The Decision-Making Skills of the Children Who Have Taken 1st and 2nd Grade Life Sciences Courses as Evaluated by Their Parents

Hüseyin Polat[1,*]

[1]Department of Basic Education, Education Faculty, Adıyaman University, Adıyaman, Turkey

*Correspondence: Department of Basic Education, Education Faculty, Adıyaman University, Adıyaman, Turkey. E-mail: hpolat@adiyaman.edu.tr

Abstract

The purpose of this study is to investigate the Life Sciences course decision-making skill of the 3rd grade primary school students as evaluated by the parents. The study was conducted in screening model. The participants of the study were the parents (41 mothers and 26 fathers) of the students (32 girls, 35 boys) who study in the center of the province of Adıyaman in the academic year of 2017-2018. In order to collect the data, "decision-making skill level" survey form, which evaluates the decision-making gains of the 1st and 2nd grade Life Sciences course, was used. According to the findings, the decision-making skill of the students was 94.54 out of 120, which is "very good". The decision-making skill levels of the students did not show a significant difference depending on the parent variable (mother or father), the students' gender, or the school type attended (central or disadvantaged neighborhood). Depending on their success in school, however, there was a significant difference in their decision-making skill levels; a positive correlation was detected between the decision-making skill and the success in school. The decision-making skill of the students did not show a significant difference depending on their self-confidence level or their success in the Life Sciences course.

Keywords: decision-making skills, life sciences course, decision-making

1. Introduction

Education is defined as all social processes that prepares the individual for the cultural life (Gutek, 2006:5), the transformation of the human mind and the creation of a new culture (Krishnamurti, 2008:9), the responsible interaction of individuals (Haynes, 2002:16), helping children play, express themselves, make decisions, and develop their representation and autonomy (Kernan, Singer, & Swinnen, 2013:9), the individual's process of acquiring the cultural values of their society as well as skills, abilities, manners, aesthetic sensibility and positive behavior (MEB, 2017).

The indicator of success in education is the children's actions in their academic and social lives. The starting point of these actions is "information". The students need to select and use the most appropriate information source they face in their daily and school lives. In one way, education is the skill to use information; but on the previous step, it is the process of deciding which information is useful. Schunk (2009) defines the decision-making process of the students as determining the problem, collecting data about the alternatives and the consequences, analyzing the options regarding solving the problem, making the decision, and implementing the decision.

From birth until death, individuals face problems that require them to make decisions, and the quality and the quantity of these decisions change according to the development period that the individual is in or the attributes of the situation that requires decision-making (Yıldız, 2012: 402). It is believed that if children acquire the decision-making skill, construct their behavior and handle complex situations from an early age, it would have an impact on their future academic success (Ezmeci and Akman, 2016).

Decision-making is the process of choosing between at least two options according to some personal, social or special conditions by analyzing the data that was collected through senses with a cognitive process. As the number of the options increase, the cognitive processes become more complex and difficult.

According to Piaget's theory of development, a child in the preoperational phase is expected to choose five pieces of

chocolate lined up side by side instead of five pieces of chocolate piled on top of each other. In this decision-making process, the child believes that there are more pieces of chocolate in the former group. So here, the data for decision-making is "more" chocolate. This is because the children in the preoperational phase do not possess the ability to use induction and/or deduction in their decision-making process. According to Yavuzer (2011), whereas 2-year-olds have problems making decisions because of their desire to fit in with their peers, 6-year-olds change their minds frequently for unimportant decisions and spend too much time making important decisions. However, as children acquire the skills of classification and gradation during the concrete operational stage (Schunk, 2009:339), they use more intensive cognitive processing while making decisions than the preoperational stage. During the formal operational stage, on the other hand, children move past concrete ideas and begin contemplating about hypothetical situations, and their reasoning capacity improves (Schunk, 2009:339). The reasoning skills which include cognitive processes are clarification, specification of the sources, deduction and finally decision-making on the efficiency of the solution in the evaluation aspect (Schunk, 2009:440).

Whereas at the beginning the decision-making process of children is sourced by emotions, it is expected that cognitive resources will be activated as they grow up and develop. In other words, the individual's decision-making regarding an event, a fact or a situation is the upmost cognitive process action. As experts divide the human brain into the categories of frontal, parietal, occipital, and temporal lobes and the cerebellum (http://www.beyin.gen.tr/beyin-loblari.html); they define the frontal lobe as the part that is responsible for processing information regarding memory, planning, decision-making, goal-setting and creativity (Schunk, 2009: 525).

Education is carried out in schools through curriculum with general and specific purposes. When a curriculum is being planned, there is a selection and decision-making process with questions such as "which information is more important/valuable?", "which information the student should be taught about?", "which information is more useful for the learner as a member of the society and an individual?" (Gutek, 2006: 6). Then, the students also have their own selection process depending on the purpose and the benefits of the information that is provided for them by the curriculum.

One of these curricula, which is seen as the epicenter of educational activities in a school (Gutek, 2006:6; Ünişen, 2013), belongs to the Life Sciences course. This is a multidisciplinary course comprising of social and natural sciences. In this course, natural and social events and facts are discussed and taught (Sönmez, 2010:2). The purpose of the course is to help primary school students acquire basic knowledge, skills and values regarding the individual, the society and the nature (MEB 2017). The curriculum of this course was revised in the years of 1924, 1936, 1948, 1998, 2005, 2009 and 2017 according to the needs of the children and the society, and it is still included in the primary school program.

Since there is a need for an educational model that raises individuals who can solve problems, make decisions, think critically and innovatively; the Life Sciences curriculum was revised in 2017 and implemented for the 1st grade students in the academic year 2017/2018 with the purpose of educating individuals who can play an active role in today's social and economic conditions (MEB; 2017). According to the curriculum, the decision-making skill is one of the 24 fundamental life skills along with research, using information and communication technologies, perceiving transformation and continuity, keeping a balanced diet, preserving the nature, entrepreneurship, observation, communication, collaboration, developing career awareness, using the resources, self-protection, self-recognition, self-care, following the rules, space perception, recognition of national and cultural values, self-governance, keeping oneself healthy, problem-solving, social participation, time management and sense of responsibility (MEB; 2017).

The 2017 Life Sciences curriculum for the 2nd and 3rd grades was not implemented in the academic year of 2017-2018. Therefore, in this study, the decision-making skill gains of the students were examined according to the 2009 Life Sciences curriculum. In the 2009 Life Sciences curriculum (partially revised in 2010), the decision-making skill is one the 14 skills along with critical thinking, creative thinking, research, communication, problem solving, using the information technologies, entrepreneurship, having a good and efficient command of the Turkish language, using the resources efficiently, providing security and protection, self-governance, recognizing the fundamental concepts in science and recognizing the fundamental concepts about issues.

The gains regarding the decision-making skill in the 1st, 2nd, and 3rd grade Life Sciences courses are presented on Table 1.

Table 1. Entrepreneurship Skill Gains of the 1st-3rd Grade Students

Grade	My Enthusiasm in School	My Precious Home	Yesterday, Today, Tomorrow
1	A.1.3. Makes decisions about what she/he can do easily and what she/he enjoys doing.		
	A.1.7. Chooses her/his own tools for class		
	A.1.8. Determines what to do for her/his self-care		
	A.1.13. Explains the reason why she/he chose the club that she/he wanted to carry out duties in		
2	A.2.28. Comes up with alternative ideas to protect her/his school and environment.		
3	A.3.3. Looks out for positive values when choosing friends or making personal decisions		
1			
2		B.2.16. Expresses her/his opinions while the family is making decisions and is able to relate this to human rights and freedom.	
		B.2.17. Contributes to deciding the house rules.	
		B.2.32. Chooses an objective which requires spending money by observing her/his parents and discusses whether she/he can follow through or not	
3		B.3.19. Expresses her/his opinions while the family is making decisions, comes up with new ideas about duties that she/he can carry out and performs them	
1			
2			
3			C.3.11. Comes up with ideas to protect, strengthen and improve our Republic.

As it can be seen on Table 1, the decision-making skill gains in the program are related to determining which topic to make decisions in, creating alternative decisions, considering the consequences of the decision, defining values, making the most appropriate decision, implementing the decision, taking the responsibility for the consequences of the decision (MEB, 2009). For the 1st, 2nd, and 3rd grades, the decision-making skill appears as 6 gains in the theme 'my enthusiasm in school', 4 gains in the theme 'my precious home', and 1 gain in the theme 'yesterday, today, tomorrow'; with a total of 11 gains.

Classifying the skills that can be acquired in the Life Sciences course as the skills of accessing the source of information, using the information and interpersonal relationships; Akınoğlu (2008:8) gives cognitive skills and the

decision-making skill as examples of using the information.

Along with the problems-solving and thinking skills, the decision-making skill is a topic that was studied on each level of education; such as pre-school (Ezmeci and Akman, 2016; Çetin, 2002), primary school (Demirtaş and Kahveci, 2012; Kılıç and Gültekin, 2015; Çakmakçı, 2009; Baysal, 2009; Köseoğlu, 2014;), secondary school (Goloğlu, 2009, Kardaş, 2013; Gülhan, 2012; Tunç, 2011; Gülbahçe and Kartol, 2014; Yüksel, 2003; Şeyhun, 2000), high school (Aktaş, 2016; Kurt, 2016), and university (Baysal, Arıkan and Bağcı, 2011; Avşaroğlu, 2007; Taşgit, 2012; Alver, 2004; Ersever, 1996).

On the primary school and secondary school levels, the decision-making skill has mostly been studied in regard to its relationship with the education process (Köseoğlu, 2014; Gülhan, 2012; Tosun, 2012; Tetik, 2013; Kardaş, 2013; Goloğlu, 2009, Baysal, 2009), or the decision-making process of the teachers and administrators (Kıranlı and İlğan, 2007; Cebesoy, 2014; Özkurt, 2013; Şire, 2004).

Within the scope of the Life Sciences course in primary school regarding the decision-making skill, Demirtaş and Kahveci (2016) previously studied the gains of the individual in becoming the subject of their own life, and Baysal (2009) studied the decision-making model for the democracy education. The purpose of this study is to investigate the Life Sciences course decision-making skill of the 3rd grade students, who have successfully passed the 1st and 2nd grade Life Sciences courses, as evaluated by their parents.

2. Methodology

2.1 The Research Methodology

This study, which was carried out to determine the decision-making skill gains of the 3rd grade students, who have passed the Life Sciences course successfully in the 1st and 2nd grades, was conducted with the screening model. In this research model; the event, the individual, or the object in question is defined as it is in its own conditions without any intention of manipulation (Karasar, 2000:77). The researcher tries to introduce and explain the variables regarding the theme of the study and to investigate the degree of the relation between these variables (Arseven, 2000:24).

2.2 Population and Sample

The population of this study consists of the parents of 3rd grade students who study either at a primary school that is located in the center of the province of Adıyaman, or at a primary school that is located in a disadvantaged neighborhood, in the academic year 2017/2018.   As the parents were regarded to observe their children better than any other could, 67 parents of these 3rd grade students were included in the sample of the study on voluntary basis.

Table 2. Frequency and Percentage Distribution of the Study Group

		f	%
School Type	Central	23	34.3
	Disadvantaged Neighborhood	44	65.7
	Total	67	100.0
Parent	Mother	41	61.2
	Father	26	38.8
	Total	67	100.0
Children's/Students' Gender	Female	32	47.8
	Male	35	52.2
	Total	67	100.0

As it can be seen on Table 2, 34.3% of the students in our study group attend primary schools in a central location, whereas 65.7% of them attend primary schools in disadvantaged neighborhoods. 61.2% of the 67 parents in this study were mothers, whereas 38.8% of them were fathers. 47.8% of the students were female, whereas 52.2% of them were male.

2.3 Data Collection Tool

In this study, the decision-making skill gains of the 3rd grade students, who have passed the Life Sciences course

successfully in the 1st and 2nd grades, was determined by consulting the observations of the parents.

Even though the curriculum of the Life Sciences course was changed in 2017, the 3rd grade students attended the Life Sciences courses with the curriculum of 2009 in the academic year of 2017-2018. A draft for the survey form, which included 24 items created through transforming the gains to performance indicators. Some gains were transformed into more than 1 indicator. By analyzing 6 gains in the theme 'my enthusiasm in school' (A.1.3, A.1.7, A.1.8, A.1.13, A.2.28, A.3.3), 4 gains in the theme of 'my precious home' (B.2.16, B.2.17, B.2.32, B.3.19), and 1 gain in the theme of 'yesterday, today, tomorrow'(C.3.11) regarding decision-making skill gains in the 1st-3rd grade Life Sciences curriculum; a draft survey form was prepared which included the gains in the themes of 'my enthusiasm in school' and 'my precious home'. Based on this draft and as a result of the views from the experts in the field and the literature, a survey form was prepared including 5 items with personal information and 24 items with views and statements regarding decision-making skill gains. A pre-test was carried out with 40 parents who were chosen on a voluntary basis. According to the analyses, the Cronbach Alpha coefficient was calculated as 0.89. The same form was used to collect data without any change.

2.4 Data Analysis

The data in this study was collected from 67 parents of the 3rd grade students in the province of Adıyaman. The parents were asked to rate the 24 items in the Section II of the decision-making skill gains survey form with the responses "yes, always (5)", yes, often (4)", "yes, sometimes (3)", "yes, rarely (2)" and "no, never (1)" according to their observations regarding their children's/students' decision-making skills. There were no reverse items on the survey form. The maximum score that a student could get regarding their decision-making skill gains was 120.

The decision-making skill was evaluated as; 1-30 points "bad", 31-60 "average", 61-90 points "good" and 91-120 points "very good".

Table 3. The Decision-Making Skill Score of the 3rd Grade Students

	n	Min.	Max.	x	sd
Decision-making skill score	67	57	120	94.54	14.591

As seen on Table 3, the minimum decision-making skill of the children/students according to the parents is 57, whereas the maximum is 120. The mean of the decision-making skill of the children/students is 94.54, which corresponds to the level "very good".

3. Findings

This section includes data regarding the children's/students' success in school and in the Life Sciences course, and their self-confidence level according to their parents; and how these variables affect the decision-making skill of the 3rd grade students.

Table 4. The Frequency and the Percentage Distribution of the Children's/Students' Success in School and in the Life Sciences Course, and Their Self-Confidence Level According to Their Parents' Observations

	The Students' Success in School		The Students' Success in the Life Sciences Course		The Students' Self-confidence according to their Parents	
	f	%	f	%	f	%
Average	7	10.4	5	7.5	5	7.5
Good	24	35.8	30	44.8	32	47.8
Very Good	36	53.7	32	47.8	30	44.8
Total	67	100.0	67	100.0	67	100.0

As it can be seen on Table 4, the parents rated their children's/students' success in school as 53.7% "very good" (f=36), 35.8% "good" (f=24) and 10.4% (f=7) "average"; their children's/students' success in the Life Sciences course as 47.8% "very good" (f=32), 44.8% "good" (f=30) and 7.5% (f=5) "average"; and their children's self-confidence level as 47.8% "good" (f=32), 44.8% "very good" (f=30) and 7.5% (f=5) "average".

Table 5. The Results of the Independent Samples T-Test Which Was Carried out to Determine if the Decision-Making Skill of the Students Displays a Significant Change Depending on the Parent'S Gender or the Children's/Students' Gender

		n	X	*ss*	Sh	*t*-Test		
						t	*Sd*	*p*
Parent	Mother	41	92.61	14.47	2.26	-1.37	65	0.67
	Father	26	97.58	14.51	2.85			
Children's/Students' Gender	Female	32	99.09	15.66	2.77	2.54	65	0.17
	Male	35	90.37	12.34	2.06			
School Type	Central	23	96.35	18.05	3.77	0.73	65	0.11
	Disadvantaged Neighborhood	44	93.59	12.54	1.89			

As it can be seen on Table 5; as a result of the independent samples t-test which was carried out in order to determine if the decision-making skill of the children/students according to their parents displays a significant change depending on the parent's gender, there was not a significant difference detected between the means of the groups (t=-1.367; p>05).

As a result of the independent samples t-test which was carried out in order to determine if the decision-making skill of the children/students according to their parents displays a significant change depending on the children's/students' gender, there were not any statistically significant differences detected between the means of the groups (t=2.543; p>.05).

As a result of the independent samples t-test which was carried out in order to determine if the decision-making skill of the children/students according to their parents displays a significant change depending on the school type, there were not any statistically significant differences detected between the means of the groups (t=0.732; p>.05).

Table 6. The Results of the One-Way Variance Analysis (ANOVA) Which Was Carried out in order to Determine if the Decision-Making Skill of the Students Displays a Significant Change Depending on the Student's Success in School

Group	*n*	*X*	*ss*	**Var. C.**	*KT*	*Sd*	*KO*	*F*	*p*
Average	7	81.57	10.44	Between Group	1738.76	2	869.38	4.52	0.02
Good	24	92.79	14.59	Within Group	12311.90	64	192.37		
Very Good	36	98.22	13.90	Total	14050.66	66			
Total	67	94.54	14.59						

(LF=.570; p>0.05)

It can be seen on Table 6 that as a result of the one-way variance analysis (ANOVA) which was carried out in order to determine if the decision-making skill of the students displays a significant change depending on the children's/students' success in school, a significant difference was detected (F=4.519; p<0.05). In order to see which groups were the sources of this significant difference, complementary post-hoc analyses were carried out. With the Levene's test, it was detected that the variance of the group distribution was homogenous (LF=0.570; p>0.05). Therefore, the LSD multiple comparison technique was chosen, which is commonly used when there is homogeneity of variance. The results of the LSD multiple comparison analysis are presented below:

Table 7. The results of the post-Hoc LSD test following the one-way variance analysis (ANOVA) which was carried out in order to determine in which subgroups the decision-making skill of the students displays a change depending on the student's success in school

(I) Success	(J) Success	Avr. Dif. (I-J)	Sh	p	LSD
Average	Good	-11.22	5.96	.064	Very Good*-Average
	Very Good	-16.65*	5.73	.005	
Good	Average	11.22	5.96	.064	
	Very Good	-5.43	3.66	.142	
Very Good	Average	16.65*	5.73	.005	
	Good	5.43	3.66	.142	

It can be seen on Table 7 that as a result of the post-hoc LSD test following the one-way variance analysis (ANOVA) which was carried out in order to determine in which subgroups the decision-making skill of the children/students displays a change depending on the student's success in school; there was a statistically significant difference detected between the group "very good" and the group "average" in favor of the group "very good" ($p<0.05$). According to these results, the decision-making skill of the students with a success level of "very good" in school were higher than the students with a success level of "average". In other words, there is a positive correlation between the decision-making skill of the students and their success in school.

Table 8. The results of the one-way variance analysis (ANOVA) which was carried out in order to determine if the decision-making skill of the students displays a significant change depending on the student's success in the Life Sciences course

Group	n	X	ss	Var. C.	KT	Sd	KO	F	p
Average	5	85.20	17.94	Between Group	1152.39	2	576.20		
Good	30	91.87	13.34	Within Group	12898.27	64	201.54	2.86	0.07
Very Good	32	98.50	14.42	Total	14050.66	66			
Total	67	94.54	14.59						

It can be seen on Table 8 that as a result of the one-way variance analysis (ANOVA) which was carried out in order to determine if the decision-making skill of the students displays a significant change depending on the student's success in the Life Sciences course, there was not any significant difference detected ($F=2.859$; $p>0.05$).

Table 9. The Results of the One-Way Variance Analysis (ANOVA) Which Was Carried out in order to Determine if the Decision-Making Skill of the Students Displays a Significant Change Depending on the Student'S Self-Confidence

Group	n	X	ss	Var. C.	KT	Sd	KO	F	p
Average	5	87.80	10.47	Between Group	498.19	2	249.10		
Good	32	93.13	14.23	Within Group	13552.47	64	211.76	1.18	0.32
Very Good	30	97.17	15.36	Total	14050.66	66			
Total	67	94.54	14.59						

It can be seen on Table 9 that as a result of the one-way variance analysis (ANOVA) which was carried out in order to determine if the decision-making skill of the students displays a significant change depending on the student's self-confidence, there was not any significant difference detected ($F=2.859$; $p>0.05$).

4. Discussion and Conclusion

This study is carried out in order to determine the decision-making skill gains of the 3rd grade students who have successfully passed the 1st and 2nd grade Life Sciences courses according to the observations of their parents. 34.3% of the students in our study group attend primary schools in a central location, whereas 65.7% of them attend primary schools in disadvantaged neighborhoods. 61.2% of the 67 parents in this study were mothers, whereas 38.8% of them were fathers. 47.8% of the students were female, whereas 52.2% of them were male.

The decision-making skill level of the 3rd grade students was 94.54 out of 120 according to the observations of the parents, which is "very good" (Table 3). In primary school, the decision-making skill acquisition of the students occurs through the Life Sciences course. A previous study showed that the curriculum of the Social Sciences course, which is a follow-up course to Life Sciences, also has an influence on the children's acquisition of decision-making and problem-solving skills (Baysal, Arkan and Bağcı, 2011).

The parents of the 3rd grade primary school students rated their children's/students' success in school as 53.7% "very good", 35.8% "good" and 10.4% "average" respectively. They rated their children's/students' success in the Life Sciences course as 47.8% "very good", 44.8% "good" and 7.5% "average". There was a significant difference (p<0.05) detected in the children's/students' decision-making skill depending on their success in school. This difference was in favor of the group "very good" between the group "very good" and the group "average". According to these results, the students with a "very good" success level scored higher in their decision-making skill than the "average" students. In other words, there is a positive correlation between the decision-making skill and the student's success in school (Table 6, Table 7). However, there was not any significant difference between the decision-making skill of the children/students and their success in the Life Sciences course (Table 8). This might be due to the fact that the children's/students' success level in the Life Sciences course is 92.6% "very good" or "good" according to their parents, and that their decision-making skill is 94.54, which is "very good". We believe that there is a significant difference between success in school and the decision-making skill because other classes are also included in the parents' definition of success in school. In this case, we might say that the classes other than the Life Science course have an impact on the decision-making skill condition. Previous studies revealed that some of the methods and techniques that the teachers use in the education process have a positive influence on the development of the decision-making skills in students (Goloğlu 2009; Kardaş, 2013; Köseoğlu, 2014; Çakmakçı, 2009; Tetik, 2013; Gülhan, 2012).

The parents rated the self-confidence level of their children as 47.8% "good" (f=32), 44.8% "very good" (f=30) and 7.5% "average" (f=5), respectively (Table 4). 92.6% of the answers in total were either "good" or "very good". The decision-making skill of the students was also high, with the level of "very good" (Table 3). There were not any significant differences detected in the decision-making skill of the children/students depending on their self-confidence (Table 9). In older age groups and higher education levels, the decision-making skill has previously been studied with the variable of "self-esteem". These studies revealed that the variables of self-regard (Taşgit, 2012) and self-esteem (Atsan, 2017; Aktaş, 2016; Gülbahçe and Kartol, 2014; Tunç, 2011; Avşaroğlu, 2007; Kurt, 2016) have an impact on the decision-making skills of the students.

The decision-making skill of the 3rd grade primary school students did not change significantly (p>0.05) depending on the parent's gender (mother or father), the child's/student's gender, or the student's school type (central, disadvantaged neighborhood) (Table 5). Gülbahçe and Kartol's (2014) findings also did not display a significant difference in many aspects of the decision-making strategies of 8th grade students depending on their gender.

In this study, the decision-making skill of the students did not show significant differences according to the parent's gender, the student's gender, the student's self-confidence or the type of their school. However, there is a positive correlation between the decision-making skill of the students and their success in school.

Another finding of the study is that according to the parents, both their children's success in the Life Sciences course and their decision-making skill were very high. According to the study of Demirtaş and Kahveci (2016), the Life Sciences curriculum intensively features the importance of the development of the decision-making skill.

The previous studies on the decision-making skill in education have been mostly conducted in the field of the Physical Sciences (Cebesoy, 2014; Goloğlu, 2009; Kardaş, 2013; Gülhan, 2012) rather than the Life Sciences (Demirtaş and Kahveci, 2016; Baysal, 2009) or Social Sciences (Tetik, 2013). This might be due to the fact that cognitive fields are mainly associated with physical sciences and that the decision-making process is a cognitive process.

The decision-making skill is expected to be the output of the cognitive skills of the students during class. However,

according to the previous studies conducted with students that are not in primary school (Şeyhun, 2000; Ersever, 1996), it has been presented that decision-making skill acquisition programs also increase the students' ability to make decisions.

In accordance with the results of this study;

The findings regarding the decision-making skill of the 3rd grade students were acquired according to the observations of the parents. Further research with a sample that includes teachers and students will contribute more into the field.

Even though the decision-making skill gains are included the 1st, 2nd and 3rd grade Life Sciences curriculum, it cannot be claimed that the Life Sciences course is the only factor in the high decision-making skill of the students. It is suggested that further research be carried out regarding the decision-making skills of the students with other primary school variables.

The decision-making skill is expected to be an output of the cognitive skills of the students in class. However, previous study that was carried out with students that are not on the primary school level (Şeyhun, 2000; Ersever, 1996) set forth that the decision-making skill acquisition programs also improve the decision-making skill of the students. It is suggested that extracurricular decision-making skill acquisition programs be carried out on the primary school level.

5. Limitations

Decision making skills are first mentioned among the gains of the Life Sciences courses in primary education. However, many other factors such as maturation and other courses also contribute to them. Researcher does not claim the level measured is only the result of the course. The decisions making skills level measured based on the children's parents observations; their teachers' views could be a subsidiary source.

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