant difference among the means of the groups ($F_{2,23} = 1.69, p > .05$).

When we analyze the PSI mean scores based on the education levels of the mothers, we find out that the students whose mothers are illiterate have the highest mean ($\bar{X} = 93.18$) while those whose mothers are graduates of colleges/universities have the lowest ($\bar{X} = 84.28$). When we look at the PSI scores based on the education level of the mothers, we observe that the higher the level of education the higher the level of competence of the adolescents in problem solving. Analysis of variance indicated that the result was statistically significant ($F_{2,23} = 2.29, p < .05$). Tukey test showed that students with illiterate mothers have a higher PSI mean score ($\bar{X} = 93.18$) than those with colleges/university graduates ($\bar{X} = 84.28$). This result point out that the students whose mothers are illiterate have lower level of competence in problem solving skills than those whose mothers are graduates of colleges/universities.

When we analyze the DSE mean scores of the students based on the levels of education of their fathers, we see that those whose fathers are graduates of colleges/universities have the highest mean ($\bar{X} = 12.53$) while those whose fathers are graduates of primary schools ($\bar{X} = 12.17$). One-way analysis of variance indicated that there was not a statistically significant difference between the groups ($F_{2,23} = .72, p > .05$). When we analyze the DS means scores, we find out that the students whose fathers are illiterate have the highest mean ($\bar{X} = 12.20$) while those whose fathers are graduates of secondary schools (equals to K-12) have the lowest ($\bar{X} = 10.97$). Analysis of variance indicated that the result was not statistically significant ($F_{2,23} = .73, p > .05$).

When we analyze mean scores of perceived problem solving skills based on the education level of the fathers, we observed that those with illiterate fathers have the highest mean PSI ($\bar{X} = 92.63$) while those with graduates of colleges/universities have the lowest ($\bar{X} = 85.97$). Analysis of variance indicated that the result was not statistically significant ($F_{2,23} = 1.86, p > .05$).

Discussion

The results of socio-demographic variables showed that variables of gender, age, type of school and education level of parents were related to the variables of decisional self-esteem and perceived problem solving skills. A significant difference was observed between male and female adolescents. In terms of decisional self-esteem and stress, it was observed that male adolescents had more self-esteem and that they experienced less stress in decision making than female adolescents. Female adolescents are less self-esteemed in decision-making and they feel more stressful. This finding confirms that O'Hare and Beutells (1987). They state that male adolescents consider themselves to have more control over decision-making, whereas, female adolescents do not. The result confirms that of Radford et al (1993) with Australia and Japanese adolescents and that of Friedman and Mann (1993) with Australia and Israelee adolescents.

In terms of perceived problem solving skills no significant difference was found among Turkish female and male adolescents. Male adolescents were observed to have higher perceived problem solving skills; however, the difference was not statistically significant. This result is in line with the findings of the study by Şahin, Şahin and Heppner (1993) on Turkish university students. Şahin et al. (1993) interpreted this result as a reflection of positive self-concept of selected female students attending a university in a traditional society. Recent studies (Paulsen and Johnson, 1984; Miller and Crouch, 1990) challenge the traditional views that favor males and emphasize the differences of gender in cognitive processes. It is claimed that the difference in gender limits and/or decreases the performance in some kinds of problems. There wasn't a significant difference of decisional self-esteem, decisional stress and perceived problem solving skills among 15 and 18 year olds. The cognitive processes such as decision-making and problem solving change depending on age and cognitive development (Schvaneveldt and Adams, 1983). When this finding is evaluated considering the age limits in adolescence, we could say that 15 and 18 year olds display similar features in decisional self-esteem, experiences of stress and perceived problem solving skills. That situation can be explained by the fact that the study is limited to the age range of 15-18. This finding, however, does not confirm that of Friedman and Mann (1993) who claim that older adolescents are more self-esteem in making decisions. Mann, Harmoni, Power and Beswick (1986) state that low self-esteem in adolescents prevents them from using the limited opportunities that they were given. They also state that adolescents may develop negative and even humiliating attitudes towards the possibilities which may effect their important decisions and that they may also display indifferent attitudes as well. They claim that this attitude of the individual is a defensive reaction or a trick to mask the stress the individual is experiencing in decision-making.

Considering secondary education high schools differ in that they are private or state and in that they admit students by means of an exam. Basing on the idea that the differences in the profiles of students in both the state and private schools in our country might be reflected in their behaviors, we have taken school type as a variable. Considering the school types, the adolescents attending private high-schools have more decisional self-esteem, feel less decisional stress, and they have higher perceived problem solving skills than those attending Anatolian and state high schools. In the other words, adolescents attending state high schools do not have as much decisional self-esteem and many perceived problem solving skills as the others. The results of the study do not confirm the expectation that the students in Anatolian high schools would have more positive cognitive features in terms of decisional self-esteem and perceived problem solving skills as they were admitted to those schools by passing an exam. Ball, Mann and Stamm (1994) found out that intellectually gifted children were quik in decision-making, used logical and appropriate decision-making strategies, and had high decisional self-esteem. Although students in Anatolian high schools are better in decisional self-esteem and perceived problem solving skills than those in state high schools, their scores are lower than those of students in private high schools, This result is debatable.

This finding of the study can be explained by the social environment of the students and the features of their schools. Janis and Mann (1977) claim that the high or low level of psychological stress resulting from threats to self-confidence has a negative impact on decision-making and causes incompetent decisions in the end. The results of the study revealed that the stress levels of the students in Anatolian and state high schools were considerably high compared with the low stress levels of the students in private high schools. It may be thought that this situation is related to the socio-economic conditions of the students from private high schools. When we look at the profiles of the students in Anatolian high schools we see that most of these students are children of civil servants and professionals. The families of the private high school students are mostly from upper class who are either professionals or farmers who have lands at the same time.

It was found out that parents'level of education was not an effective variable in decision-making. This finding is in contrast with the finding of Mann et al (1989) and Brown and Mann (1993), who put forward that the functions and structures of family have an impact on the behaviors of adolescents in making decisions. The

level of education of mothers, however, was found to vary in perceived problem-solving skills. This result is in line with the findings of Temper and Fashbeck (1982,cf: Schvaneveldt and Adams, 1983), who found out that the attitudes and behaviors of adolescents were similar to those of their mothers' than to those of their fathers'.

In this study, it has been observed that type of school is an effective variable in decisional self-esteem and stress in decision-making; and from the aspect of perceived problem solving it has also been seen that type of school and the education level of the mother are important variables. Gender differences play an important role in the behaviors of decision-making but it has no function on personal perceptions related to problem-solving skills. This result is in line with the findings of some other studies (Paulsen and Johnson, 1984; Miller and Crouch, 1990; Şahin et al, 1993). It was also found out the students in private high schools were at a higher level in cognitive processes such as decision making and problem solving than those in Anatolian high schools and state high schools.

References

- Ball, C., Mann, L. & Stamm, C. (1994). Decision-making abilities of intellectually gifted and non-gifted children. *Australian Journal of Psychology*, 46(1), 13-20.
- Brown, Y. E. & Mann, L. (1991). Decision making competence and self-esteem: A comparison of parents and adolescents. *Journal of Adolescence*, 14(4), 363-371.
- Charles, G. M. (2002). *Psikolojiyi Anlamak (Psikolojiye Giriş)*. Çev. Ed: H. Belgin Ayvaşık, Melike Sayıl. Ankara. Publications of the Turkish Psychological association. No: 23.
- D' Zurilla, T. J. & Nezu, A. M. (1987). The Heppner and Krauskopf approach: A model of personal problem solving or social skills. *The Counseling Psychologist*. 15(3), 463-470.
- Eldeleklioğlu, J. (1996). Karar Stratejileri ile Ana Baba Tutumları Arasındaki İlişki. The Relation between Decision-Making Strategies and The Parents Attitudes. Unpublished PhD Dissertation. Ankara. Gazi University.
- Ersever, Ö. H. (1996). Karar Verme Becerileri Kazandırma Programının ve Etkileşim Grubu Deneyiminin Üniversite Öğrencilerinin Karar Verme Stilleri Üzerindeki Etkileri. The Effect of Gaining Decision-Making Skills Program and Encounter Group Experience on the Decision-Making Styles of the University Students. Unpublished PhD Dissertation. Ankara: Ankara University.
- Friedman, I.A. & Mann.L. (1993). Coping patterns in adolescent decision making: An Israeli- Australian comparison. *Journal of Adolescence*, 16, 187-199.
- Güçray, S. S. (1996). Karar Verme Davranışları Ölçeğinin (KDÖ) Geçerlik ve Güvenirliği. The validity and reliability of Decision Behavior Questionnaire (DBQ). *Çukurova Üniversitesi Eğitim Fakültesi Dergisi Journal of Çukurova University Faculty of Education*, 2(14), 60-68.
- Güçray, S. S. (2001). Ergenlerde karar verme davranışlarının öz-saygı ve problem çözme becerileri algısı ile ilişkisi. The relation between decision making behaviors, perceived problem solving skills and self-esteem in adolescents. *Çukurova Üniversitesi Sosyal Bilimler Dergisi. Journal of Social Sciences*. 8(8), 106-121.
- Heppner, P. P. & Petersen, C. H. (1982). The development and implications of a personal problem-solving inventory. *Journal of Counseling Psychology*, 29, 537-545.
- Heppner, P. P., Hibel, J., Neal, G. W., Weinstein, C. L. & Rabinowitz, F. E. (1982). Personal problem solving: A descriptive study of individual differences. *Journal of Counseling Psychology*. 29, 580-590.
- Janis, I. L. & Mann, L. (1977). *Decision making: A psychological Analysis of conflict, choice and commitment*. New York: The Free Press. Macmillan Publishing Co.
- Kuzgun, Y. (1993). Karar Verme Stratejileri Ölçeği: Geliştirilmesi ve Standardizasyonu. The Scale of Decision-Making Strategies: A study on the improvement and standardization. *VII. Ulusal Psikoloji Kongresi Bilimsel Çalışmaları. The Studies of VII. National Psychology Congress*. (Ed.) Rüveyde Bayraktar and İhsan Dağ. Publication of the Turkish Psychological Association.
- Larson, L. M., Piersel, W. C., Imao, R. A. K., & Allen, S. J. (1990). Significant predictors of problem solving appraisal. *Journal of Counseling Psychology*. 37, 482-490.
- Mann, L. (1989). Becoming a better decision maker. *Australian Psychologist*, 24(2), 141-155.
- Mann, L., Harmoni, R. & Power, C. (1989). Adolescent decision-making: The development of competence. *Journal of Adolescence*, 12(3), 265-278.
- Mann, L., Harmoni, R. V., Power, C. N., & Beswick, G. (1987). Understanding and improving decision making in adolescents. Unpublished manuscript, The Flinders University of South Australia, School of Social Sciences.
- McCandless, B. R., & Coop R. H. (1979). *Adolescents: Behavior and development*. New York: Rinehart & Winston.

- McKeachie, W. J. (1987). *The new look in instructional psychology: Teaching strategies for learning and thinking in learning&instruction*. European research in an international context. Eds.E. Decorte, H.Lodwijks, R. Parmetier, P. Span. New York: Pergamon Press.
- Naftel, M. I. & Driscoll, M. (1993). Problem solving and decision making in an eighth grade class. *Adolescent Psychology*, 66(3), 177-187.
- O'Hare, M. M. & Beutell, N. Y. (1987). Sex differences in coping with career decision making. *Journal of Vocational Behavior*, 31, 174-181.
- Paulsen, K. & Johnson, M. (1983). Sex role attitudes and mathematical ability of 4th- 8th and 11th grade students from a high socio-economic area. *Developmental Psychology*, 19, 210-214.
- Phillips, S. D., Paziienza, N. Y. & Ferrin, H. H. (1984). Decision making styles and problem solving appraisal. *Journal of Counseling Psychology*, 31(4), 497-502.
- Radford, M. H. B., Mann, L., Ohta, Y. & Nakane, Y. (1991). Differences between Australian and Japanese students in reported use of decision processes. *International Journal of Psychology*. 26 (1), 35-52.
- Radford, M. H. B., Mann, L., Ohta, Y. & Nakane, Y. (1993). Differences between Australian and Japanese students in decisional self-esteem, decisional stress, and coping styles. *Journal of Cross-Cultural Psychology*, 24(3), 284-298.
- Scvaneveldt, Y. D. & Adams, G. R. (1983). Adolescents and the decision making process. *Theory Into Practice*, 22(2), 98-104.
- Şahin, N., Şahin, N. H. & Heppner P. P. (1993). Psychometric properties of the Problem Solving Inventory in a group of Turkish University Students. *Cognitive Therapy and Research*, 17 (4), 379-397.
- Taylan, S. (1990). Heppner'in Problem Çözme Envanteri'nin Güvenilirlik ve Geçerlik Çalışmaları. The Studies on Reliability and Validity of Heppner's Problem-Solving Inventory. Unpublished. MA Thesis. Ankara University Faculty of Education.