

The Effect of Learning Styles of Students to Entrepreneurial Skills: An Experimental Study that Station Method is Used

Burcu ÇETİN¹, Talip KIRINDI²

Abstract

In the research the effect of learning styles that secondary school students have on entrepreneurship in terms of creativity, innovation, risk, critical thinking, need for achievement and interpersonal relationships was studied by using learning stations. Explanatory mixed model of mixed methods, which both quantitative and qualitative data used together, is preferred in order to obtain detailed data related with entrepreneurial skill according to learning styles. As a study group 18 students that contains 2 male, 16 female students who were being educated at 6th grade in Seymenler Middle School in Altındağ, Ankara within the 2014-2015 education term is chosen.

In this study, the learning styles inventory that performed by Gokdağ (2004), is determined according to characteristics of the study group and the reliability and validity of the control list that prepared to determine the entrepreneurial skill is provided. Students dispersed into station groups basing on the data acquired from learning styles inventory. Data analysis is made using SPSS 16 package program. To analyze the data, Mann Whitney U test and Kruskal Wallis H test is used which can be applied to nonparametric groups. According to results acquired in study, it has been determined that, the kinesthetic student group is more effective in entrepreneurial skills and followed by auditory and visual student group respectively.

Anahtar Sözcükler

Entrepreneurship, learning styles, science and technology, station technique

Introduction

One of the main purposes of education is to prepare individuals to life and help them to notice the events happening in daily life. In accomplishing these purposes, science and lessons in this field is quite important. Because science establishes one of the important links between understanding the nature and relationships in nature among the students. While an individual is reconciling, his/her analytical thinking skills can be developed, his/her decision-making ability, creative thinking and entrepreneurship can be increased and a team work can be created by communicating as desired. It's seen that scientific process skills and life skills take part in skills subscale in Science Course curriculum. Life skills comprises fundamental life abilities like analytical thinking, decision-making, creativity, entrepreneurship, communicating and team work related with reaching and utilizing the scientific knowledge (Ministry of Education, 2013).

Considering Science Course curriculum, it can be said that entrepreneurship today is one of the important steps. According to Dündar and Ağca (2007), generally, because of the effect of

¹ Science Teacher, Ministry of Education, e-Mail: burcucetinurla@gmail.com

² Prof. Dr, Kırıkkale University, e-Mail: talipkirindi@yahoo.com

education on attitude and future desires and dreams of youngsters, one started to understand the importance of education as a requirement in terms of training and developing potential entrepreneurs. Hereby, giving place to high-level skills even in lower echelons in contemporary curriculums points out that the situation is cared about. (Çelik, Gürpınar, Başer and Erdoğan, 2015).

Science, in terms of its design, is a course that is compatible with daily life and supporting the skills of students, who unveil entrepreneurial life skill acquired in this course in various subscales, will be an important step in their life. Entrepreneurial skill will also be used in daily life, and considering the features of student in classroom environment it will be ensured to be supported. An individual agreed by a contemporary world, is not someone who completely accepts the given knowledge and expects to be directed and shaped, but the one who effectively takes part in the process of creating the meaning of knowledge by interpreting it (Yıldırım and Şimşek, 2005).

In some studies that has been carried out in countries, which gave priority entrepreneurship in their curriculum (Singapore (San Tan and Ng, 2006), Sweden (Rasmussen and Sørheim, 2006) and England (Raffo, Loyatt, Banks and O'Connor, 200)); it has been emphasized that with the learning by experiencing approach in their learning environment, students have acquired better entrepreneurial features.

Entrepreneurship education is among important factors especially while forming entrepreneurial attitudes and behaviors of youngsters. Bygrave and Hofers defines an entrepreneur as an individual that shapes his/her business by seizing the opportunities (Mueller and Thomas, 2001). Embarking on the entrepreneurship is mostly an individual decision. Therefore examining the features during formation of entrepreneurship will be useful to provide the development of it (Littunen, 2000). Being in an environment in which convenient for entrepreneurial skills in Science Course makes an individual to grow up as an entrepreneur. According to Raposo ve Paço (2011), Entrepreneurship education comprises of an individual ability to catch the opportunities, skill of coming up with new ideas and following the opportunities, ability to find necessary sources, and ability to think in a creative and critical way. Such an important course like science draws attention to students' entrepreneurial styles in order to increase entrepreneurship. Thus, a more student addressing lessons may come out. Sequeira, Leite and Duarte (1993) asserts that science teachers should carry out teaching in a constructivist way, and should use teaching methods that consider the comprehension of students.

Even if the individuals have the same age, same life and similar physical features, some unique features may be seen. While some of the students handle events by emancipating from environment, others may evaluate them within the environment events occurred. On the other hand, there are some differences in terms of time of handling, processing and thinking of perceived situations as there are perceiving differences among individuals. It can be signified that students differ from each other in terms of using strategies while learning lessons they encountered. These differences generally point out learning styles (Çaycı, 2007). According to Dunn and Dunn (1993), learning style is a style of getting and processing knowledge that starts with every student's focus on a new and demanding knowledge. Knowing about learning styles effects Science Course in a positive way as every subject. Evaluating the learning styles of individuals is very important for teaching & learning process (Hein and Budny, 2000). If there will be any mismatch between teaching styles of teacher and learning styles of learner, negative consequences of this will occur for both of them (Von Glasersfeld, 1993). One of the obstacles for providing permanence in learning is ignoring learning styles. Dunn defines learning styles as every student uses different and distinctive methods while getting prepared to learn, learning and remembering a new and demanding knowledge (Boydak, 2008).

An individual's self-awareness, knowing the way of perceiving an issue and ability to use skills in the best way effects learning. Knowing the learning style increases the level of success as it makes teachers and learners job easy (Eskici, 2008). Because an individual who knows learning styles and perceives it, learns more permanently in the environment that has been organized according to individual differences, it is likely that success rate will increase. Knowing

the most suitable learning style for an individual himself helps learning power to improve (Aşkar and Akkoyunlu, 1993).

According to Babadoğan (2000), if it is determined that which learning style an individual has, it can be understood more easily that how individuals learn and how the implementation of a teaching design should be. As in every lesson, in Science Course, with an environment that is organized suitable to learning styles, an individual joins the lesson more effectively. If students are not able to learn in the way they are taught, the teaching should be made considering the learning styles of students (Marshall, 1990). It is stated that, teachers should understand what students know and what they need to learn for an effective Science teaching, and by doing so very good learnings can be achieved (Keller, Hart and Martin, 2001). Students should also be taught how to learn, how to remember the knowledge, how to think to solve a problem and how to self-motivate themselves (Demirel, 1993).

There are many different approaches regarding with the learning styles. Nevertheless, the common point of these approaches is that, they are one of the most important factors in individuals learning. Learning styles effect entrepreneurship, which is a life skill, as it effects the daily life learning acquisitions of an individual. It can be said that learning styles can be quite helpful about developing appropriate attitudes and behaviors to the both teacher and individual.

According to Üstündağ (2007), the aim of the education process should be to manage the differences in a balancing and compatible way. While motivating students, knowing that students can be motivated in different ways, paying attention that they have different skills or interest and welcoming with love and respect to their diversities are one of the points that makes learning easy. Educationalists develop new methods and approaches according to learners to satisfy the learning need of students. One of these methods is station technique. Station technique (learning stations) is an effective technique that is used for satisfying the learning need of students (Breyfogle, Nelson, Pitts and Santrich, 1976). A learning environment designed by using station technique, takes attention of students for those who learn different from each other (Kryza, Stephens and Duncan, 2007).

According to Gözütok (2007), station technique is a student-centered technique that teaches to advance what preceding group did by contributing as a whole class to every stage in the learning process. In other words, station technique is a kind of lesson that student studies within the framework of selected subjects, or depending on the situation, the subject is fallen into pieces and then the studies are gathered together (Demirörs, 2007). Station technique is a student-centered technique and it has some positive features like improving cooperation, creativity, enjoying the attendance, obeying the rules, improving special talents and communicating skills (Güneş, 2009). With cooperation and new interactions students add new features to each other and share their knowledge (Üstündağ, 2005). In the station technique, as the student's individual features are kept in the forefront, the subject is of the interest for him/her and can be learned within that lesson. The purpose is to keep the learning styles of the students in the forefront.

In the study, entrepreneurial skills according to learning styles of students who are being educated in the sixth grade is exposed by applications that was performed with station technique that encompasses "the smallest rooms of life – cells" subject and "the health of the movement system" subject from "systems in our body" unit, "the states of solid, liquid and gaseous matters" subject from "the particulate structure of matter" unit and "the shapes and sizes of earth, sun and moon" subject from "our earth, moon and our life source Sun" unit of Science Course.

This study is the one that explores the situations, which effect the learning of an individual directly, like learning styles of students and is among the studies that gathers attention to entrepreneurial skills in Science Course. Besides, the behaviors of entrepreneurs, learning styles of the students and entrepreneurial skills of them in Science Course is proved by creating active learning environments. Today's education perspective started to harp on two important notion such as "learning styles" and "entrepreneurship" as they keep the individual diversities in the forefront. However, it has been observed that even though there are many separately researches especially towards these two notions, there is not any research concerning with if

there is any relationship between these two notions or how do they related with each other. The learning environments to be prepared that consider the effects of learning styles will contribute to entrepreneurial skills of the students.

Method

In this study in order to obtain detailed data related with entrepreneurial skill according to learning styles, explanatory mixed model of mixed methods, which both quantitative and qualitative data is used together, is preferred. For a researcher while a mixed method provides an opportunity to look from different perspective to the phenomenon he/she studies, it also offers to provide an opportunity to obtain strong and satisfying data in terms of content (Böke, 2010). The main reason of using both qualitative and quantitative research methods together is described as utilizing the strong sides of both of the methods and resolving the weak sides (Punch, 2005). In this research, it is intended to obtain strong data by using both qualitative and quantitative methods in exhibiting the effects of learning styles to entrepreneurship by using mixed method, furthermore, to resolve the weak sides of these both methods.

Study Group

In this study, a model that expresses the effect of learning styles to entrepreneurship is studied. During the examination the study has been conducted with 2 boys and 16 girls, totally 18 sixth grade students that was studying in Seymenler Secondary School in Altındağ, Ankara.

Data Collection Tools

Learning Style Inventory: In this study, in order to determine the learning styles, "Learning Styles Inventory" has been used that was developed by Gökdağ (2004). The inventory was developed intending to determine which learning style do students have of visual, auditory or kinesthetic learning styles within the PhD thesis that titled as "Relations of cooperative learning, learning styles, academic achievement and gender in teaching social science" of Gökdağ (2004). The inventory was developed exclusively for sixth, seventh and eighth grades and the validity and reliability of it was proved. 97 trial forms were applied to 800 students that were being educated in sixth, seventh and eighth grade, results of 673 participants were evaluated by eliminating the forms which were detected as randomly marked or not fully filled and presented to an expert (n=10) opinion. Cronbach Alpha reliability coefficient was deterred as 0,74 as a result of analyses performed by using those results. Articles which of their factor loading was above 0,40 were selected and formed in five point Likert type. Learning Styles inventory consists of three different dimensions as visual, auditory and kinesthetic/tactual.

Entrepreneurial Skills Control List: This inventory is an auxiliary guide in examining the desired behaviors in order to determine who the entrepreneur individuals are. In the study the required fundamental factors for being an entrepreneur in the process of developing the inventory is debated and current inventory is developed by introducing required behavior patterns by utilizing the questions which were asked in the previous researches. The literature has been scanned for the developed entrepreneurship control list. An inventory for the use of evaluating the entrepreneurial skill for secondary school students is developed. With its six subscale and 36 articles at first, the inventory was then reduced to 26 articles by eliminating the articles which were not fitting for purpose. The control list were developed as four-point Likert-type as "weak, moderate, good, very good".

For teachers to evaluate the entrepreneurial skills, explanatory and interpretational analyses has been made by developing a control list. Subscales associated with other features intended for evaluating the entrepreneurship features. Applied on students, this inventory is to evaluate the entrepreneurship factors such as creativity, innovation, taking risk, criticizing thinking, need for success and interpersonal relationships. Other inventories that were used in

similar researches has been observed and a suitable inventory for the need for research has been developed.

Some of the examples that comprises six subscales while preparing entrepreneurship control list is as shown below:

The creativity subscale contains expressions like “She/he produces much ideas to use during activity/class.” and “She/he produces effective and original ideas (like story, drawing, poster, etc.) during activity/class.” The innovation subscale groups expressions like “She/he produces a new product with the help of a new knowledge learned during activity/class.” and “She/he makes an existing product more effective by changing it during activity/class.” The risk taking subscale contains expressions like “She/he relies on the uncertainty of the production performed during activity/class.” and “She/he is inclined to take risks in the situations of deciding in short time during activity/class.” The critical thinking subscale contains expressions like “She/he shares with neighborhood what she/he understood by merging previous experience with her/his thoughts during activity/class.” and “She/he looks from different perspective and takes into account the others students’ perspective during activity/class.” The need for success subscale contains expressions like “She/he accepts personal responsibility during activity/class.” and “She/he tries to reach the target during activity/class.” And in the interpersonal relationships subscale expressions like “She/he likes to study with teammates during activity/class.” and “She/he tries to help her/his teammates during activity/class.” Are grouped and the inventory was developed.

To prove the validity, the inventory was examined by five field experts who were conducting studies in Kirikkale University. The inventory was developed by getting expert opinion about content validity and performing needed retouches. The inventory that has been evaluated after video recordings was proved to be reliable by obtaining correspondence percentage in the light of the data provided by other teachers. The correspondence percentage performed by Kappa Statistics that were developed by Cohen Kappa (1960), and were found as 80,6%.

Data Analysis

In this study preparation stage intended for developing an inventory, developing stage and quantitative research methods are used together. Quantitative data of the research were obtained in 2014-2015 education term. The analyses of obtained quantitative data was performed and interpreted by using SPSS statistics program. In order to interpret arithmetic mean of the data, Mann Whitney U test, Kruskal Wallis H test, Kappa statistics and normality test were performed. The calculations were made by accepting the level of significance between variables as $p < 0.05$. Besides normality test was used in order to examine whether the obtained data set was parametric or non-parametric. The non-parametric test statistics was performed because the variable p was below 0,05 and in terms of meaningfulness, the points indicated a significant difference from normal distribution. As Arseven (2004) pointed out, the ranges of the results obtained from learning styles inventory were determined according to $(n-1)/n$ rule.

Chart 1. Ranges Chart

<i>Groups</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sd</i>	<i>X²</i>	<i>P</i>
Students learning with kinesthetic learning style	8	12.75	2	8.75	.01
Students learning with visual learning style	7	4.86			
Students learning with auditory learning style	3	11.67			

The answers of students were analyzed and when checked the value of 4,10 was founded for visual students, the value of 3,43 was founded for auditory students and the value of 4,07 was founded for kinesthetic students. These values points to “agree” range.

In order to evaluate entrepreneurial skills of students in Science Course, the observer was asked to mark an “x” to the option in the control list which reflects the student best. The highest score can be get from the control list is 104 and the least is 26. When the score is between 26 and 53 the evaluation is defined as “should be developed”, when it is between 54 and 80 the evaluation is defined as “good” and when it is between 81 and 104 the evaluation is defined as “very good”.

The subgroups were created by coding the data obtained from inventories. Then, the learning styles of these groups and relations of entrepreneurial subscales were given in tabular form in order to visualize the research and for the convenience of the reader. The names of the attendant students were hidden and nicknames were used.

Processing Path

In the research, a six-week-lasting program was applied in order to determine the entrepreneurial skills of sixth grade students. The first two weeks, in order to orient the students, video recordings were made but were not included to the evaluation. By applying learning styles inventory to students, three groups –named visual, auditory and kinesthetic- were created. After giving information on the designated subjects, station technique was applied to eighteen students. The entrepreneurship control list was filled by two observer teachers by recording and observing the behaviors of students. Obtained data was evaluated by handling as subscales and the results and solutions were put forth.

Findings

As a first stage of the study learning styles of the students were determined. After descriptive analysis, eight of eighteen students was found to have visual learning style, three of them were found to have auditory learning style and the rest seven were found to have kinesthetic learning style. According to learning styles inventory of Gökdağ (2004), visual students were equal to 44,4%, auditory students were equal to 16,7% and kinesthetic students were equal to 38,9% of the whole class.

In the study, results of the entrepreneurial skills control list obtained from station technique by applying selected Science Course subjects to those students whose learning styles were determined, were interpreted by grouping within the framework of research topics.

The findings concerning with the scores of entrepreneurial skills in Science Course according to learning styles of secondary school sixth grade students are given in Table 1.

Table 1. Comparison of Entrepreneurial Skills According to Learning Style Groups, Results of Kruskal Wallis Test

<i>Groups</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sd</i>	<i>X2</i>	<i>P</i>
Students learning with kinesthetic learning style	8	12.75	2	8.75	.01
Students learning with visual learning style	7	4.86			
Students learning with auditory learning style	3	11.67			

The analysis prove that the scores of participant students got from entrepreneurial skills inventory, show a significant difference according to learning styles they have. This finding shows that owned three learning styles separately have different effects on students in improving their entrepreneurial skills. After the test, it is observed that students learning with kinesthetic learning style have the highest entrepreneurial skills, and followed by students learning with auditory and visual learning styles respectively considering the mean ranks of the groups.

The emergence of observed significant difference among groups that depends on the significant difference between which groups, can be calculated by using calculators for those kinds of tests. The source of the difference was examined by performing Mann Whitney U Test depending on dual combinations of groups and by basing the similar researches in the literature (Büyüköztürk, 2002).

Table 2. The Results of U-Test According to Entrepreneurial Skills of Students That Have Different Learning Styles

<i>Result of U-Test According to Entrepreneurial Skills</i>	<i>Groups</i>	<i>N</i>	<i>Mean Rank</i>	<i>Total Rank</i>	<i>U</i>	<i>P</i>
Owner of kinesthetic learning style and auditory learning style	Students learning with kinesthetic learning style	8	6.38	51.00	9.00	.54
	Students learning with auditory learning style	3	5.00	15.00		
Owner of visual learning style and auditory learning style	Students learning with visual learning style	7	4.14	29.00	1.00	.03
	Students learning with auditory learning style	3	8.67	26.00		
Owner of kinesthetic learning style and visual learning style	Students learning with kinesthetic learning style	8	10.88	87.00	5.00	.00
	Students learning with visual learning style	7	4.71	33.00		

When the result of U test given in Table 2 was examined, there was no significant difference between the entrepreneurial skills of the students learning with kinesthetic learning style and auditory learning style ($U=9.00$; $p=.54$; $p>.05$). However, it is obvious that there was a significant difference between dual combinations of other learning styles.

Examining the values of mean ranks in the Ranges Chart (Chart 1), it is observed that students learning with kinesthetic learning style have higher entrepreneurial skills than students learning with auditory learning styles, students learning with auditory learning styles have higher entrepreneurial skills than students learning with visual learning styles, students learning with kinesthetic learning style have higher entrepreneurial skills than students learning with visual learning styles.

The findings of the scores, which were obtained from creativity subscale via entrepreneurial skills control list of secondary school sixth grade students in Science course, concerning with learning styles (visual, auditory and kinesthetic) are given in Table 3.

Table 3. Comparison of Entrepreneurial Skills Creativity Subscale According to Learning Style Groups, Results of Kruskal Wallis Test

<i>Groups</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sd</i>	<i>X²</i>	<i>p</i>
Students learning with kinesthetic learning style	8	12.63	2	6.66	.03
Students learning with visual learning style	7	5.57			
Students learning with auditory learning style	3	10.33			

The analyses prove that the scores of participant students got from creativity subscale of entrepreneurial skills inventory show a significant differentiation according to learning styles they have. χ^2 ($sd=2$, $n=18$)=6.66, $p<.05$. This finding shows that owned three learning styles separately have different effects on students in improving their creativity skill of entrepreneurial skills. After the test, it is observed that students learning with kinesthetic learning style have the highest creativity skills, and followed by students learning with auditory and visual learning styles respectively considering the mean ranks of the groups.

The emergence of observed significant difference among groups that depends on the significant difference between which groups, was examined by performing Mann Whitney U Test depending on dual combinations of groups.

Table 4. The Results of U-Test According to Creativity Subscale of Students That Have Different Learning Styles

<i>Result of U-Test According to Entrepreneurial Skills</i>	<i>Groups</i>	<i>N</i>	<i>Mean Rank</i>	<i>Total Rank</i>	<i>U</i>	<i>p</i>
Owner of kinesthetic learning style and visual learning style	Students learning with kinesthetic learning style	8	9.38	75.00	17.00	.20
	Students learning with visual learning style	7	6.43	45.00		
Owner of kinesthetic learning style and auditory learning style	Students learning with kinesthetic learning style	8	5.81	46.50	10.50	.75
	Students learning with auditory learning style	3	6.50	19.50		
Owner of visual learning style and auditory learning style	Students learning with visual learning style	7	4.00	28.00	.00	.01
	Students learning with auditory learning style	3	9.00	27.00		

Examining the results of U Test given in Table 4, it has been seen that, the creativity subscale p variable of the students who have visual learning style and auditory learning style of dual combinations was lower than .05 ($p=.017$), and only with this combination a significant diversity was detected. So, it has been founded that there is a significant difference between the creativity subscales of students who learn with visual learning style and auditory learning style ($U=0.00$; $p=.02$; $p<.05$).

Examining the values of creativity subscale mean ranks in the Ranges Chart (Chart 1), it is observed that students learning with kinesthetic learning style have higher creativity skills than students learning with visual learning styles, students learning with auditory learning styles have

higher creativity skills than students learning with kinesthetic learning styles, students learning with auditory learning style have higher creativity skills than students learning with visual learning styles.

The findings related with learning styles (visual, auditory, kinesthetic) of obtained scores from innovation subscale via entrepreneurial skills control list of secondary school sixth grade students in Science Course, are given in Table 5.

Table 5. The Comparison of Entrepreneurial Skills Innovation Subscale According to Learning Style Groups, Results of Kruskal Wallis Test

<i>Groups</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sd</i>	<i>X2</i>	<i>p</i>
Students learning with kinesthetic learning style	8	12.88	2	7.05	.02
Students learning with visual learning style	7	5.57			
Students learning with auditory learning style	3	9.67			

The analyses prove that the scores of participant students got from innovation subscale of entrepreneurial skills inventory show a significant differentiation according to learning styles they have. χ^2 (sd=2, n=18)=7.05, $p<.05$. This finding shows that owned three learning styles separately have different effects on students in improving their innovation skill of entrepreneurial skills. After the test, it is observed that students learning with kinesthetic learning style have the highest innovation skills, and followed by students learning with auditory and visual learning styles respectively considering the mean ranks of the groups.

The emergence of observed significant difference among groups that depends on the significant difference between which groups, was examined by performing Mann Whitney U Test depending on dual combinations of groups.

Table 6. The Results of U-Test According to Innovation Subscale of Students That Have Different Learning Styles

<i>Result of U-Test According to Entrepreneurial Skills</i>	<i>Groups</i>	<i>N</i>	<i>Mean Rank</i>	<i>Total Rank</i>	<i>U</i>	<i>p</i>
Owner of kinesthetic learning style and visual learning style	Students learning with kinesthetic learning style	8	9.75	78.00	14.00	.10
	Students learning with visual learning style	7	6.00	42.00		
Owner of kinesthetic learning style and auditory learning style	Students learning with kinesthetic learning style	8	5.88	47.00	11.00	.83
	Students learning with auditory learning style	3	6.33	19.00		
Owner of visual learning style and auditory learning style	Students learning with visual learning style	7	4.14	29.00	1.00	.02
	Students learning with auditory learning style	3	8.67	26.00		

Examining the results of U Test given in Table 6, there is a significant difference because the p variable according to innovation subscale of the students who have visual learning style and auditory learning style of dual combinations was lower than .05 ($p=.02$). So, it has been founded that there is a significant difference between the innovation subscales of students who learn with visual learning style and auditory learning style ($U=1.00$; $p=.03$; $p<.05$).

Examining the values of mean ranks in the Ranges Chart (Chart 1), it is observed that students learning with kinesthetic learning style have higher innovation skills than students learning with visual learning styles, students learning with auditory learning styles have higher innovation skills than students learning with kinesthetic learning styles, students learning with auditory learning style have higher innovation skills than students learning with visual learning styles.

The findings related with learning styles (visual, auditory, kinesthetic) of obtained scores from risk subscale via entrepreneurial skills control list of secondary school sixth grade students in Science Course, are given in Table 7.

Table 7. The Comparison of Entrepreneurial Skills Risk Taking Subscale According to Learning Style Groups, Results of Kruskal Walis Test

<i>Groups</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sd</i>	<i>X2</i>	<i>p</i>
Students learning with kinesthetic learning style	8	12.50	2	6.47	.03
Students learning with visual learning style	7	5.64			
Students learning with auditory learning style	3	10.50			

The analyses prove that the scores of participant students got from risk subscale of entrepreneurial skills inventory show a significant differentiation according to learning styles they have. χ^2 ($sd=2$, $n=18$)= 6.47 , $p<.05$. This finding shows that owned three learning styles separately have different effects on students in improving their risk skill of entrepreneurial skills. After the test, it is observed that students learning with kinesthetic learning style have the highest innovation skills, and followed by students learning with auditory and visual learning styles respectively considering the mean ranks of the groups.

The emergence of observed significant difference among groups that depends on the significant difference between which groups, was examined by performing Mann Whitney U Test depending on dual combinations of groups.

Examining the results of U Test given in Table 8, there is a significant difference because the p variable according to risk subscale of the students who have visual learning style and auditory learning style of dual combinations was lower than .05 ($p=.02$). So, it has been founded that there is a significant difference between the risk subscales of students who learn with visual learning style and auditory learning style ($U=.50$; $p=.02$; $p<.05$).

Examining the values of mean ranks in the Ranges Chart (Chart 1), it is observed that students learning with kinesthetic learning style have higher risk taking skills than students learning with visual learning styles, students learning with auditory learning styles have higher risk taking skills than students learning with kinesthetic learning styles, students learning with auditory learning style have higher risk taking skills than students learning with visual learning styles.

Table 8. The Results of U-Test According to Innovation Subscale of Students That Have Different Learning Styles

Result of U-Test According to Entrepreneurial Skills	Groups	N	Mean Rank	Total Rank	U	p
Owner of kinesthetic learning style and visual learning style	Students learning with kinesthetic learning style	8	9.00	72.00	20.00	.35
	Students learning with visual learning style	7	6.86	48.00		
Owner of kinesthetic learning style and auditory learning style	Students learning with kinesthetic learning style	8	5.88	47.00	11.00	.83
	Students learning with auditory learning style	3	6.33	19.00		
Owner of visual learning style and auditory learning style	Students learning with visual learning style	7	4.07	28.50	0.50	.02
	Students learning with auditory learning style	3	8.83	26.50		

The findings related with learning styles (visual, auditory, kinesthetic) of obtained scores from critical thinking subscale via entrepreneurial skills control list of secondary school sixth grade students in Science Course, are given in Table 9.

Table 9. The Comparison of Entrepreneurial Skills Critical Thinking Subscale According to Learning Style Groups, Results of Kruskal Wallis Test

Groups	N	Mean Rank	Sd	X²	P
Students learning with kinesthetic learning style	8	11.06	2	6.14	.04
Students learning with visual learning style	7	5.86			
Students learning with auditory learning style	3	13.83			

The analyses prove that the scores of participant students got from critical thinking subscale of entrepreneurial skills inventory show a significant differentiation according to learning styles they have. χ^2 (sd=2, n=18)=6.14, $p<.05$. This finding shows that owned three learning styles separately have different effects on students in improving their critical thinking skill of entrepreneurial skills. After the test, it is observed that students learning with auditory learning style have the highest critical thinking skills, and followed by students learning with kinesthetic and visual learning styles respectively considering the mean ranks of the groups.

The emergence of observed significant difference among groups that depends on the significant difference between which groups, was examined by performing Mann Whitney U Test depending on dual combinations of groups.

Table 10. The Results of U-Test According to Critical Thinking Subscale of Students That Have Different Learning Styles

Result of U-Test According to Entrepreneurial Skills	Groups	N	Mean Rank	Total Rank	U	P
Owner of kinesthetic learning style and visual learning style	Students learning with kinesthetic learning style	8	9.63	77.00	15.00	.13
	Students learning with visual learning style	7	6.14	43.00		
Owner of kinesthetic learning style and auditory learning style	Students learning with kinesthetic learning style	8	5.38	43.00	7.00	.03
	Students learning with auditory learning style	3	7.67	23.00		
Owner of visual learning style and auditory learning style	Students learning with visual learning style	7	4.14	29.00	1.00	.02
	Students learning with auditory learning style	3	8.67	26.00		

Examining the results of U Test given in Table 10, there is a significant difference because the p variable according to critical thinking subscale of the students who have visual learning style and auditory learning style of dual combinations was lower than .05 ($p=.03$). So, it has been founded that there is a significant difference between the critical thinking subscales of students who learn with visual learning style and auditory learning style ($U=1.00$; $p=.02$; $p<.05$).

Examining the values of mean ranks in the Ranges Chart (Chart 1), it is observed that students learning with kinesthetic learning style have higher critical thinking skills than students learning with visual learning styles, students learning with auditory learning styles have higher critical thinking skills than students learning with kinesthetic learning styles, students learning with auditory learning style have higher critical thinking skills than students learning with visual learning styles.

The findings related with learning styles (visual, auditory, kinesthetic) of obtained scores from need for success subscale via entrepreneurial skills control list of secondary school sixth grade students in Science Course, are given in Table 11.

Table 11. The Comparison of Entrepreneurial Skills Need for Success Subscale According to Learning Style Groups, Results of Kruskal Wallis Test

Groups	N	Mean Rank	Sd	X²	P
Students learning with kinesthetic learning style	8	11.63	2	5.65	.05
Students learning with visual learning style	7	5.79			
Students learning with auditory learning style	3	12.50			

The analyses prove that the scores of participant students got from need for success subscale of entrepreneurial skills inventory show no significant differentiation according to learning styles they have. χ^2 ($sd=2$, $n=18$)= 5.65 , $p<.05$. This finding shows that owned three learning styles separately have no different effects on students in improving their need for

success skill of entrepreneurial skills. After the test, it is observed that students learning with auditory learning style have the highest need for success skills, and followed by students learning with kinesthetic and visual learning styles respectively considering the mean ranks of the groups.

The findings related with learning styles (visual, auditory, kinesthetic) of obtained scores from interpersonal relationship subscale via entrepreneurial skills control list of secondary school sixth grade students in Science Course, are given in Table 12.

Table 12. The Comparison of Entrepreneurial Skills Interpersonal Relationships Subscale According to Learning Style Groups, Results of Kruskal Wallis Test

<i>Groups</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sd</i>	<i>X2</i>	<i>P</i>
Students learning with kinesthetic learning style	8	12.38	2	6.58	.03
Students learning with visual learning style	7	5.50			
Students learning with auditory learning style	3	11.17			

The analyses prove that the scores of participant students got from interpersonal relationships subscale of entrepreneurial skills inventory show a significant differentiation according to learning styles they have. χ^2 (sd=2, n=18)=6.58, $p<.05$. This finding shows that owned three learning styles separately have different effects on students in improving their interpersonal relationship skill of entrepreneurial skills. After the test, it is observed that students learning with kinesthetic learning style have the highest interpersonal relationship skills, and followed by students learning with auditory and visual learning styles respectively considering the mean ranks of the groups.

The emergence of observed significant difference among groups that depends on the significant difference between which groups, was examined by performing Mann Whitney U Test depending on dual combinations of groups.

Table 13. The Results of U-Test According to Interpersonal Relationships Subscale of Students That Have Different Learning Styles

<i>Result of U-Test According to Entrepreneurial Skills</i>	<i>Groups</i>	<i>N</i>	<i>Mean Rank</i>	<i>Total Rank</i>	<i>U</i>	<i>P</i>
Owner of kinesthetic learning style and visual learning style	Students learning with kinesthetic learning style	8	9.88	79.00	13.00	.08
	Students learning with visual learning style	7	5.86	41.00		
Owner of kinesthetic learning style and auditory learning style	Students learning with kinesthetic learning style	8	5.38	43.00	7.00	.30
	Students learning with auditory learning style	3	7.67	23.00		
Owner of visual learning style and auditory learning style	Students learning with visual learning style	7	4.00	28.00	0.00	.02
	Students learning with auditory learning style	3	9.00	27.00		

Examining the results of U Test given in Table 13, there is a significant difference because the p variable according to interpersonal relationships subscale of the students who have visual learning style and auditory learning style of dual combinations was lower than .05 ($p=.02$). So, it has been founded that there is a significant difference between the interpersonal relationships subscales of students who learn with visual learning style and auditory learning style ($U=.00$; $p=.02$; $p<.05$).

Examining the values of mean ranks in the Ranges Chart (Chart 1), it is observed that students learning with kinesthetic learning style have higher interpersonal relationships skills than students learning with visual learning styles, students learning with auditory learning styles have higher interpersonal relationships skills than students learning with kinesthetic learning styles, students learning with auditory learning style have higher interpersonal relationships skills than students learning with visual learning styles.

Discussion, Conclusions and Recommendations

In terms of learning styles, students who are being educated in 6th grade in Seymenler Secondary School in Altındağ, Ankara are dispersed as follows. 44,4% of the attendant students have kinesthetic learning style, 38,9% of them have visual learning style and 16,7% of them have auditory learning style. Findings of this research are similar to the findings of the research that Şeker and Yılmaz (2011) made. Şeker and Yılmaz (2011) have extrapolated that 7th grade students have kinesthetic, visual and auditory learning styles respectively, and supported this study by having similar results. On overall evaluation, Eskici (2008), have put forth that 6th grade students adopt more kinesthetic and visual learning styles, 7th grade students adopt more visual learning style and 8th grade students adopt more auditory learning style. It is seen that as the ages of the students increase they move away from kinesthetic and visual learning style and adopt auditory learning style. Similar results have been reached in the researches that performed by Koçak (2007) and Ersoy (2003). This condition may have caused that the proportion of the group comprises more kinesthetic learning style owned students because the attendant students were under aged.

The comparison of entrepreneurial skills and the creativity, innovation, risk taking, critical thinking and interpersonal relationships subscales of entrepreneurial skills according to learning styles have been made. In a similar study, a scale consisting of 5 dimensions, such as communication, self-confidence, creativity, risk taking and need for achievement, and 28 items was developed to determine the pre-service teachers' entrepreneurial skills in a laboratory setting (Çelik, Bacanak and Çakır, 2015). It has been founded that the proportion of students who have kinesthetic learning styles in terms of entrepreneurial skills is higher. This finding is not unexpected. The reason is that students who have kinesthetic learning style surely to use their senses. In order to arrange a suitable learning environment the learning by experiencing technique should be applied. Boydak (2008) supports this idea in his study. Students to be active in the class, to question and to do researches lead to the learning by experiencing. Ergün and Özdaş (1997) gave place to this idea in their researches.

It has been concluded that there is a significant correlation between entrepreneurial skills creativity subscale of 6th grade students and learning styles. It has been founded that students with the highest creativity skills have kinesthetic learning style and followed by students with auditory learning style and visual learning style respectively. Kinesthetic students should use all senses to complete station technique activities. Kinesthetic students may have completed activities more comfortable because the conditions were suitable for their style. In the study that Demirtaş and Baltaoğlu (2010) made, they found out that visual learner students have higher creativity skills. In the study Torrance Creative Thinking Test – A Verbal Form was used. In order to complete the activities of the Form, students were asked to look at a picture and answer the picture based questions in written format. Visual students may have completed activities more comfortable because the conditions were suitable for their style.

There is a significant correlation between learning styles and entrepreneurial skills of the students in terms of innovation subscale. It is clear that students with innovation skill are the ones who learn with kinesthetic learning style and followed by auditory and visual ones respectively. Innovation process comprises creativity (Johnson and Bate, 2003). In the study by performing station technique, the utilization of creativity ideas as an output may have led innovation to arise. The success in innovation skill of the students, who had higher success in creativity skill, may have arisen for this reason, as well. Different innovation results may be obtained, if different learning environments were created for learning style groups.

It is seen that the relationship between students' risk taking subscale occurs in kinesthetic learning style the highest and followed by auditory and visual learning styles respectively. It emerges that students who have kinesthetic learning style are the ones who base uncertainty, tend to take risk when to decide and act decisively. It may be said that visual students have this features at the minimal level when compared with other groups. Initializing the innovation and the increase of takings risk under uncertain conditions of an individual leads to increase of self-sufficient skill, so this arises the entrepreneurial skill. Because this situation is suitable for kinesthetic learner students' styles, it may cause them to complete activities comfortably. On the other hand, visual students may have been affected negatively because the activities of station technique were unplanned and unscheduled. Different results may be obtained if there was a station technique application with completely visual components, and planned environments were set.

It is seen that the relationship between students' critical thinking subscale occurs in auditory learning style the highest and followed by kinesthetic and visual learning styles respectively. It emerges that individuals who have auditory learning style are better in talking and listening skills when compared with other learning style groups. Because this situation is suitable for auditory learner students' styles, it may cause them to complete activities comfortably and think in critical way. Colucciello purposed to determine the learning styles according to tendencies of nursing students to critical thinking and examined whether there was a relationship between these two or not. The California Critical Thinking Disposition Inventory / CCTDI and Kolb's Learning Style Inventory was used in the study as data collection tools. The highest tendency score was determined as dominant learning style in the study, and according to Spearman's Rank Correlation Coefficient, it was determined that there is a relationship between learning styles and components of critical thinking tendencies. In this study that specifies there may be a correlation between learning styles and critical thinking, there was no finding that comprehensively explains this correlation. In other words, there was no comprehensive explanation related with students with which learning style have critical thinking skill or tendency at which level. This requires more work on this quite new research field, in other words, more studies examining the correlation between learning styles and critical thinking.

There is a significant correlation between need for success subscale of Entrepreneurial skill and learning styles. It is seen that there is the highest correlation between need for success inventory of entrepreneurial skill and auditory students and followed by kinesthetic and visual ones respectively. Need for success is one of the most major corner stones in exposing entrepreneurial skill. Because this situation is suitable for auditory learner students' styles, it may have caused them to complete activities comfortably and may have triggered their need for success. On the other hand, visual students may have been affected negatively because of the conditions of station technique. Different result may be obtained if different learning style was applied.

There is a significant correlation between interpersonal relationships subscale of Entrepreneurial skill and learning styles. It is seen that there is the highest correlation between interpersonal relationships subscale of entrepreneurial skill and kinesthetic students, but when examined the findings of auditory students it is found out that the findings were quite close to each other. Because this situation is suitable for kinesthetic and auditory learner students' styles, it may have caused them to study as a teamwork more comfortably. On the other hand, visual students may have been affected negatively because of the grouping in station technique, or external factors. Lachman (1980), has compared entrepreneurial individuals and managers in

terms of the need for maintaining close communication and has founded that the need for maintaining close communication of the both groups was at a low level (Özer and Topaloğlu, 2007). This may be because of the differentiation of age group, position of the manager, or activities that have been carried out. By applying different inventories to different age groups, this new study field can be examined more detailed and more different results can be obtained.

As a result; an entrepreneurial student should be creative and innovative as well as being able to think critically by taking risks. Besides, he/she should have the need for success skill and have good interpersonal relationships. It can be said that kinesthetic students have succeeded in many dimensions that creates entrepreneurship. Because they use their senses more effectively while learning, in environments that were organized for active learning, they show more entrepreneurial behaviors than auditory and visual students. By doing more researches on this quite new field, the more detailed examination of subscales can provide the more detailed results.

To enlighten the researchers and new researches, it can be said that, findings of this research is limited to the data obtained from eighteen 6th grade students. To disable this limit, new researches can be made on more comprehensive groups. Besides, researches that entrepreneurial skill control list examines on different primary school grades and on different classes can be made. Educators can support entrepreneurial behaviors of students by observing if they are creative in the classroom or activity, if they create an innovative output, if they take risks when needed, if they determine themselves a target, if they strive for this target and relationships with their peers or teachers. It can be suggested that within the next programs to be developed, this skills of students can be improved by arranging programs including acquisitions of entrepreneurial skills, which has one of the biggest influences in our daily life.

Within the next researches to be done in the secondary schools, by using findings and results of this study, new standards can be developed concerning with learning styles and entrepreneurial skills. Besides it is a belief that, this study will also be a source for other researches in theoretical sense as well as being a contribution to authors of this field.

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