A Study on Developing Learning Strategies in Violin Education

Senol Afacan[1] & Seyda Cilden[2]

[1] Faculty of Fine Arts, Departments of Music, Ahi Evran University, Kırsehir, Turkey

[2] Faculty of Education, Department of Fine Arts Education, Gazi University, Ankara, Turkey

Correspondence: Senol Afacan, Faculty of Fine Arts, Departments of Music, Ahi Evran University, Kırsehir, Turkey. E-mail: senolafacan@gmail.com

Abstract

This study was conducted for the purpose of developing a valid and reliable learning strategies scale for students receiving violin education in Departments of Music at Fine Arts High Schools. The scale was applied to 391 violin students receiving education in the 11th and 12th grades in Departments of Music at Fine Arts High Schools in the provinces of Ankara, Eskişehir, Kayseri, Konya, Kırıkkale, Sivas, Niğde, Adana, Mersin, Isparta, Hatay, Osmaniye, İzmir, Aydın, Denizli, Kütahya, Manisa, Muğla, Bursa, İstanbul, Balıkesir, Çanakkale, Edirne, Tekirdağ, Samsun, Trabzon, Ordu, Bolu, Tokat, Malatya, Erzurum and Van. The 5-point Likert scale consists of 67 items. The data obtained after applying the scale were transferred to the SPSS Package Software. Explanatory factor analysis was then carried out on the basis of the data. As a result of the explanatory factor analysis, it was determined that the scale had six factors. In addition, the Cronbach's alpha internal consistency coefficient of the scale was found to be 0.966.

Keywords: violin education, learning strategies, fine arts high schools, scale development

1. Introduction

Music education, which is one of the most important aspects of arts education, is fundamentally the process of altering thoughts and behavior with regard to music and music-making. Music education can be separated into three main types: general music education, amateur music education and professional music education (Uçan, 2005, pp. 24, 30).

Professional music education aims for students to gain technical information, skills and knowledge regarding their field of choice. One of the most important dimensions of professional music education is instrument education. Fine Arts High Schools have an important role in teaching the core knowledge, skills and technical aspects required, as well as other areas of music, and in aiding students' transition from secondary education to higher education. Considered from this point of view, studies evaluating this process are of particular importance. One of the most important areas of instrument education is violin education.

Violin education is the process of permanently alteringthe psychomotor, cognitive and affective behaviors of individuals and helping them gain new behaviors in their lives through teaching themthe violin (Günay & Uçan, 1980, p. 8).

Violin education is a long and complex process in which psychomotor skills are intensively practiced intensively along side cognitive and affective aspects, and it involves many technical and musical difficulties. A failure to overcome the technical difficulties encountered in violin education and consequently to give the performance intended may not only decrease the desire of the student to study, but also cause her/him to develop negative attitudes towards the violin. Thus, it is very important to use approaches that increase the students' awareness in terms of playing both études and learning other works so that she/he can practice better and gain correct study habits. In this process, learning strategies play an important role in allowing the student to consciously follow her/his own learning process and evaluate herself/himself while learning the violin (Afacan & Çilden, 2017). Acquiring the basic skills to play the violin depends largely on students' ability to understand their own styles of learning and to direct their own learning (MEB, 2016).

These problems encountered in instrument education can be solved through knowing and using learning strategies efficiently. Learning strategies are behaviors and thoughts that can be understood by learners during

the process of learning and which are expected to affect their process of encoding information (Weinstein & Mayer, 1986, p. 315). Tay (2004) defines learning strategies as the students' efforts to make sense out of and appropriate the information that is presented to them during the learning-teaching process and in the personal preparations they make in their own minds.

Today, it is necessary that any knowledge gained is extensive and correct and the most important key to success is being effective and competent in learning. Some of the main elements or processes in effective learning are the learning strategies that are involved in "learning to learn". Learning strategies may enable the student to plan and direct her/his own learning and lead to easier and more permanent learning (Özer, 2002, p. 29).

Learning strategies make it easier for students to obtain, easily recall and transfer knowledge. A student who can use learning strategies in instrument education is likely to know how to obtain whatever knowledge is needed, and how to recall and use that knowledge while practicing her/his instrument. The student may transfer the knowledge gained from previously playing an étude or other work to a newpiece and thus achieve faster, easier and more permanent learning (Kılınçer, 2013). Learning strategies enable learners to make plans and carry out assessments, control their own learning, make decisions about learning processes and determine points of difficulty. Learners learn how to motivate themselves, how to remember and how to think by using learning strategies (Özkal & Çetingöz, 2006).

Examining the literature, it is seen that the most commonly used categorization of learning strategies today is that of Weinstein and Mayer. This study is thus based on their categorization since it is the one generally used in studies on instrument education. To this end, the scale used here was prepared by using the "Rehearsal (Repetition)", "Elaboration", "Organization", "Metacognition" and "Affective Learning" strategies in Weinstein & Mayer's (1986) learning strategies and the "Attention" strategy in Gagne & Driscoll's (1988) categorization. These strategies may briefly be explained as follows.

Rehearsal (Repetition) Strategies: Rehearsal strategies enable the student to intentionally choose and gain knowledge and are based on mental rehearsal (Özer, 1998).

Elaboration Strategy: Elaboration enables the student to associate new knowledge with former knowledge in her/his memory and encode it in long-term memory (Erden & Akman, 1995).

Organization Strategy: Organization enables the student to restructure new knowledge by using her/his prior knowledgein such a way that it will be more meaningful (Demirel, 2012, p. 140).

Metacognition Strategy: Metacognition guides students in organizing, evaluating, and conducting their learning (Özer, 1998).

Affective Strategies: Affective strategies help to remove motivational and emotional obstacles to learning (Senemoğlu, 2005, p. 574).

Attention Strategies: Attention is the most important process for transferring the knowledge obtained from the environment into the short-term memory (Subaşı, 2000, p. 394).

Studies that have been conducted in our country have focused on the effect of learning strategies on students' success in instrument education (Akın, 2007; Ertem, 2003; Kılınçer, 2013; Şimşek & Balaban, 2010; Yokuş, 2009); attitudes (Özer, 2010); use of strategies (Akın, 2007; Ertem, 2003), and also on developing learning strategies in music for primary school students (Kocabaş & Sever, 2011). Studies conducted abroad, on the other hand, have focused on the learning strategies of conservatory students (Virkkula & Nissilä, 2017) and the learning styles and learning strategies of students receiving instrument education (Green, 2010).

In the literature, there is a limited number of studies regarding the use of learning strategies in instrument education and there is no valid and reliable assessment tool in studies aimed at the use of learning strategies in the national literature, especially with regard to violin education. As a result of this lack, this study aims to develop a valid and reliable assessment tool for the purpose of determining the use of learning strategies by violin students studying in Departments of Music in Fine Arts High Schools.

2. Method

2.1 Research Design

The study was conducted using the survey model. The survey model is a research approach that aims to describe a past or a present situation as it is. The event, individual or object discussed in the study is described as far as possible with regard to the conditions in which it is found (Karasar, 2005, p. 77).

2.2 Target Population and Sample of the Study

The target population of the study consists of 11th and 12th grade violin students studying in Departments of Music in Fine Arts High Schools in Turkey in the school year 2017-2018. The sample consists of 391 violin students receiving education in the 11th and 12th grades in Departments of Music in Fine Arts High Schools in the provinces of Ankara, Eskişehir, Kayseri, Konya, Kırıkkale, Sivas, Niğde, Adana, Mersin, Isparta, Hatay, Osmaniye, İzmir, Aydın, Denizli, Kütahya, Manisa, Muğla, Bursa, İstanbul, Balıkesir, Çanakkale, Edirne, Tekirdağ, Samsun, Trabzon, Ordu, Bolu, Tokat, Malatya, Erzurum and Van. Table 1 shows the distribution of students in the study group according to school, grade and gender.

Table1. Distribution of students in the study group according to school, grade and gender

Fine Arts High Schools	Gender		Grade		Total
	Female	Male	11th grade	12th grade	
Ankara	6	3	3	6	9
Eskişehir	8	3	5	6	11
Kayseri	8	2	6	4	10
Konya	12	5	9	8	17
Kırıkkale	4	3	7	-	7
Sivas	8	2	4	6	10
Niğde	7	1	2	6	8
Adana	8	4	7	5	12
Mersin	7	1	6	2	8
Isparta	4	1	1	4	5
Hatay	12	1	3	10	13
Osmaniye	6	1	3	4	7
İzmir	17	3	10	10	20
Aydın	12	2	9	5	14
Denizli	16	2	10	8	18
Kütahya	9	6	8	7	15
Manisa	10	1	6	5	11
Muğla	5	2	4	3	7
Bursa	10	5	8	7	15
İstanbul	2	-	1	1	2
Balıkesir	10	2	5	7	12
Çanakkale	11	4	9	6	15
Edirne	7	2	5	4	9
Tekirdağ	16	2	14	4	18
Samsun	7	-	5	2	7
Trabzon	12	2	7	7	14
Ordu	12	4	10	6	16
Bolu	7	3	6	4	10
Tokat	6	14	10	10	20
Malatya	11	8	11	8	19
Erzurum	9	11	12	8	20
Van	12	-	6	6	12
Total	291	100	212	179	
Grand Total	391				

2.3 Data Collection Tool

2.3.1 The Development of the "Learning Strategies Scale in Violin Education"

The stages inpreparing the "Learning Strategies Scale in Violin Education" were as follows:

- Formulating the Items
- Receiving Expert Opinions
- Preliminary Application
- The Study of Validity
- The Study of Reliability

2.3.2 Formulating the Items in the "Learning Strategies Scale in Violin Education"

The first step in the scale development process was to examine previous scales, especially those found in foreign literature, regarding learning strategies in violin education (Güven, 2008; Kılınçer, 2013; Pintrich, Smith, Garcia, & McKeachie, 1991; Tay, 2002; Yokuş, 2009). As a result of the literature review it was determined that studies regarding learning strategies generally used the categorization of learning strategies by Weinstein & Mayer (1986) and Gagne & Driscoll (1988). In this study, the item pool of the scale was prepared by using "Rehearsal (Repetition)", "Elaboration", "Organization", "Metacognition" and "Affective" learning strategies from Weinstein & Mayer's (1986) categorization and the "Attention" strategy from Gagne & Driscoll's (1988) categorization. Then an item pool including these learning strategies as they apply to violin education was formulated. This item pool consisted of 111 items. Five options were presented next tothese items for the purpose of determining the level of students' agreement with the statements. The options were graded as follows: "Always" (5), "Frequently" (4), "Sometimes" (3), "Seldom" (2), "Never" (1).

2.3.3 Receiving Expert Opinions

Content validity relates to whether or not questions (items) in the assessment scale are appropriate for the assessment scale and represent the area it intends to assess, and is determined according to expert opinion (Karasar, 2005, p. 151). For this purpose, opinions were received from four experts for the external validity of the first draft of the scale consisting of 111 items regarding assessment and evaluation in violin education. Regarding the statements, the expressions used and their spelling and punctuation, an expert working in Turkish education was consulted. The draft scale, corrected according to expert opinions, was reduced to 100 items.

2.3.4 Preliminary Application

In order to make the draft scale understandable to violin students in Fine Arts High Schools, four violin students in the 11th and 12th grades in the Department of Music, Kırşehir Neşet Ertaş Fine Arts High School were asked to read the "Learning Strategies Scale in Violin Education" and their opinions about the items were received.

2.3.5 The Study of Validity

The "Learning Strategies Scale in Violin Education", which was prepared as a 5-point Likert scale, was examined in terms of both content validity and construct validity. Content validity relates to the assessment tool as a whole and to what extent each item in it serves a purpose (Tekin, 1993, p. 45). The content validity of the "Learning Strategies Scale in Violin Education" was provided by examining the contents of the "Violin 11" and "Violin 12" courses in Fine Arts High School Departments of Music and formulating items regarding knowledge acquisitions. Construct validity, on the other hand, explains the results and to what the results are related. In other words, it shows how accurately the assessment tool measures an intangible phenomenon (Tavşancıl, 2006, p. 45). In psychological tests, construct validity is of primary importance (Tezbaşaran, 1996, p. 51). Construct validity was assessed by using factor analysis.

2.3.6 The Study of Reliability

The decision toexclude items from the scale were made by considering factor analysis and item-total correlation values. The cronbach's alpha reliability coefficient for the scale was calculated with the remaining items.

2.4 Data Analysis

In the study, the final form of the draft scale was applied to a total of 391 violin students receiving education in the 11th and 12th grades in Fine Arts High Schools and validity and reliability analyses were then carried out.

2.5 Ethical Aspects of the Study

In the process of developing the "Learning Strategies Scale in Violin Education", the necessary permissions were obtained from the General Directorate of Secondary Education, Ministry of National Education to conduct the study and these permission letters, along with the scale, were sent to the Fine Arts High Schools that participated in the study.

3. Findings

3.1 "Development of the "Learning Strategies Scale in Violin Education"

The decision whether each item can be included in the final scale is made by applying various item analyses to the data obtained from the draft scale (Tezbaşaran, 1996, p. 51). In order to assess the initial "Learning Strategies Scale in Violin Education" prepared with 100 items, item analyses based on the difference of sub-super group averages, and total item correlation analyses were carried out.

3.2 Item Analysis of the "Learning Strategies Scale in Violin Education"

3.2.1 Item Analysis Based on the Difference of Sub-Supergroup Averages

In order to determine the distinguishing powers of scale items, the t-value of the difference between the score averages of super group and sub group music literacy was calculated for each item. The learning strategies' scores of the students were primarily arranged from large to small; each sub-supergroup comprised 106 students constituting 27% of the entire scale.

Table 2. T-test results for item averages of 27% sub and 27% supergroups of the scale

Item	Group	N	X	S	sd	p	Item	Group	N	X	S	sd	p
m1	Sub	106	3.27	.83	210	.000	m51	Sub	106	2.80	1.06	210	.000
	Super	106	4.59	.67				Super	106	4.50	.77		
m2	Sub	106	2.96	1.09	210	.001	m52	Sub	106	2.81	1.11	210	.000
	Super	106	5.01	5.93				Super	106	4.60	.71		
m3	Sub	106	3.19	.95	210	.000	m53	Sub	106	3.02	1.06	210	.000
	Super	106	4.70	.51				Super	106	4.71	.59		
m4	Sub	106	3.06	1.03	210	.000	m54	Sub	106	3.03	1.17	210	.000
	Super	106	4.58	.77				Super	106	4.57	.68		
m5	Sub	106	3.27	1.00	210	.000	m55	Sub	106	2.69	1.04	210	.000
	Super	106	4.49	.65				Super	106	4.45	.70		
m6	Sub	106	3.21	1.02	210	.000	m56	Sub	106	2.82	1.11	210	.000
	Super	106	4.45	.67				Super	106	4.40	.83		
m7	Sub	106	2.77	1.25	210	.000	m57	Sub	106	3.36	1.15	210	.000
	Super	106	4.12	.88				Super	106	4.73	.57		
m8	Sub	106	2.64	.97	210	.000	m58	Sub	106	3.77	1.08	210	.000
	Super	106	4.33	.93				Super	106	4.78	.49		
m9	Sub	106	3.42	1.12	210	.000	m59	Sub	106	3.47	1.13	210	.000
	Super	106	4.49	.91				Super	106	4.75	.45		
m10	Sub	106	3.66	1.04	210	.000	m60	Sub	106	3.53	1.08	210	.000
	Super	106	4.58	.67				Super	106	4.72	.50		
m11	Sub	106	3.26	.97	210	.000	m61	Sub	106	3.29	1.12	210	.000
	Super	106	4.72	.50				Super	106	4.64	.63		
m12	Sub	106	3.09	1.27	210	.000	m62	Sub	106	2.90	1.03	210	.000
	Super	106	4.21	1.05				Super	106	4.61	.68		
m13	Sub	106	3.51	1.19	210	.000	m63	Sub	106	2.81	.94	210	.000
	Super	106	4.44	.79				Super	106	4.47	.62		
m14	Sub	106	2.44	1.33	210	.000	m64	Sub	106	3.57	1.01	210	.000
	Super	106	3.88	1.31				Super	106	4.77	.46		
m15	Sub	106	2.99	1.02	210	.000	m65	Sub	106	3.29	1.05	210	.000
	Super	106	4.57	.61				Super	106	4.68	.55		
m16	Sub	106	2.82	1.09	210	.000	m66	Sub	106	3.31	1.09	210	.000
	Super	106	4.47	.69				Super	106	4.60	.61		
m17	Sub	106	3.25	1.09	210	.000	m67	Sub	106	3.21	1.12	210	.000
	Super	106	4.66	.51				Super	106	4.64	.57		
m18	Sub	106	2.76	1.07	210	.000	m68	Sub	106	2.66	1.01	210	.000
	Super	106	4.62	.60				Super	106	4.48	.69		
m19	Sub	106	2.70	1.08	210	.000	m69	Sub	106	3.11	1.03	210	.000
	Super	106	4.25	.84				Super	106	4.56	.67		
m20	Sub	106	2.41	1.12	210	.000	m70	Sub	106	2.54	1.07	210	.000
	Super	106	4.19	.93				Super	106	4.33	.82		
m21	Sub	106	2.62	1.13	210	.000	m71	Sub	106	2.46	1.07	210	.000
	Super	106	4.52	.74				Super	106	4.16	1.18		
m22	Sub	106	2.45	1.16	210	.000	m72	Sub	106	2.08	.95	210	.000
	Super	106	4.40	.83				Super	106	4.01	1.22		
m23	Sub	106	2.71	1.14	210	.000	m73	Sub	106	2.29	1.08	210	.000
	Super	106	4.51	.72				Super	106	3.89	1.32		
m24	Sub	106	2.51	1.12	210	.000	m74	Sub	106	2.23	1.15	210	.000
	Super	106	4.34	.85				Super	106	3.80	1.28		
m25	Sub	106	2.53	1.11	210	.000	m75	Sub	106	2.22	1.14	210	.000
	Super	106	4.38	.85				Super	106	3.89	1.24		

m26	Sub	106	2.62	1.07	210	. 000	**m76**	Sub	106	2.23	1.11	210	. 000
	Super	106	4.35	.85				Super	106	3.97	1.23		
m27	Sub	106	2.74	1.06	210	. 000	**m77**	Sub	106	2.15	1.07	210	. 000
	Super	106	4.49	.74				Super	106	4.06	1.18		
m28	Sub	106	2.73	1.11	210	. 000	**m78**	Sub	106	2.48	1.21	210	. 000
	Super	106	4.34	.87				Super	106	4.10	1.12		
m29	Sub	106	2.70	1.11	210	. 000	**m79**	Sub	106	2.36	1.20	210	. 000
	Super	106	4.19	1.03				Super	106	4.32	1.00		
m30	Sub	106	2.20	1.08	210	. 000	**m80**	Sub	106	2.48	1.22	210	. 000
	Super	106	4.03	1.07				Super	106	4.05	1.25		
m31	Sub	106	2.84	1.09	210	. 000	**m81**	Sub	106	2.32	1.23	210	. 000
	Super	106	4.48	.77				Super	106	3.87	1.24		
m32	Sub	106	2.59	1.08	210	. 000	**m82**	Sub	106	2.66	1.26	210	. 000
	Super	106	4.24	.89				Super	106	4.22	1.09		
m33	Sub	106	2.73	1.31	210	. 000	**m83**	Sub	106	2.38	1.23	210	. 000
	Super	106	4.22	1.04				Super	106	3.39	1.43		
m34	Sub	106	2.43	1.17	210		**m84**	Sub	106	2.33	1.19	210	. 000
	Super	106	4.20	1.04		. 000		Super	106	3.68	1.28		
m35	Sub	106	2.21	1.11	210		**m85**	Sub	106	2.77	1.06	210	. 000
	Super	106	3.86	1.29		. 000		Super	106	4.44	.81		
m36	Sub	106	2.50	1.31	210		**m86**	Sub	106	2.83	1.06	210	. 000
	Super	106	3.81	1.16		. 000		Super	106	4.56	.56		
m37	Sub	106	2.38	1.20	210		**m87**	Sub	106	2.92	1.09	210	. 000
	Super	106	3.83	1.09		. 000		Super	106	4.67	.52		
m38	Sub	106	2.52	1.11	210		**m88**	Sub	106	2.98	1.06	210	. 000
	Super	106	4.12	.92		. 000		Super	106	4.62	.59		
m39	Sub	106	2.48	1.09	210		**m89**	Sub	106	2.59	1.03	210	. 000
	Super	106	4.10	1.00		. 000		Super	106	4.37	.79		
m40	Sub	106	2.45	1.16	210		**m90**	Sub	106	3.25	1.03	210	. 000
	Super	106	4.19	.98		. 000		Super	106	4.44	.92		
m41	Sub	106	2.56	1.12	210		**m91**	Sub	106	3.01	1.18	210	. 000
	Super	106	4.30	.87		. 000		Super	106	4.75	.54		
m42	Sub	106	3.35	1.19	210		**m92**	Sub	106	2.88	1.17	210	. 000
	Super	106	4.68	.57		. 000		Super	106	4.64	.60		
m43	Sub	106	2.49	1.08	210		**m93**	Sub	106	2.58	1.18	210	. 000
	Super	106	4.33	.80		. 000		Super	106	4.41	.80		
m44	Sub	106	2.44	1.03	210		**m94**	Sub	106	2.70	1.27	210	. 000
	Super	106	4.17	.94		. 000		Super	106	4.18	.99		
m45	Sub	106	2.55	1.08	210		**m95**	Sub	106	3.63	1.27	210	. 000
	Super	106	4.30	.90		. 000		Super	106	4.83	.41		
m46	Sub	106	2.34	.90	210		**m96**	Sub	106	3.24	1.24	210	. 000
	Super	106	4.17	.89		. 000		Super	106	4.69	.60		
m47	Sub	106	2.94	1.09	210		**m97**	Sub	106	2.85	1.00	210	. 000
	Super	106	4.40	.77		. 000		Super	106	4.61	.64		
m48	Sub	106	2.42	1.10	210		**m98**	Sub	106	3.02	1.33	210	. 000
	Super	106	4.16	.98		. 000		Super	106	4.33	1.02		
m49	Sub	106	3.65	1.14	210		**m99**	Sub	106	3.86	1.18	210	. 000
	Super	106	4.53	.75		. 000		Super	106	4.84	.40		
m50	Sub	106	2.94	1.15	210		**m100**	Sub	106	3.84	1.20	210	. 000
	Super	106	4.47	.78		. 000		Super	106	4.93	.28		

In the analysis, as the t-test result for item averages was p<.05; it was concluded that scale items contributed to assessing the condition that was intended to be assessed.

3.2.2 Total Item Correlation

First, the total item correlation values of each item in the 100-item learning strategies scale were surveyed. Examining Table 3, it is seen that total item correlation values vary between 0.261 and 0.678 for all items in the scale. Büyüköztürk (2003) stated that scale items whose total item correlation coefficients were 0.30 and larger distinguished individuals very well, items remaining between 0.20-0.30 might have to be included in the test or be corrected when necessary and items smaller than 0.20 should not be included in the test. It is an undesirable

condition when total item correlations are negative or smaller than 0.30, because it is accepted that items with these values do not distinguish those that submit and do not submit positive views to scale items as well. Total item correlations are expected to be positive and larger than 0.30. Thus, the scale item for "2" learning strategies, whose total item correlation value was smaller than 0.30, was excluded. 99 items remained in the scale.

Table 3. Total item correlation values

Item Number	Total Item Correlation Value	Item Number	Total Item Correlation Value	Item Number	Total Item Correlation Value	Item Number	Total Item Correlation Value
1	.584	26	.596	51	.608	76	.502
2	.261	27	.605	52	.656	77	.541
3	.623	28	.547	53	.618	78	.473
4	.557	29	.508	54	.546	79	.570
5	.495	30	.557	55	.598	80	.468
6	.518	31	.596	56	.557	81	.459
7	.421	32	.560	57	.510	82	.458
8	.573	33	.486	58	.444	83	.334
9	.441	34	.554	59	.510	84	.433
10	.473	35	.504	60	.494	85	.586
11	.626	36	.422	61	.558	86	.628
12	.367	37	.495	62	.631	87	.655
13	.308	38	.547	63	.647	88	.615
14	.405	39	.544	64	.478	89	.617
15	.572	40	.546	65	.529	90	.462
16	.601	41	.584	66	.523	91	.598
17	.569	42	.494	67	.576	92	.573
18	.678	43	.625	68	.658	93	.594
19	.556	44	.601	69	.575	94	.455
20	.555	45	.601	70	.619	95	.447
21	.606	46	.638	71	.542	96	.522
22	.604	47	.561	72	.533	97	.607
23	.597	48	.563	73	.432	98	.333
24	.610	49	.343	74	.460	99	.417
25	.612	50	.542	75	.478	100	.452

3.3 Factor Analysis

It is possible to define factor analysis as multivariate statistics aiming to explore a limited number of conceptually significant new variables (factors, dimensions) by gathering numerous interrelated variables (Büyüköztürk, 2002, p. 472). The convenience of the data for factor analysis can be examined viathe Kaiser-Mayer-Olkin (KMO) coefficient and the Bartlett's Test. If the KMO is larger than 0.60 and the Bartlett's Test significant, it signifies that the data are convenient for factor analysis (Büyüköztürk, 2003, p. 120).

Testing the competence of the "Learning Strategies Scale in Violin Education" for factor analysis, the Kaiser-Mayer-Olkin (KMO) coefficient was found to be 0.948. Kaiser's values larger than 0.90 are described as "excellent" (cited by Afacan & Aydoğdu, 2006, p. 193). Similarly, Sharma (1996, p. 116) evaluated situations where the KMO coefficient value was 0.90 as "excellent" (cited by Eroğlu, 2008, p. 322). Thus, the learning strategies scale being prepared may be described as excellent. In addition, the Bartlett's Test (χ =26555, 059; df=4851; p<.05) was found to be significant (Table 4).

Table 4. Result of the KMO and the Bartlett's Test

Kaiser-Meyer-Olkin (KMO)	0.948
Bartlett's Test	26555.059
df	4851
Sig	.000

Note. p<.05.

After conducting the item analyses and investigating the convenience of the scale for factor analysis, explanatory factor analysis, which is one of the factor analysis methods, was applied to determine the factor structure of the scale.

3.3.1 Explanatory Factor Analysis

The varimax rotation technique was applied in the explanatory factor analysis. After applying the first rotation, the scale was found to have six factors. A total of 17 items (13, whose factor load values were smaller than 0.30; and 91, 63, 86, 35, 55, 68, 31, 32, 72, 10, 17, 3, 85, 1, 89 and 20, whose difference between two high factor load values was smaller than 0.10) were excluded from the scale. After excluding these items, the varimax rotation procedure was applied for the second time and the items 70, 29, 33, 18 that were available in both factors were excluded from the scale. In addition, as items 100, 99, 95, 96, 88, 87, 90, 42, 14, 62 and 30 were found under different factors while naming the factors, they were excluded from the scale. Then varimax rotation was applied for the third time on the basis of the 67-item scale. Table 5 shows the results of rotated principal components analysis.

Table 5. Rotated principal components analysis

Learning Strategies Items	FACTORS AND FACTOR LOADS					
	F1	F2	F3	F4	F5	F6
60	.687					
49	.677					
59	.674					
58	.658					
61	.656					
53	.640					
57	.620					
50	.619					
66	.596					
65	.590					
52	.560					
51	.554					
54	.551					
67	.534					
64	.533					
69	.502					
56	.483					
76		.841				
75		.820				
74		.804				
81		.793				
77		.793				
80		.747				
83		.684				
84		.679				
78		.678				
82		.669				
73		.660				
79		.614				
71		.471				
39			.724			
38			.709			
37			.691			
45			.649			
46			.636			
36			.632			
43			.628			
44			.607			
48			.566			
40			.552			
34			.547			

47	.481		
41	.449		
24		.793	
22		.749	
28		.746	
23		.719	
27		.718	
26		.697	
21		.690	
25		.680	
9			.721
8			.658
4			.650
12			.551
11			.505
19			.450
5			.447
16			.446
6			.446
15			.445
7			.340
93			.621
98			.608
94			.601
97			.573
92			.556

The 67 learning strategies items that were included in the analysis were collected under six factors whose eigenvalues were larger than 1 (21.144, 5.627, 3.847, 2.143, 1.964, 1.522). These factors are shown in Table 6.

Table 6. Eigenvalues of the factors of the six-factor "Learning Strategies Scale in Violin Education", number of items in the factor, factor variances, variance values that increase as factors are added

Factors in "Learning Strategies Scale in Violin Education"	Eigenvalues	Number of Items in the Factor	Factor Variances	Variance Values that Increase as Factors Are Added
I	21.144	17	12.158	12.158
II	5.627	13	11.836	23.994
III	3.847	13	9.764	33.758
IV	2.143	8	9.248	43.006
V	1.964	11	6.639	49.645
VI	1.522	5	4.454	54.099

According to Table 6, the eigen values of factors and variance percentages they explain are as follows: Factor I:21.144, 12.158%; Factor II:5.627, 11.836%; Factor III:3.847, 9.764%, Factor IV:2.143, 9.248%; Factor V: 1.964, 6.639%; and Factor VI:1.522, 4.454%. The variance explained by these six factors regarding the scale is 54.099%. At least 40% of the general variance of the scale is explained is considered competent in terms of behavioral sciences (Kline, 1994; Scherer at al., 1988). With this variance value above 40%, the scale may be accepted as a 6-factor scale (Table 6). Figure 1 shows eigenvalues for the 6 factors.
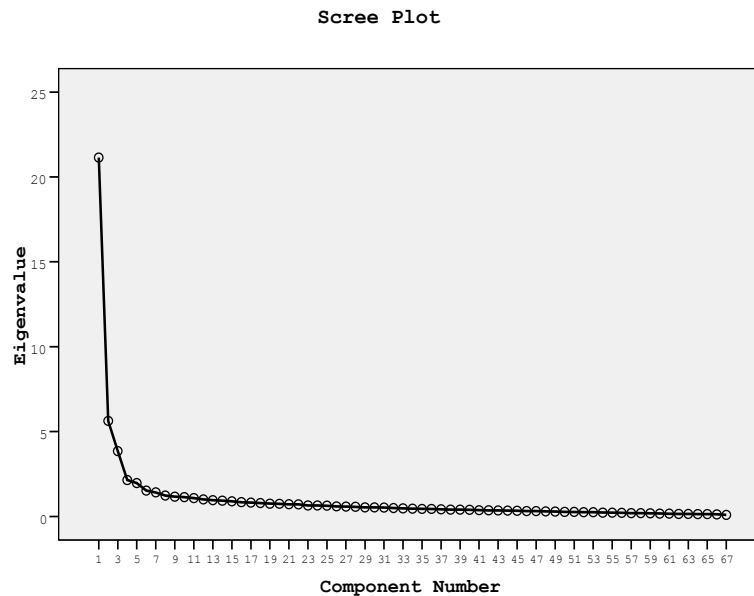
Figure 1. Diagram of eigenvalues (ScreePlot)

FACTOR I

Factor I constitutes 12.158% of the total variance. Table 7 shows the data of Factor I, which is comprised of 17 learning strategies items whose factor load values vary between 0.483 and 0.686.

Table 7. Learning strategies items and factor loads in Factor I

Factor I Cronbach's Alpha: 0.919	Items	Learning Strategies Items	Factor Loads
	60	I determine the reasons for difficulties encountered in an étude or work. (For example, failure to play correctly, technique, position alteration, string alteration.)	.687
	49	I determine how difficult or easy it would be for me to play a new étude or work.	.677
	59	I listen to my teacher play an étude or work as an example and ask what I need to do.	.674
	58	I understand my mistakes while playing an étude or work.	.658
	61	While practising an étude or work, I try to ask and answer questions like, "How can I overcome my difficulties? How can I play better?".	.656
	53	I consider learning the étude or work to add to my musical development.	.640
	57	I learn how to study the étude or work from my teacher and study accordingly.	.620
	50	When I have to study a new étude or work, I plan how much time I need to allocate for it.	.619
	66	I try to immediately correct my mistakes while studying violin (by constantly studying scales in different tones to play cleanly).	.596
	65	When I see the mistakes, I am making while studying the étude or work, I question why I amnot able to play it.	.590
	52	I consider learning the etude or work in order to aid the development of my left-hand technique.	.560
	51	I consider leaning the étude or work in order to aid the development of my right-hand technique.	.554
	54	I ask my teachersquestions regarding how to play the étude or work better.	.551
	67	I think about how to play the étude or work more effectively.	.534
	64	I assess the sounds I am making while playing the violin.	.533
	69	I assess whether I can play the étude or work in the required tempo or not.	.502
	56	When I fail to apply specific methods while studying the étude or work, I seek out new methods.	.483

Examining the 17 learning strategies items in Factor I, it was seen that there were items assessing the dimensions of metacognition. Factor I was named **"Metacognition Strategies".** The cronbach's alpha internal consistency coefficient of Factor I was found to be 0.919.

FACTOR II

Factor II constitutes 11.836% of the total variance. Table 8 shows the data of Factor II, which is comprised of 13 learning strategies items whose factor load values vary between 0.471 and 0.841.

Table 8. Learning strategies items and factor loads in Factor II

Factor II Cronbach's Alpha: 0.938	Items	Learning Strategies Items	Factor Loads
	76	I mark enrichments (trill, grupetto, mordan) in the étude or work.	.841
	75	I mark loudness terms mentioned in the étude or work.	.820
	74	I mark speed terms mentioned in the étude or work.	.804
	81	I underline statements (simile, segue, ossia) used in the étude or work.	.793
	77	I mark explanations regarding playing the enrichments in the étude or work.	.793
	80	I mark explanations regarding the string technique to be used in the étude or work.	.747
	83	I circle the measurement number of the étude or work.	.684
	84	I mark explanations regarding the string forms to be used in the étude or work.	.679
	78	I mark the points where position transitions are made in the étude or work.	.678
	82	I mark finger numbers whenever I have a difficulty in the étude or work.	.669
	73	I circle the sound alteration signs in the étude or work.	.660
	79	I mark the points where difficult passages are.	.614
	71	I indicate the tone of the étude or work on it.	.471

Examining the 13 learning strategies items in Factor II, it was seen that thelearning strategies involved items regarding attention. Factor II was named **"Attention Strategies".** The cronbach's alpha internal consistency coefficient of Factor II was found to be 0.938.

FACTOR III

Factor III constitutes 9.764% of the total variance. Table 9 shows the data of Factor III, which is comprised of 13 learning strategies items whose factor load values vary between 0.449 and 0.724.

Table 9. Learning strategies items and factor loads in Factor III

Factor III Cronbach's Alpha: 0.924	Items	Learning Strategies Items	Factor Loads
	39	I learn rhythmic patterns in the etude or work by categorizing them according to their **differences**.	.724
	38	I learn rhythmic patterns in the etude or work by categorizing them according to their **similarities**.	.709
	37	I categorize the études I practise according to the string techniques being used.	.691
	45	I categorize melodic structures mentioned in the étude or work according to their **similarities**.	.649
	46	I categorize melodic structures mentioned in the étude or work according to their **differences**.	.636
	36	I categorize the études I practise according to string forms being used (by, üy, ay, sp, fr).	.632
	43	I categorize harmonic structures mentioned in the étude or work according to their **similarities**.	.628
	44	I categorize harmonic structures mentioned in the étude or work according to their **differences**.	.607
	48	I categorize musical series I practise while playing violin according to their **similarities** or **differences**.	.566

40	I establish relationships between the period when the étude or work was composed and features of that étude or work.	.552
34	I categorize études or works I practise according to their tones/music.	.547
47	I learn the structures in an étude or work, such as similar intervals, catching sound, finger number by categorizing them.	.481
41	I try to establish a relationship between character terms (like dolce, cantabile) mentioned in the étude or work and musical statements.	.449

Examining the 13 learning strategies items in Factor III, it was seen that they consisted of items involvingorganization strategies. Factor III was named **"Organization Strategies".** The cronbach's alpha internal consistency coefficient of Factor III was found to be 0.924.

FACTOR IV

Factor IV constitutes 9.248% of the total variance. Table 10 shows the data of Factor IV, which is comprised by 8 learning strategies items whose factor load values vary between 0.680 and 0.793.

Table 10. Learning strategies items and factor loads in Factor IV

Factor IV Cronbach's Alpha: 0.934	Items	Learning Strategies Items	Factor Loads
	24	I understand the **difference** between rhythmic structures in the étude and work and rhythmic structures in previously learned études and works.	.793
	22	I understand the **difference** between the string technique used in the étude and work and the string technique used in previously learned études and works.	.749
	28	I understand the **difference** between string forms used in the étude and work and string forms used in previously learned études and works.	.746
	23	I understand the **similarity** between rhythmic structures in the étude and work and rhythmic structures in previously learned études and works.	.719
	27	I understand the **similarity** between string forms used in the étude and work and string forms used in previously learned études and works.	.718
	26	I understand the **difference** between harmonic features (tone alteration, modulation) used in the étude and work and harmonic features used in previously learned études and works.	.697
	21	I understand the **similarity** between the string technique used in the étude and work and the string technique used in previously learned études and works.	.690
	25	I understand the **similarity** between harmonic features (tone alteration, modulation) used in the étude and work and harmonic features used in previously learned études and works.	.680

Examining the 8 learning strategies items in Factor IV, it was seen that they consisted of items containing elaboration strategies. Factor IV was named **"Elaboration Strategies".** The Cronbach's alpha internal consistency coefficient of Factor IV was found to be 0.934.

FACTOR V

Factor V constitutes 6.639% of the total variance. Table 11 shows the data of Factor V, which is comprised of 11 learning strategies items whose factor load values vary between 0.340 and 0.721.

Table 11. Learning strategies items and factor loads in Factor V

Factor V Cronbach's Alpha: 0.859	Items	Learning Strategies Items	Factor Loads
	9	I repeat the étude or work until I play it correctly according to finger numbers indicating position transitions.	.721
	8	I repeat the étude or work until I do it softly without revealing position transitions.	.658
	4	I repeat the étude or work until I play the points where position transitions are made cleanly (intonation).	.650
	12	I memorize finger numbers in points where position transitions are made frequently.	.551
	11	I play the étude or work constantly until it is played with clean sounds (intonation).	.505
	19	While playing using the martelé technique, I repeat it until I can emphasize the sounds in both a strong and short way.	.450
	5	I repeat the string technique until I can apply it correctly in the étude or work.	.447
	16	In the detaché technique, I work until I obtain sounds with equal string length and loudness.	.446
	6	I repeat string forms (by, sp, fr, üy, ay) until I can apply them correctly in the étude or work	.446
	15	I repeat double sounds until I can play them correctly and cleanlyin the étude or work.	.445
	7	I imagine playingall or part of the étude or work.	.340

Examining the 11 learning strategies items in Factor V, it was seen that they consisted of items containing rehearsal (repetition) strategies. Factor V was named **"Rehearsal (Repetition) Strategies".** The Cronbach's alpha internal consistency coefficient of Factor V was found to be 0.859.

FACTOR VI

Factor VI constitutes 4.454% of the total variance. Table 12 shows the data of Factor VI, which is comprised of 5 learning strategies items whose factor load values vary between 0.556 and 0.621.

Table 12. Learning strategies items and factor loads in Factor VI

Factor VI Cronbach's Alpha: 0.788	Items	Learning Strategies Items	Factor Loads
	93	I like studying the violin for long periods of time.	.621
	98	I don't have any anxiety about marks or exams while studying the violin.	.608
	94	When I can't play a part, or have a difficulty in playing it, I never get desperate.	.601
	97	No matter how hard the piece I am studying is, I never give up until I can play it properly and well.	.573
	92	I feel happy when I study the violin.	.556

Examining the 5 learning strategies items in Factor VI, it was seen that they consisted of items containing affective strategies. Factor VI was named **"Affective Strategies".** The Cronbach's alpha internal consistency coefficient of Factor VI was found to be 0.788.

3.4 Findings Regarding the Correlation between the "Learning Strategies Scale in Violin Education" and Its Sub-Factors

Table 13 shows the results regarding the correlation of sub-factors with each other and the entire scale determined after factor analysis.

Table13. Correlation regarding the "Learning Strategies Scale in Violin Education" and its sub-factors

	Entire Scale	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI
Factor I	.779(**)	1					
Factor II	.736(**)	.376(**)	1				
Factor III	.845(**)	.512(**)	.567(**)	1			
Factor IV	.770(**)	.515(**)	.404(**)	.681(**)	1		
Factor V	.790(**)	.654(**)	.415(**)	.572(**)	.581(**)	1	
Factor VI	.675(**)	.597(**)	.364(**)	.461(**)	.448(**)	.595(**)	1

Note. ** Correlation is significant at the 0.01 level (2-tailed), N=391.

According to the correlation analysis that was conducted for determining the relationship between general averages of items in the entire scale and the factors, it is seen that correlation coefficients vary between 0.364 and 0.845. Büyüköztürk (2003) interpreted a value ofbetween 0.70-1.00 to have an absolute value as a "high level" relationship; on the other hand, a value between 0.70-0.30 indicates a "moderate level" relationship. It is possible to state that there is a positively moderate and high relationship between the "Learning Strategies Scale in Violin Education" and its sub-factors. This result shows that each factor has a common purpose (p. 32).

3.5 Findings Regarding the Reliability of the Internal Consistency Level of the "Learning Strategies Scale in Violin Education"

After the factor analysis, the reliability of the 67-item "Learning Strategies Scale in Violin Education" was calculated. The Cronbach's alpha internal consistency coefficient of the learning strategies scale was found to be 0.966. This value may indicate that the scale is "highly" reliable (cited by Tavşancıl, 2006). The reliability analysis of the "Learning Strategies Scale in Violin Education" according to factors was conducted using the Cronbach's alpha reliability coefficient. Table 14 shows reliability analysis values for each factor.

Table 14. Reliability analysis values for the "Learning Strategies Scale" in violin education and its factors

Factors	Number of Items	Cronbach's Alpha
Metacognition Strategies	17	0.919
Attention Strategies	13	0.938
Organization Strategies	13	0.924
Elaboration Strategies	8	0.934
Rehearsal (Repetition) Strategies	11	0.859
Affective Strategies	5	0.788
Learning Strategies Scale in Violin Education	67	0.966

4. Results and Discussion

This study was conducted for the purpose of developing a valid and reliable learning strategies scale for students studying violin in Departments of Music in Fine Arts High Schools. 391 violin students receiving education in the 11th and 12th grades in Fine Arts High School Departments of Music in the provinces of Ankara, Eskişehir, Kayseri, Konya, Kırıkkale, Sivas, Niğde, Adana, Mersin, Isparta, Hatay, Osmaniye, İzmir, Aydın, Denizli, Kütahya, Manisa, Muğla, Bursa, İstanbul, Balıkesir, Çanakkale, Edirne, Tekirdağ, Samsun, Trabzon, Ordu, Bolu, Tokat, Malatya, Erzurum and Van participated in the study. The 100-item "Learning Strategies Scale in Violin Education" that was prepared as a draft was reduced to 99 items with item analysis, which was among the data obtained as a result of pilot study and was based on the difference of sub-super group averages and total item correlation values, and then to 67 items with the varimax rotation technique that was applied three times as a result of factor analysis and exclusion of items in different factors. As a result of the explanatory factor analysis, it was determined that the "Learning Strategies Scale in Violin Education" consisted of 6 factors. These were "Metacognition Strategies", "Attention Strategies", "Organization Strategies", "Elaboration Strategies", "Rehearsal (Repetition) Strategies" and "Affective Strategies". The reliability coefficients of the aforementioned factors were 0.919, 0.938, 0.924, 0.934, 0.859, and 0.788 respectively. In general, the Cronbach's alpha reliability coefficient of the scale was determined to be 0.966, which indicates that the scale is "highly" reliable.

Learning strategies are defined not only as the specific ways students acquire the intended learning, but also the ways used by students to encode information in their short and long-term memories (Yüksel, 2011, p. 151).

It is important to enable individuals to develop their learning strategies and that they are able to practise these strategies in order to achieve the success they hope for. Determining which learning strategies are used by

students and how often they use them, revealing whether their academic achievement varies according to the learning strategies used, and determining effective learning strategies, all constitute important tasks. These activities should be constantly updated and strengthened in the literature with regard to different courses and at different educational stages so that education goals can be achieved (Şahin & Uyar, 2013). It is recommended that research be conducted to determine to what extent the learning styles of Fine Arts High School students affect their learning strategies.

Acknowledgements

References

Afacan, Ö., & Aydoğdu M. (2006). The science technology society (STS) course attitude scale. *International Journal of Environmental and Science Education, 1*(2), 189-201. Retrieved from www.ijese.net/makale/1258

Afacan, Ş., & Çilden, Ş. (2017). Güzel sanatlar lisesi müzik bölümü keman öğrencilerinin temel yay tekniklerine ilişkin kazanımlarının incelenmesi. *Researcher: Social Science Studies (RSSS), 5*(10), 370-382. http://dx.doi.org/10.18301/rss.386

Akın, Ö. (2007). *Anadolu güzel sanatlar liseleri müzik bölümleri keman dersinde anlamlandirma stratejisinin kullanimi ve etkililik düzeyi* (Unpublished doctoral dissertation). Gazi Üniversitesi, Eğitimi Bilimleri Enstitüsü, Ankara.

Büyüköztürk, Ş. (2002). Faktör analizi: Temel kavramlar ve ölçek geliştirmede kullanımı. *Kuram ve Uygulamada Eğitim Yönetimi.* Sayı 32, 470-483. Retrieved from www.kuey.net/index.php/kuey/article/view/517/330

Büyüköztürk, Ş. (2003). *Sosyal bilimler için veri analizi el kitabı (Geliştirilmiş 3. Baskı).* Ankara: Pegem Akademi.

Demirel, Ö. (2012*). Eğitimde program geliştirme (19. Baskı).* Ankara: Pegem Akademi.

Erden, M., & Akman, Y. (1995). *Eğitim psikolojisi: gelişim, öğrenme, öğretmen.* Ankara: Arkadaş Yayınevi.

Eroğlu, A. (2008). *Faktör Analizi*, (Şeref Kalaycı Ed.), *SPSS uygulamalı çok değişkenli istatistik teknikleri* içinde (3. Baskı, ss. 321-331). Ankara: Asil Yayın Dağıtım.

Ertem, Ş. (2003). *Ankara anadolu güzel sanatlar lisesi müzik bölümü piyano eğitiminde öğrenme stratejilerinin kullanilma durumlari ve örgütleme stratejisinin etkililik düzeyi* (Unpublished doctoral dissertation). Gazi Üniversitesi Eğitimi Bilimleri Enstitüsü, Ankara.

Gagne, R. M., & Driscoll, M. P. (1988). *Essential of learning for instruction* (pp. 134-149). Englowood Cliffs, Nj: Prentice-Hall.

Green, L. (2010). Musical "learning styles" and "learning strategies" in the instrumental lesson: Some emergent findings from a pilot study. *Psychology of Music, 40*(1), 42-65. https://doi.org/10.1177/0305735610385510

Günay, E., & Uçan, A. (1980). *Çevreden evrene keman eğitimi Birinci konum/ Birinci kitap*. Ankara: Yeni Dağarcık Yayınları.

Güven, M. (2008). Development of learning strategies scale: Study of validation and reability. *World Applied Sciences Journal, 4*(1), 31-36. Retrieved from https://www.idosi.org/wasj/wasj4(1)/5.pdf

Karasar, N. (2005). *Bilimsel araştırma yöntemi. (15. Basım).* Ankara: Nobel Yayın Dağıtım.

Kılınçer, Ö. (2013). *Piyano dersinde kullanılan öğrenme stratejilerinin çeşitli değişkenler açısından incelenmesi* (Unpublished doctoral dissertation). Erciyes Üniversitesi, Güzel Sanatlar Enstitüsü Müzik Bilimleri Anabilim Dalı Müzik Bilim Dalı, Kayseri.

Kline, P. (1994). *An easy guide to factor analysis*. London and New York: Routledge.

Kocabaş, A., & Sever, Z. (2011). The analysis of the learning strategies utilized by students in music class in terms of some psychosocial variables. *DEU Journal of GSSS, 13*(4), 9-23. Retrieved from www.dergipark.ulakbim.gov.tr/deusosbil/article/view/5000064097

MEB. (2016). *Güzel sanatlar lisesi çalgı eğitimi keman dersi öğretim programı 9, 10, 11 ve 12. Sınıflar*. Orta Öğretim Genel Müdürlüğü, Ankara.

Özer, B. (1998). *Öğrenmeyi öğretme*. In A. Hakan (Ed.), *Eğitim biliminde yenilikler içinde* (ss. 149-163). No: 55, Eskişehir: Anadolu Üniversitesi Yayınları.

Özer, B. (2002). İlköğretim ve ortaöğretim okullarının eğitim programlarında öğrenme stratejileri. *Eğitim Bilimleri ve Uygulama, 1*(1), 17-32. Retrieved from www.ebuline.com/pdfs/1Sayi/1-2.pdf

Özer, Z. (2010). *Bursa Zeki Müren güzel sanatlar ve spor lisesi müzik bölümü piyano dersinde kullanılan anlamlandırma stratejilerinin öğrencilerin öğrenme düzeylerine ve tutumlarına etkisi* (Unpublished master's thesis). Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü Eğitim Bilimleri Anabilim Dalı, Balıkesir.

Özkal, N., & Çetingöz, D. (2006). Akademik başarı, tutum ve öğrenme stratejilerinin kullanımı. *Kuram ve Uygulamada Eğitim Yönetimi, 46*, 259-275. Retrieved from www.kuey.net/index.php/kuey/article/view/358

Pintrich, R. P., Smith, A. F., Garcia, D., & Mckeachie, J. W. (1991). A Manual for the use of the motivated strategies for learning questionnaire (MLSQ). *The Universty of Michigian, Ann Arbor MI:* The Regents of the Univertsy of the Michigian, 5-27. ED338122

Şahin, H., & Uyar, M. (2013). Öğrenme stratejileri kullanımının akademik başarıya yansımaları. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi,* Cilt 13, Sayı 1, 164-177. Retrieved from www.dergipark.ulakbim.gov.tr/aibuefd/article/view/5000091474

Scherer, R. F., Wiebe F. A., Luther, D. C., & Adams J. S. (1988). Dimensionality of coping: Factor stability using the ways of coping questionnaire. *Psychological Reports, 62*(3), 763-770. Pub Med PMID: 3406294.

Senemoğlu, N. (2005). *Gelişim, öğrenme ve öğretim: Kuramdan uygulamaya (12. Baskı)*. Ankara: Gazi Kitapevi.

Sharma, S. (1996). *Applied Multivariate Techniques*. New York: John Wiley & Sons Inc.

Şimşek, A., & Balaban, J. (2010). Learning strategies of successful and unsuccessful university students. *Contemporary Educational Technology, 1*(1), 36-45. Retrieved from files.eric.ed.gov/fulltext/ED542214.pdf

Subaşı, G. (2000). Etkili öğrenme: öğrenme stratejileri. *Milli Eğitim Dergisi, 37*(146), 44-50. Retrieved from dhgm.meb.gov.tr/yayimlar/dergiler/Milli_Egitim.../subasi.htm

Tavşancıl, E. (2006). *Tutumların ölçülmesi ve SPSS ile veri analizi*. Ankara: Nobel Yayın Dağıtım.

Tay, B. (2002). *İlköğretim 4. ve 5. Sınıf Öğrencilerinin Sosyal Bilgiler Dersinde Sınıf Ortamında Kullandıkları Öğrenme Stratejileri*. (Unpublished master's thesis). Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü Eğitim Bilimleri Anabilim Dalı, Ankara.

Tay, B. (2004). Sosyal bilgiler dersinde anlamlandırma stratejilerinin yeri ve önemi. *Gazi Üniversitesi Kırşehir Eğitim Fakültesi (KEFAD),* Cilt 5, Sayı 2, 1-12. Retrieved from dergipark.gov.tr/download/article-file/15731

Tekin, H. (1993). *Eğitimde ölçme ve değerlendirme.* Ankara: Yargı Yayınları.

Tezbaşaran, A. (1996). *Likert tipi ölçek geliştirme kılavuzu.* Ankara: Türk Psikologlar Derneği Yayınları.

Uçan, A. (2005). *Müzik eğitimi temel kavramlar-ilkeler-yaklaşımlar ve Türkiye'deki durum (3. Basım)*. Ankara: Evrensel Müzikevi.

Virkkula, E., & Nissilä, S. P. (2017). Towards professionalism in music: self-assessed learning strategies of conservatory music students. *CEPS Journal, 7*(3), 113-135. Retrieved from http://ojs.cepsj.si/upgrade/ojs-3.0.2/index.php/cepsj/article/view/290/175

Weinstein, E. C., & Mayer, E. R. (1986). *The teaching of learning strategies*, (Ed. M. C. Wittock). *In Handbook of Research on Teaching* (pp. 315-327). New York: Macmillian Company.

Yokuş, H. (2009). *Piyano eğitiminde öğrenme stratejilerinin kullanılmasına yönelik etkinliklerin performans başarısına ve üstbilişsel farkındalığa etkisi*. (Unpublished doctoral dissertation). Marmara Üniversitesi Eğitim Bilimleri Enstitüsü, Güzel Sanatlar Eğitimi Anabilim Dalı, İstanbul.

Yüksel, S. (2011). *Öğrenme stratejileri ve sınıflamalar* (Ed. Prof. Dr. Seval Fer) Öğrenme Kuram ve Yaklaşımları içinde (ss. 149-167). Ankara: Anı Yayıncılık.

Copyrights