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DEVELOPMENT OF ATTITUDE SCALE FOR THE CHOIR LESSON: A VALIDITY AND RELIABILITY STUDY

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ABSTRACT

This study aims to develop a scale to measure the attitudes of Music Education Department (Music Education Department: MED) students towards the choir lesson. With the developed scale, it was aimed to determine the attitudes of MED students towards the choir lesson. The developed scale is a 5-point Likert-type attitude scale. After the scale development phase, factor analysis was performed on the scale and a fit model study was conducted regarding the scale items and dimensions. The scale was created as a 40-item draft scale and was administered to 348 MEABD students. Within the scope of the validity and reliability studies of the attitude scale towards the choir lesson, the Cronbach Alpha reliability coefficient for general reliability was calculated as 0.924 before the analysis and 0.920 after the analysis. Analyzes evaluated at 95% confidence intervals. ($p < 0.05$)As a result of exploratory and confirmatory factor analysis within the scope of construct validity, the draft scale was reduced to a 27-item scale. Whether the data structure was suitable for factor analysis was checked using the KMO (Kaiser-Meyer-Olkin) test and Bartlett test methods. The KMO test value was 0.919 and the Bartlett test was 8147,552 ($p<0.05$). The obtained 27 - items attitude scale for the chorus lesson consists of 4 factors. These dimensions are “Behavioral”, “effective”, “anxious” and “perceptual” dimensions. The total variance explained by the attitude scale for the chorus lesson, which consists of four dimensions, was determined as 57.582%. The load values of the scale items ranged from 0.45 to 0.79. In addition, after the factor analysis, item analysis was carried out regarding the whole scale and each sub-dimension. The relationships between the whole scale and its subscales and between the subscales were examined and the significance levels of relationships were examined. ($p < 0.05$)The scale, which was reduced to 27 items with factor analysis, and the compatibility of the models established with confirmatory factor analysis, were examined. Within the scope of confirmatory factor analysis, $\chi 2/df$ (chi-square/degrees of freedom) value was found to be 1.30, which shows that the model has a perfect fit. It is seen that the model has RMSEA value of 0.084, GFI value of 0.81, AGFI value of 0.77, RMR fit index of 0.070 and SRMR fit index of 0.051, NFI value of 0.94, NNFI value of 0.95, and CFI value of 0.97. As a result of the research, a valid and reliable attitude scale developed for the Choir lesson.

Keywords: Choir lesson attitude, scale development, factor analysis, adaptation model (LISREL).

INTRODUCTION

One of the most essential elements of music education is sound. Exhibiting musical skills without sound and hearing habits will lead to limitations in the formation of music.

The sound produced by the control and support of the abdominal, rib and diaphragm muscles, the vocal folds in the larynx vibrating the air coming from the lungs and transforming them into sound waves, and these sound waves are resonated in the chest, larynx, mouth, nasal and facial (frontal and nasal) sinus cavities. In other words, this means that almost all organs in the region from the groin to the tip of the lips work in harmony by supporting each other to create the sound (Yurdakul, 2000: 3).

The majority of the lessons in the curriculum in music education are carried out using the human voice. Considering that teacher candidates who receive music education will continuously use their voices throughout their teaching life, voice education should be regarded as an integral part of music education. Collective voice training, that is, choir lessons, which is a different dimension of voice education, has a particular importance.

In order to define choir education, first of all, it is necessary to know the meaning of the word choir. This term, which is expressed with the words "Khoros" in Greek, "Chorus" in Latin, "Coro" in Italian, and which is also in our language as "Chorus", is used in the sense of a group of performers and performers that come together to sing mono and polyphonic musical works. The words and songs that this ensemble sings and the vocal music they sing is called the choir. In the past, it meant a group of people who danced and walked with regular steps in some ceremonies. The expression "in chorus" includes the meaning of "made together" (Emnalar, 1997: 7-10).

Çevik (1999: 43) defines the choir as “the sound ensembles that are balanced in terms of numerical formation, sound type, sound capacity and timbre, formed to perform and interpret singles or musical works in accordance with a predetermined model, contributing to the cultural and artistic life of the society with their activities.” defined as.

As Gökçe (2007: 4) says, “Chorus is an education model that can affect societies in the most effective, widespread, fastest and cheapest way. You can immediately form a choir in a neighborhood, school, prison or estate, your workplace or a small town because the feature of the voice as an instrument makes this situation easier. The human voice is more ready to be processed and used than other instruments. This feature is not so possible in other instrument fields. Longer processes and training are needed. Therefore, forming choirs and getting musical results from choirs can be done more quickly and more widely than other individual instrument trainings, instrument ensembles and orchestras.”

At the same time, one of the most beautiful features of choirs is that they create positive changes in social life and people's self-esteem by strengthening interpersonal communication and creating various interactions. Choir lessons are of great importance for students studying in music education departments in terms of both social relations and a sense of responsibility and musical development.

There are cognitive, affective and psycho-motor goals in the choir lesson education program as in every education program. Attitudes, interests, values, tendencies, self-perception, etc. Are located in the affective domain. An individual's tendency to evaluate a symbol, object or event in a positive or negative way is characterized as an attitude (İnceoğlu, 1993). In the affective field, attitudes have an important place among the factors affecting academic success. Positive attitudes towards a subject or a lesson increase the student's motivation and positively affect the academic success of the learning situation.

Like most of our behaviors, our attitudes are acquired through learning. Attitudes are part of an individual's acquired personality traits and, like other acquired personality traits, are learned classical or operant conditioning or through observation of patterns and imitation. Since attitudes are acquired through learning, especially negative attitudes in any field can be transformed into positive or neutralized using appropriate techniques (Tufan and Güdek, 2008: 80).

Attitudes cannot be observed directly; However, by looking at the individual's behavior one can have an idea about the attitude towards an object, subject or event. When individuals are asked about their attitudes about any attitude object or issue, they often do not give a full answer. For this reason, to learn individuals' attitudes it is tried to obtain information about their thoughts, feelings and reaction tendencies (Thurstone, 1967 as cited in Tavşancıl, 2014: 101).

Attitude-related information can be collected in a variety of ways. One of them is direct information gathering. Rating scales fall into this group. Propositions about the object are prepared, it is asked to what extent the individual agrees with these propositions (Ülgen, 1995: 107), By evaluating the answers received, it is determined that the individual has a positive or negative attitude in the area in question. Choosing the individuals' attitudes in all non-formal or formal education activities provides a better understanding of the affective dimension of education. For this reason, the necessity of measuring the attitudes of individuals has emerged.

Determining the students' attitudes towards the choir lesson is extremely important in terms of both determining whether the choir education program shows the desired success and increasing the success of the students in the choir lesson. For this reason, the need to create an attitude scale to measure the students' attitudes towards the choir lesson has been the starting point of this research.

This research was conducted to develop an attitude scale for the chorus lesson to be used to measure the attitudes that are effective on student achievement. It is thought that the attitude scale developed with this research will contribute to educators, researchers and music teacher candidates who aim to increase success. In addition, with this research, creating an attitude scale towards the choir lesson in the field of music education was considered important and necessary as it was thought to shed light on the research related to the field to be conducted in the future.

METHOD

This research model is a study in the general survey model, and it is a study conducted to understand what the feelings, thoughts and behaviors of a certain community are about a certain subject or situation. General survey models are screening arrangements made on the whole universe or a group of samples or samples to be taken from the universe in order to make a general judgment about the universe in a universe consisting of many elements (Karasar, 2008). This study aims to develop an attitude scale for the 'chorus' lesson.

Universe and Sample

The universe of this research, selected from the Central Anatolia Region, Education Faculty Fine Arts Education Department Music Teaching Departments; consists of undergraduate 2nd, 3rd and 4th grade students who have taken the Choir Lesson.

The sample of the study consists of 348 undergraduates, 2nd, 3rd and 4th grade students who were educated in the music education department of the education faculties of 5 universities, which were randomly selected from the Central Anatolian region and took at least one semester of choir lessons in the 2018-2019 academic year.

Table 1. List of Universities That Formed the Sample

1. Gazi University Gazi Education Faculty Fine Arts Education Department Music Teaching Department
2. Necmettin Erbakan University Education Faculty Fine Arts Education Department Music Teaching Department
3. Niğde Ömer Halisdemir University Education Faculty Fine Arts Education Department Music Teaching Department
4. Sivas Cumhuriyet University F Education Faculty İne Arts Education Department Music Teaching Department
5. Aksaray University Education Faculty Fine Arts Education Department Music Teaching Department

Data Collection

Various field articles and studies on scale development were examined to collect data. A questionnaire form consisting of 63 items, which was initially prepared, was prepared based on the articles and scales in the studied area. The scale was written by the researcher himself using simplified and understandable language. The opinions of 3 music educator experts were taken to simplify the number of questions and the reliability of the items in this 63-item questionnaire. After receiving the experts' opinions, 23 items were removed from the 63-item questionnaire and a 45-item scale form was created. This formed scale form was sent to two experts again and its suitability was evaluated by kappa analysis. The resulting scale was prepared in 4 dimensions. In the trial phase, the scale for the chorus lesson, which was prepared as 40 questions, was determined in the undergraduate 2-3-4 of 5 universities. It was applied to a total of 348 students in their classes. In order to carry out the research and collect the data, the necessary research permissions were obtained from the institutions to be studied and it was conducted with the participants who wanted to participate in the study and agreed to answer the questionnaire and scale.

Analysis of Data

The validity and reliability studies of the scale carried out in line with the answers from 348 students who agreed to participate in the study and enrolled in music education. The sample size required for factor analysis was

examined within the scope of the research, and the study group was deemed sufficient (Tabachnick & Fidell, 2001). In order to determine the construct validity of the "Attitude Scale towards Choir Education Lesson", Explanatory Factor Analysis (EFA) was conducted using principal component analysis with varimax rotation. In the analysis, factor loads were determined as at least .40 (Büyüköztürk, 2006). The Cronbach Alpha coefficient was calculated for the sub-dimensions and total reliability of the scale. In addition, Confirmatory Factor Analysis (CFA) was conducted to test the accuracy of the structure revealed by EFA. In order to evaluate the validity of the model in CFA, Chi-Square Fit Test, Root Mean Square Errors of Approximate (RMSEA), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI) and Root-Square-Residual-Mean (RMR) values In addition to these, in order to provide additional evidence for the validity of the scale, a validity analysis based on the lower and upper groups of the scale was conducted. Pearson Product-Moment Correlation Coefficient was calculated for all items, sub-dimensions, and the entire scale. All validity and reliability analyses were performed with the SPSS 18.0 (StatisticalPackage for the Social Sciences) package the Lisrel 8.3 program.

The Attitude Scale for the choir lesson was prepared as a 5-point Likert-type scale, and the draft scale was administered by Sivas Cumhuriyet University (19 participants), Niğde Ömer Halisdemir University (56 participants), Aksaray University (73 participants), Gazi University (102 participants), Necmettin Erbakan University (98 participants) enrolled 348 students, 222 girls and 126 boys. The sample to which the scale was applied consists of 121 2nd grade students, 117 3rd grade students and 110 4th grade students.

The score ranges given to the options used in the 5-point Likert-type scale; strongly agree-5 (4.20–5.00), agree-4 (4.19-3.40), undecided- 3 (3.39-2.60), disagree- 2 (2.59-1.80), strongly disagree- 1 (1.79-1.00).

FINDINGS

In this part of the research, the results from the attitude scale developed according to various variables for the chorus lesson are explained through the information on which the tables are based.

Validity and Reliability of the Scale

Büyüköztürk Factor analysis is defined as the process of revealing new concepts (variables) called a factorization or common factor, or obtaining functional definitions of concepts by using the factor load values of the items (Büyüköztürk, 2005).

The number of samples required to perform factor analysis is important. Nunnally (1978) explained this situation as follows; He explained that if the number of samples is below 300, the number of items should be 5 to 10 times, and when the number of samples exceeds 300 (independent of the ratio to the number of items), stable results are achieved. Comrey and Lee (1992) went into a classification and described 100 samples as poor, 300 samples as good, and 1000 samples as excellent (as cited in Can, 2013).

The draft scale was evaluated by two experts and the evaluation made by these experts was evaluated by using kappa analysis and the kappa value was found to be =0.200 (p<0.05).There are 40 items in the draft scale and this scale was applied to a total of 348 people and has a good degree of adequacy in terms of sample size. KMO (Kaiser-Meyer-Olkin) coefficient and Bartlett Sphericity Test are used to decide whether the obtained data are suitable for factor analysis or not. If the KMO coefficient is higher than 0.6 and the Bartlett Sphericity Test is significant, it can be concluded that the data obtained are suitable for factor analysis (Büyüköztürk, 2008; Norusis, 1990).

As a result of the preliminary analysis studies carried out to determine the suitability of the data obtained from the research for factor analysis; The KMO (Kaiser-Meyer-Olkin) (Sample Volume Suitability Measurement) value was 0.919, and the Bartlett Sphericity Test result was also significant (p<0.05). The chi-square value is 8147,552; Df being 780 indicates the suitability of the data for exploratory factor analysis.

The Cronbach Alpha value of the 40-item scale was found to be 0.924 and it was decided that its reliability was high enough. The reliability of the scale means that the scale can be switched to factor analysis.

Looking at the total values, there are 7 factors with an initial eigenvalue above 1. It is seen that the contribution of these 7 factors to the variance is 62,410 %. However, the contribution of each factor to the total variance is important when deciding on the number of factors.

Table 2. Total Variance Explained Table

	Initial Eigenvalues			Rotational Sums of Square Loads		
Component	**Grand total**	**Percentage of Variance**	**Cumulative Percentage**	**Grand total**	**Percentage of Variance**	**Cumulative Percentage**
1	12,742	31,855	31,855	7,343	18,357	18,357
2	4,399	10,998	42,853	5,267	13,169	31,525
3	2,144	5,360	48,214	4,019	10,048	41,574
4	1,956	4,889	53,103	3,740	9,350	50,924
5	1,329	3,322	56,424	1,720	4,301	55,225
6	1,280	3,200	59,624	1,650	4,124	59,349
7	1,114	2,786	62,410	1,225	3,061	62,410

Looking at the graph of the % variance, it is seen that 7 components contribute to the variance to a large extent, and this contribution decreases as of the 8th component. In this case, it can be decided to test the number of factors initially thought to be 7 as 7. Before this decision was made, the "Scree Plot" graphic was examined.

On the Y-axis, the components descend towards the X-axis. Dots represent this downward trend in the framework of the contribution to the variance. Each interval between two points means a factor. As seen in Figure-1, the slope makes a plateau after the 4th point. The contribution of the components after point 4 to the variance is both small and approximately the same (Figure 1).

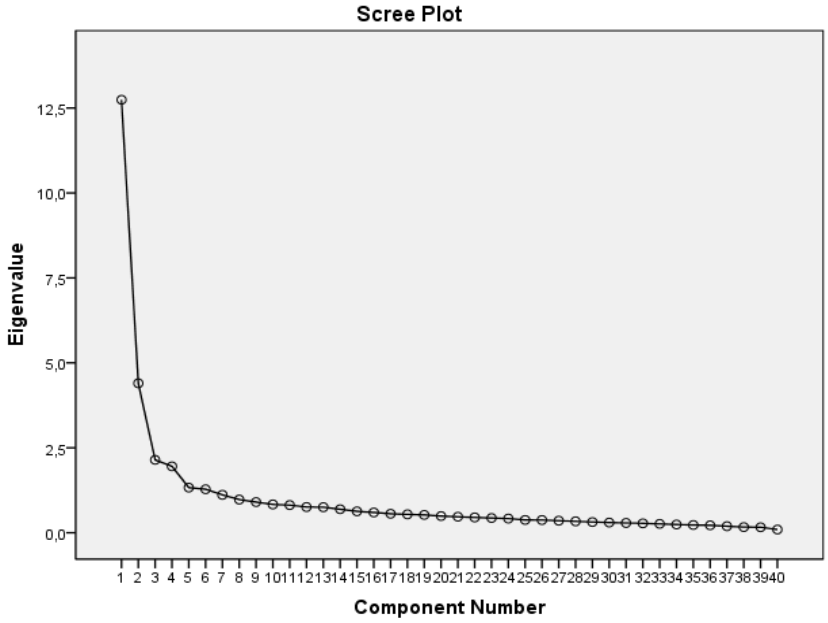

Figure-1 Slope-scum graph

In order to determine the suitability of the items in the scale by specifying the number of factors and which items will be removed from the scale, exploratory factor analysis was based on the rotated components matrix. It is expected that the difference between the highest load value of an item in the factor and the highest load value after this value should be as high as possible. It is desirable that the difference between two high load values is at least 0.1. According to the values obtained as a result of the analysis, if an item is included in only one factor with a factor load of at least 0.4 and a load of an item in more than one factor in one factor is at least 0.1 higher than the other, the item was kept in the scale. In a multifactorial structure, scale items that give high load values in more than one factor are defined as overlapping items, and it may be considered to remove the items from the scale (Çokluk et al., 2012; Büyüköztürk et al., 2012).

After that, the exploratory factor analysis of the scale was started. At this stage, exploratory factor analysis was rotated 11 times and 2, 6, 9, 12, 21, 24, 25, 27, 29, 31, 33 items were removed and finally, no item with a difference of less than 0.1 was found between the item loads on the acceptance level of the items. At the same time, no overlapping items and items with a load below 0.40 were found on the scale, and there was no item to be removed. In the next step, confirmatory factor analysis was started and the scale was tested in 4 dimensions.

Table 3. Announced Total Variance Table

Component	Initial Eigenvalues			Rotational Sums of Square Loads	Rotational Sums of Square Loads	
	Grand total	Percentage of Variance	Cumulative Percentage	Grand total	Variance %	Cumulative %
1	9,601	33,105	33,105	6,377	21,991	21,991
2	3,417	11,784	44,889	4,895	16,878	38,869
3	1,928	6,649	51,538	3,034	10,463	49,332
4	1,753	6,044	57,582	2,393	8,250	57,582

As seen in Table 6, the variance explanation rate of the four factors was found to be 57.582%. As seen in the table, the variance explained by the 4 factors in the scale was 21,991% for the 1st factor; 38,869% for the 2nd factor; For the 3rd factor, 49,332% of the factors explain 57,582% of the total variance. This variance value can be considered good for a 4-factor scale. The eigenvalues of all factors are greater than 1, indicating that this scale may have three significant factors (Table 3).

When we examine the "Scree Plot" graphic in Figure-1; Components on the y-axis make a descent relative to the x-axis. Dots represent this downward trend in the framework of the contribution to the variance. Each interval between two points represents a factor.

As seen in Figure-1, the slope makes a plateau after the 4th point. The contribution of the components after point 4 to the variance is both small and approximately the same. Therefore, it was decided that the number of factors should be 4.

Table 4. Factors and Load Values in Scale

Items	Dimensions			
	1	2	3	4
s15	,799			
s10	,792			
s3	,768			
s13	,739			
s11	,728			
s19	,717			
s17	,671			
s14	,643			
s18	,631			
s16	,618			
s1	,614			
s5		,783		
s20		,750		
s23		,742		
s7		,732		
s22		,732		
s4		,712		
s36		,609		
s8		,579		
s34			,744	
s35			,735	

s30	,727	
s32	,716	
s26	,456	
s38		,708
s40		,705
s37		,651
s39		,580
s28		,465

The distribution of the items that were decided to remain in the scale as a result of the factor analysis according to the factors and their factor loads are shown in Table 4.

It is seen that the load values of the items in the scale vary between 0.45 and 0.79. Scale; It consists of Affective, Behavioral, Perceptual and Anxious dimensions for the choir lesson. Affective dimension consists of 15, 10, 3, 13, 11, 19, 17, 14, 18, 16.1 items. The items that make up the behavioral dimension are 5, 20, 23, 7, 22, 4, 36, 8. The items that make up the perception dimension are 34, 35, 30, 32, 26. Finally, the anxiety dimension is 38, 40, 37, 39,28 (Table 4).

Reliability analysis was performed due to the rotated components matrix and the Cronbach Alpha coefficient was calculated as 920. Since this result was at the desired level, no other item was excluded from the analysis in order to increase reliability. Therefore, there was no change in the dimensions of the items.

In addition, the validity analysis of the remaining 27 items based on the lower-upper groups of the attitude scale towards the chorus lesson was performed (Table 5) and it was determined that the items were significant in the item-validity analysis based on the lower-upper groups. Items based on sub-topic groups were insignificant in the analysis, and the 39th and 28th items were removed from the scale. ($p<0.05$).

Table 5. Validity Analysis Based on Sub-Super Groups

	Lower Upper	N	Average	Standard Deviation	Standard Error Mean	T	Sd	P
s15	Low	94	2,4468	1,11314	,11481	16,431	186	,000
	Up	94	4,5851	,59405	,06127			
s10	Low	94	2,6383	1,09595	,11304	14,584	186	,000
	Up	94	4,5426	,63356	,06535			
s3	Low	94	2,6489	1,24181	,12808	11,299	186	,000
	Up	94	4,3723	,80301	,08282			
s13	Low	94	2,7234	1,06159	,10949	14,509	186	,000
	Up	94	4,6064	,67550	,06967			
s11	Low	94	2,5638	1,02189	,10540	13,241	186	,000
	Up	94	4,3723	,84222	,08687			
s19	Low	94	2,4574	1,17010	,12069	10,344	186	,000
	Up	94	4,0532	,93172	,09610			
s17	Low	94	2,8617	1,03281	,10653	16,648	186	,000
	Up	94	4,7872	,43681	,04505			
s14	Low	94	2,8830	1,09600	,11304	12,886	186	,000
	Up	94	4,5851	,66251	,06833			
s18	Low	94	2,9362	1,12459	,11599	13,842	186	,000
	Up	94	4,7553	,59903	,06179			

Table 5. Validity Analysis Based on Sub-Super Groups

	Lower Upper	N	Average	Standard Deviation	Standard Error Mean	T	Sd	P
s16	Low	94	2,6383	1,16260	,11991	10,818	186	,000
	Up	94	4,2766	,89688	,09251			
s1	Low	94	3,3830	1,15569	,11920	12,150	186	,000
	Up	94	4,8936	,34292	,03537			
s5	Low	94	2,7979	1,09328	,11276	13,918	186	,000
	Up	94	4,7447	,80236	,08276			
s20	Low	94	3,0957	1,16461	,12012	11,608	186	,000
	Up	94	4,7660	,76798	,07921			
s23	Low	94	2,9681	1,09203	,11263	15,951	186	,000
	Up	94	4,9149	,45578	,04701			
s7	Low	94	2,7021	1,06589	,10994	15,834	186	,000
	Up	94	4,7660	,67880	,07001			
s22	Low	94	2,8830	1,08614	,11203	15,939	186	,000
	Up	94	4,8723	,53348	,05502			
s4	Low	94	2,5638	1,11257	,11475	15,868	186	,000
	Up	94	4,7234	,70945	,07317			
s36	Low	94	3,0426	1,26928	,13092	13,964	186	,000
	Up	94	4,9468	,37003	,03817			
s8	Low	94	2,9468	1,13939	,11752	12,201	186	,000
	Up	94	4,6489	,72893	,07518			
s34	Low	94	3,4681	1,08462	,11187	-7,432	186	,000
	Up	94	4,5426	,88797	,09159			
s35	Low	94	3,4574	1,19735	,12350	-8,097	186	,000
	Up	94	4,6702	,82159	,08474			
s30	Low	94	3,2979	1,11519	,11502	-8,768	186	,000
	Up	94	4,6170	,94022	,09698			
s32	Low	94	3,5638	1,15989	,11963	10,551	186	,000
	Up	94	4,9255	,46926	,04840			
s26	Low	94	3,2660	1,20193	,12397	-8,072	186	,000
	Up	94	4,5106	,88894	,09169			
s38	Low	94	2,9681	1,28224	,13225	-2,836	186	,005
	Up	94	3,5532	1,53537	,15836			
s40	Low	94	2,9894	1,31570	,13570	-4,208	186	,000
	Up	94	3,8404	1,45398	,14997			
s37	Low	94	3,0851	1,27557	,13157	-6,626	186	,000
	Up	94	4,2660	1,16560	,12022			
s39	Low	94	2,4043	1,15767	,11940	,055	186	,956*
	Up	94	2,3936	1,48265	,15292			
s28	Low	94	2,4362	1,24916	,12884	,000	186	1,000*
	Up	94	2,4362	1,77533	,18311			
Total	Low	94	84,1170	7,74854	,79920	37,543	186	,000
	Up	94	127,961	8,25853	,85180			

P<0,05

In the last case, the total number of items on the scale is 27. However, due to the item validity analysis based on the lower and upper groups, the 39th and 28th items were removed from the scale. The lowest score that can be obtained from this scale is 25, and the highest score is 125.

The Cronbach Alpha value of the affective dimension is 0.92. The Cronbach Alpha value of the behavioral dimension is 0.90. The Cronbach Alpha Value of the Perceptual Dimension was found to be 0.79. When we look at the Cronbach Alpha value of the anxious dimension, it was found to be 0.75. In addition, the overall reliability

of the scale was found to have a Cronbach Alpha value of 0.919. Since the reliability coefficient was at an appropriate value, removing any item from the scale was unnecessary.

Adaptation Model and Confirmatory Factor Analysis (LISREL) for the "Chorus" Lesson

Confirmatory factor analysis is a highly developed technique based on testing theories about latent variables and used in advanced research (Tabachnick & Fidell, 2001).

Confirmatory factor analysis is a previously defined and constrained analysis in which a construct is tested whether it is validated as a model. In addition, sometimes this analysis is used to mean the verification of the "theoretical structure" or "model" (Maruyana, 1998). Confirmatory factor analysis is used to evaluate construct validity (Floyd & Widaman, 1995; Kline, 2005).

Confirmatory factor analysis is mostly used in scale development and validity analysis in psychology literature. These analyzes, it is aimed to verify a predetermined or constructed structure and its traditional origin is based on general factor analysis. Confirmatory factor analysis provides detailed statistics on how well the (recommended) model describing the relationships between latent variables and the obtained (observed) data agree. When confirmatory factor analysis is used for scale development or testing, it is assumed that only relationships (correlation) between the latent variables representing the factors and generally all parameters are released (Sümer, 2000; Çokluk et al. 2014).

According to Kline, in the results of confirmatory factor analysis of a measurement model, the correlation estimates between the factors, the loads between the factors on which the indicators depend, and the number of measurement errors (original variance) for each indicator are given. If the researcher's initial measurement model is validated logically, the following should be considered: First, measuring under a common factor and all of the determined indicators have very high loads on that factor; second, correlation estimates between factors cannot be very high (eg >0.85). The results in the first step show convergent validity and the results in the second step indicate discriminant validity (Çokluk et al., 2014).

After describing and defining the model, model parameters calculated from the available data. In this calculation process, iterative methods are applied similar to factor analysis and the primary inference technique used in the solution is maximum probability. Chi-square ($\chi 2$) goodness of fit (chi-square goodness of fit); According to Chou and Bentler (1995), this test was obtained by multiplying the fair value between two covariances by the number of subjects in the sample used minus one.

The result obtained is calculated as the $\chi 2$ distribution. In this calculation, it is assumed that the data comply with the "multivariate normality" assumption, which is the general assumption of multivariate statistics, and therefore, some critical points, especially sample size, should be considered in its use. According to Hoyle (1995),

if the fit between the data and the model is perfect, the obtained value should be close to 0 and the significance value (p value) should not be significant (cited by Sümer, 2000; Çokluk et al., 2014).

The Goodness of fit index (GFI) and adjusted goodness of fit index (AGFI): These indices were developed by Köreskog and Sörbom. GFI was developed as an alternative to χ2 so that model fit can be evaluated independently of sample size. GFI shows how much the model measures the covariance matrix in the sample and is also considered as the sample variance explained by the model. It is therefore similar to R2 in multiple regression. AGFI is a modified variant of GFI for the number of parameter estimates. GFI and AGFI indices range from 0 to 1 and give more appropriate values at large n, as they are very sensitive to sample size.

Rootmeansquareerror of approximation, RMSEA: RMSEA was developed by Steiger and Lind (Hooper, Coughlan, & Mullen, 2008). RMSEA is an index used to estimate population covariances in the noncentral χ2 distribution. This index takes values between 0 and 1. Contrary to GFI and AGFI, a zero RMSEA indicates perfect fit and indicates no difference between population and sample covariances (Brown, 2006; Thompson, 2004; Çokluk et al., 2014).

Root mean square root (rootmeansquareresiduals, RMR) and standardized root mean square root (standardized rootmeansquareresiduals, SRMR): RMR and SRMR are the means of residual covariance between the predictive covariance matrix of the universe and the covariance matrices of the sample. RMR and SRMR values range from 0 to 1, and a value equal to 0 indicates perfect fit (Byrne, 1994; Kline, 2005; Tabachnick & Fidell, 2001; Çokluk et al., 2014).

Comparative fit index (CFI): CFI is considered among incremental fit indexes. This index gives the fit or adequacy of the model by comparing it with a basic model, often called the independence model or the null model, which assumes no relationship between the variables. The proposed model should be much better than the absence model. Therefore, it is expected that the independence model will give a relatively high (significant) χ2 value, and the proposed model will give a relatively low (non-significant) χ2 value (Sümer, 2000). CFI compares the covariance matrix produced by the independence model (the model that predicts the absence of a relationship between latent variables) and the covariance matrix produced by the proposed structural equation model. The CFI is an index that also works well when the sample size is small, as it also considers the sample size. CFI gives a value between 0 and 1. A value close to 1 corresponds to a perfect fit, and a value close to 0 corresponds to model mismatch (Hooper, Coughlan, & Mullen, 2008; Sümer, 2000; Tabachnick & Fidell, 2001; Çokluk et al., 2014).

Normed fit index (normed fit index, NFI) and non-normed fit index (non-normed fit index, NNFI): NFI and NNFI are included in incremental fit indices. It was developed by Bentler-Bonett with the same understanding as incremental fit indices. NFI is essentially similar to CFI in terms of the models it compares, but it makes comparisons without complying with the assumptions required by the χ2 distribution. In NFI, model estimation is evaluated by comparing the χ2 value of the independence model with the χ2 value. However, in small samples,

NFI may give less fit for the model than exists. In this case, NFI is recalculated considering the degrees of freedom which is called NNFI. NNFI (also called Tucker-Lewis Index, TLI) is similar to NNFI but gives a value taking into account model complexity. However, in very small samples, NNFI may give a weaker fit index than other fit indices. Again, similar to CFI, NFI and NNFI values vary between 0 and 1. If the value approaches 1, it corresponds to harmony, and if it approaches 0, it corresponds to inconsistency (Sümer, 2000; Tabachnick & Fidell, 2001; Çokluk et al., 2014).

Table 6. Item Sequence Numbers of the Items for the Fit Model

Item of the Scale Row number	**Lisrel Model Row number**
S15	1
s10	2
S3	3
S13	4
S11	5
s19	6
S17	7
S14	8
S18	9
s16	10
S1	11
S5	12
s20	13
S23	14
S7	15
S22	16
S4	17
S36	18
S8	19
S34	20
S35	21
s30	22
S32	23
S26	24
s38	25
S40	26
S37	27

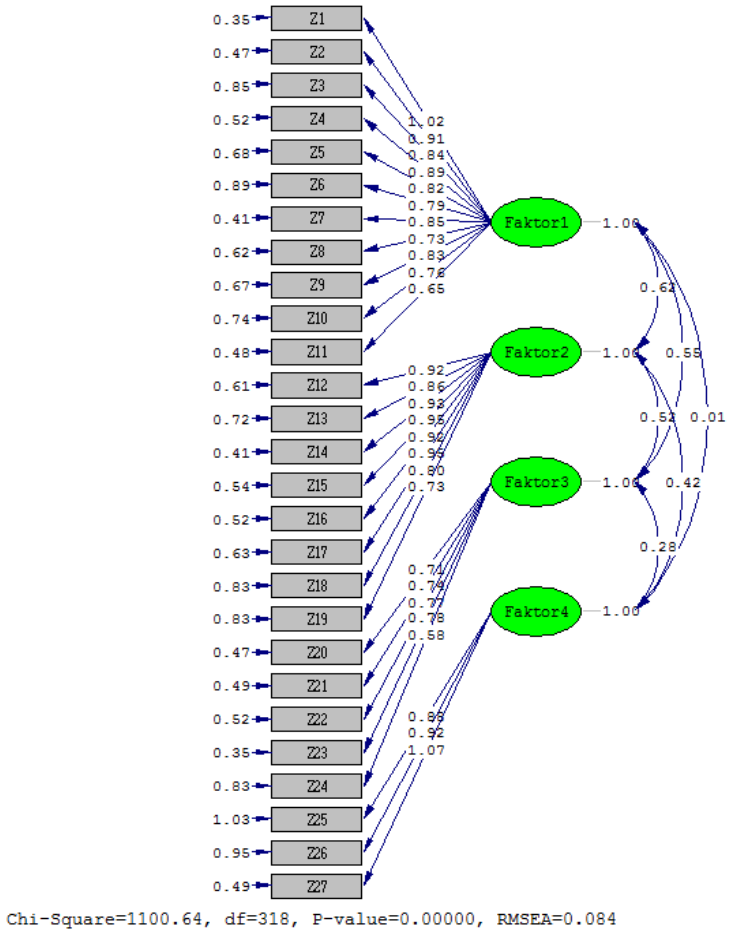

Figure 2. Findings of Fit Model Estimates

As a result of the analysis, according to the Fit Model Estimates Findings, the chi-square value was 1100.64, the df value was 318, and the RMSEA value was 0.084. The load values of the substance vary between 0.56 and 1.07 (Figure 2).

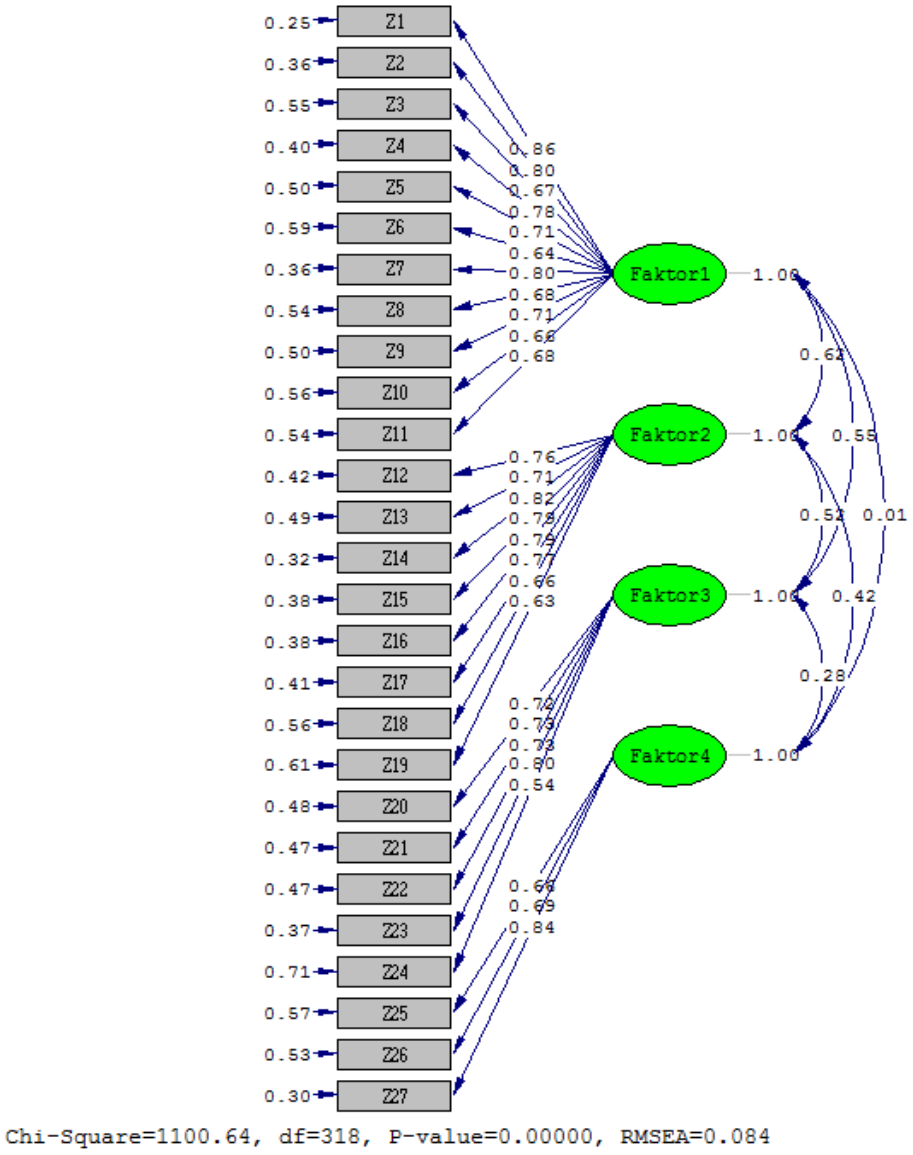

Figure 3. Fit Model Standardized Solution Findings

In the standardized fit model, item loads vary between 0.54 and 0.86 (Figure 3).

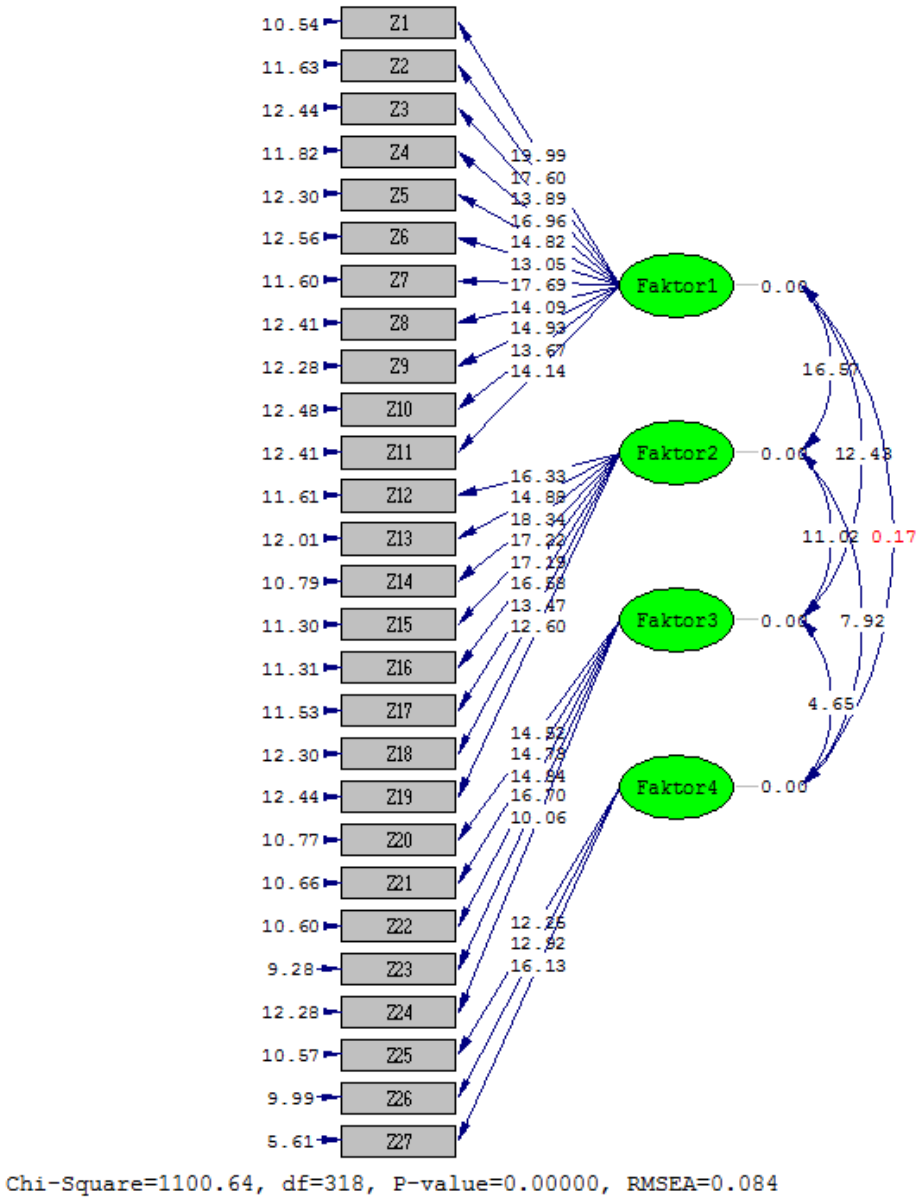

Figure 4. Findings of Fit Model t-Values

According to the t value, the items were found to be distinctive and significant in the fit model (p<0.05).

Table 7. Item Dimensions Fit Model Values

Fit Criteria	Values of Good Fit	Acceptable Fit Values	Fit Values Obtained for the Suggested Scale	Status of Fit
Ki-kare (p)	-	-	1041,81 (p=0,00)	-
Df	-	-	780	-
Ki-kare/df	**0≤ χ^2/df≤2**	**χ^2/df≤5**	**1,30**	**Perfect Fit**
RMSEA	0,00≤RMSEA≤0,05	RMSEA≤0,08	0,084	Acceptable fit
RMR	**0,00≤RMR≤0,05**	**RMR≤0,08**	**0,070**	Poor Cohesion
SRMR	0,00≤SRMR≤0,05	SRMR≤0,08	0,051	Acceptable fit
GFI	**0,95≤GFI≤1,00**	**GFI≥0,90**	**0,81**	Poor Cohesion
AGFI	**0,95≤AGFI≤1,00**	**AGFI≥0,90**	**0,77**	Poor Cohesion
CFI	0,95≤CFI≤1,00	CFI≥0,90	0,96	Perfect Fit
NFI	0,95≤NFI≤1,00	NFI≥0,90	0,94	Acceptable fit
NNFI	0,95≤NNFI≤1,00	NNFI≥0,90	0,95	Perfect Fit

The data we obtained as a result of the confirmatory factor analysis of the Attitude Scale for the chorus lesson, formed by exploratory factor analysis and consisted of 40 items with four factors, are given in Table 7. The compatibility of the models established with confirmatory factor analysis to the data was examined.

Within the scope of confirmatory factor analysis, χ2/df (chi-square/degrees of freedom) value was found to be 1.30, which shows that the model has a perfect fit. Kline and Sümer explained: "If these fit values show a value of 2 or less, the model is a perfect model, and a value of 5 or less shows that the model has an acceptable goodness of fit" (Kline, 2010; Sümer, 2000; Akt Şimşek, 2007).

The RMSEA value of the model was found to be 0.084. Jörescope and Sörbom indicated that an RMSEA value of less than 0.05 would indicate a perfect fit, and a possibly less than 0.08 would indicate a good fit. (Jöreskog and Sörbom, 2001). Scientific Software International, Inc. In this context, the fit index obtained from the results of the analyzes shows that the model has an acceptable fit.

When the GFI and AGFI fit indices of the model are examined, it is noticed that the GFI is 0.81 and the AGFI is 0.77. GFI and AGFI indices over 0.95 are a perfect fit, and over 0.90. corresponds to a good fit (Hooper, Caughlan, & Mullen, 2008).

It is seen that the RMR fit index is 0.070 and the SRMR fit index is 0.051. According to Brown: RMR and SRMR indexes below 0.05 indicate perfect fit, below 0.08 indicate good fit, and below 0.10 indicate poor fit (Brown, 2006). It has been revealed that the RMR value obtained in this context corresponds to a weak fit, and the SRMR value corresponds to an acceptable fit.

When the NFI, NNFI and CFI fit indices are examined in the final analysis, it is seen that NFI has a value of 0.94, NNFI has a value of 0.95, and CFI has a value of 0.96. Sümer explained the characterization of these values as: "Any NFI, NNFI and CFI indices above 0.95 corresponds to a perfect fit, and above 0.90 corresponds to a good fit" (Sumer, 2000). For the analysis, it can be seen that NFI has an acceptable fit in this framework.

Table 8.Findings of the General Scale and Correlation Between Factors

		Emotional	Behavıoral	Perceptıon	Worry	Total
Emotional	Pearson correlation	1	,534**	,496**	-,042	,846**
	P		,000	,000	,433	,000
	N	348	348	348	348	348
Behavıoral	Pearson correlation	,534**	1	,429**	,340**	,849**
	P	,000		,000	,000	,000
	N	348	348	348	348	348
Perceptıon	Pearson correlation	,496**	,429**	1	,114*	,673**
	P	,000	,000		,034	,000
	N	348	348	348	348	348
Worry	Pearson correlation	-,042	,340**	,114*	1	,325**
	P	,433	,000	,034		,000
	N	348	348	348	348	348
Total		,846**	,849**	,673**	,325**	1
		,000	,000	,000	,000	
		348	348	348	348	348

*P<0,05

The absolute values of the Büyüköztürk correlation coefficient between 0.70 and 1.00 are high; It is moderate to have a value between 0.69 and 0.30; The fact that it was between 0.29 and 0.00 was explained as a low level relationship. (Buyukozturk, 2008). A high level of positive correlation was found for the first factor (r= 0.846), a moderately positive relationship for the second factor (r= 0.849), and a moderately positive relationship for the third factor (r= 0.673). A moderate positive correlation was found for the fourth factor (r=0.325) ($p<0.05$; Table 8).

CONCLUSION and DISCUSSION

In this study, an attitude scale was developed to measure the attitudes of students studying in music education departments towards the choir lesson. During the development phase of this scale, the scale was prepared by scanning various kinds of literature. In this study, factor analyses related to scale development, validity and reliability, results of attitude scale adaptation model towards chorus lesson (LISREL) were examined, discussed and suggestions were developed.

Conclusion on the Scale Development Study

At the beginning of the research, after various literature searches were done, an attitude scale form was prepared for the 40-item five-point Likert type chorus lesson by using the expert opinion, and the attitude scale form was created in the 2018-2019 academic year, Sivas Cumhuriyet University, Niğde Ömer Halis Demir University, Aksaray University, Necmettin Erbakan University. It was applied to 348 students from Gazi University undergraduate 2nd, 3rd and 4th grade students. As a result of the analysis of the data obtained from the applications, a valid and reliable attitude scale was created to measure the attitudes towards the 4-dimensional chorus lesson consisting of 27 items.

Conclusion on Factor Analysis

With the factor analysis performed to determine the scale's construct validity, it was revealed that the items in the scale measure the factors related to the attitude scale towards the chorus lesson. KMO (Kaiser-Meyer-Olkin) coefficient and Barlett Sphericity Test are used to determine whether the obtained data are suitable for factor analysis.

As a result of the preliminary analysis studies carried out to determine the suitability of the data obtained from the research for factor analysis; The KMO (Kaiser-Meyer-Olkin) (Sample Volume Suitability Measurement) value was 0.914, and the result of the Barlett Sphericity Test (Bartlett Integrity Test) was also found significant ($p<0.05$). The chi-square value of 5408,459 Df being 406 indicates the suitability of the data for factor analysis.

The eigenvalue statistics and the line graph of the eigenvalues of the factors were used to determine the number of factors. When the total values were examined, four factors with an initial eigenvalue above one were found. It was observed that the contribution of these 4 factors to the variance was 57.582%. With factor analysis, items with low item loading values (below 0.40) and overlapping items were removed from the scale. When the number of factors was released, the rotated components matrix, which went down to seven factors, was limited to four factors depending on the variance and took its final shape with 27 items by removing 13 items from the scale.

With 13 items excluded from the analysis, it was observed that the variance explanation rate of 4 factors was 57.582%, and the load values of the items in the scale varied between 0.45 and 0.79.

The items constituting the first factor are named the "Affective Dimension", which shows the students' desire for the choir lesson and the values of their feelings towards the lesson is. The item load values of the affective dimension range from 0.61 to 0.79 and consist of 11 items.

The items constituting the second factor are defined as the "Behavioral Dimension" as they are the items that follow the measures that can be taken regarding the states and actions to be taken and the studies done. The item load values of the behavioral dimension range from 0.57 to 0.78 and consist of 8 items.

The items constituting the third factor were named as "Perceptual Dimension" because they contain perceptual expressions. Perceptual dimension item load values range from 0.45 to 0.74 and consist of 5 items.

When we look at the items constituting the fourth and last factor, this dimension is defined as the "Anxious Dimension" because of the items containing anxious expressions. The item load values of the anxious dimension range from 0.65 to 0.70 and consist of 5 items.

Conclusion on Reliability Analysis

In the reliability analysis performed before the analyzes, the Cronbach Alpha value of the 40-item attitude scale towards the chorus lesson was found to be 0.920. As a result of the analysis, the Cronbach Alpha value was found to be 0.91 in the reliability analysis of the 27-items chorus lesson attitude scale.

Considering the reliability coefficients of the dimensions in the scale, the Cronbach Alpha coefficient of the affective dimension was 0.92; the cronbach alpha coefficient of the behavioral dimension was 0.90; Cronbach's Alpha coefficient of the perceptual dimension was 0.79; the Cronbach Alpha coefficient of the anxiety dimension was 0.75; The overall scale was found to be 0.91.

Attitude Scale Fit Model Results Towards Choir Lesson (LISREL)

Within the scope of confirmatory factor analysis, χ2/df (chi-square/degrees of freedom) value was found to be 1.30, which shows that the model has a perfect fit. A value of 2 or less indicates that the model is a good, and a value of 5 or less indicates that the model has an acceptable goodness of fit (Kline, 2010; Sümer, 2000; Akt Şimşek, 2007).

An RMSEA value less than 0.05 indicates a good fit, and a value less than 0.1 indicates an acceptable fit (Yılmaz and Çelik, 2009: 102-131). The RMSEA value of the model was found to be 0.084. In this context, the fit index obtained from the analysis can be stated that the model has an acceptable fit.

A GFI of 0.95 and above corresponds to a good fit, and a GFI of 0.85 and above corresponds to an acceptable fit (Eminoğlu, 2008). When the GFI fit index of the model is examined, it is seen that the GFI is 0.81. In this case, it is seen that the GFI value corresponds to a weak fit. If the AGFI index is 0.90 and above, it corresponds to a good fit, and above 0.85 corresponds to an acceptable fit (Eminoğlu, 2008). The AGFI value of the model was found to be 0.77. For the analysis made within this framework, it is seen that the AGFI value corresponds to a weak fit.

RMR and SRMR indices below 0.05 indicate good fit, and less than 0.1 indicate acceptable fit (Aydın, 2010). In this study, the value of the RMR fit index was calculated as 0.070 and the value of the SRMR fit index was calculated as 0.051. In this context, it can be said that the RMR value obtained corresponds to a weak fit, and the SRMR value corresponds to an acceptable fit.

If the NNFI is above 0.97, it corresponds to a good fit, and above 0.95 corresponds to an acceptable fit (Schermelleh-Engel and Moosbrugger, 2003). It is seen that the NNFI value of the model is 0.95. In this case, it can be said that NNFI corresponds to a perfect fit. NFI, IFI and CFI indices of 0.95 and above correspond to a good fit, and 0.90 and above correspond to acceptable fit (Sümer, 2000).

When the NFI, NNFI, IFI and CFI fit indices of the model are examined, it is seen that the NFI has an acceptable fit of 0.94 and the CFI a perfect fit of 0.96. Path analysis was used with the help of computer programs in order

to schematically examine the relationships between the variables in more detail, to see the predicted values, standardized measurement values and t-acceptance values.

It can be said that the 4-dimensional structure related to the attitude scale towards the choir lesson is appropriate for the path analysis. Standardized item factor coefficients calculated by confirmatory factor analysis were presented, and item-factor direct correlation coefficients were found to be between 0.45 and 0.79.

Literature Review and Comparison of Results

The first version of the attitude scale was developed as 40 items in the study of Çevik (2011), "Developing the Attitude Scale Regarding the Harmony Lesson" and consists of 3 dimensions: These are; The benefits of the harmony lesson were determined as the problems related to the harmony lesson and loving the harmony lesson. 278 students from three different universities participated in the study. As a result of factor analysis, the number of items on the scale decreased from 40 to 22. As a result of the analyzes, the KMO value of the remaining 22 items on the scale was 0.91 and the Bartlett test significance value was 240.02 ($p<0.01$). The factor loading values of the items in the 1st factor were between 0.54 and 0.69; The factor loading values of the items in the second factor ranged from 0.65 to 0.72; The factor loading values of the items in the third factor ranged from 0.64 to 0.79. The Cronbach Alpha value of the 22-item attitude scale obtained in the light of the analyzes was found to be 0.86. The results of Çevik's study show similarities with our study in behavioral, affective and anxiety dimensions. It was seen that the two studies had the same KMO value (0.91) and the factor load values were close to each other, so they overlapped in terms of validity and reliability.

Yalçınkaya & Eldemir (2013) applied the attitude scale they prepared in their study “Developing the Attitude Scale towards Individual Instrument Lesson” to 373 students who received vocational music education at various universities. The construct validity of the scale was determined by factor analysis. Principal component analysis with varimax transform was used in factor analysis. In addition, the internal consistency coefficient and total item correlations of the scale were calculated, and the Cronbach Alpha reliability coefficient was found as $\alpha=0.947$, and the Kaiser-Meyer Olkin (KMO) value was found to be 0.96. As a result of the statistical analyses on the data obtained from the applied scales; An 18-item scale consisting of 2 factors and 12 positive and 6 negative propositions was obtained. The Cronbach Alpha reliability coefficient of the developed scale is $\alpha=0.947$. This result shows that the scale is valid and highly reliable to measure students' attitudes towards individual instrument lessons. Considering the results of both studies, it has been determined that it is very important to measure the attitudes that are supposed to predict the behaviors reliably with cognitive, affective or psychomotor dimensions in making healthy evaluations about students.

Ekici (2012), in the study of "Development of the Attitude Scale towards Individual Voice Education Lesson", was developed based on expert opinions and consisted of 48 items. The researcher's final form was used in the Music Education Departments of Dokuz Eylül University, Pamukkale University and Uludağ University Education Faculties. It was applied to 271 students who were studying. Item analysis was performed on the obtained data

using the SPSS 12.0 package program. The Cronbach Alpha reliability coefficient of the scale is α=0.95. This result shows that the "Attitude Scale Towards Individual Voice Education Lesson" is valid and reliable enough. Considering that the behaviors and attitudes expected to be formed in the Individual Voice Education course are a first step for the chorus course, both attitude scales, whose validity and reliability have been determined, are given to the instructors of the Individual Voice Education course, the choir lecturers, the researchers who conduct scientific studies in this field and the music teacher candidates.It is thought to be useful. In addition, it is predicted that giving more space to scale development studies in music education will contribute to education.

Soycan & Birer (2018) applied the attitude scale they prepared in their study titled "Attitude Scale Towards Piano Lesson Development Study" to 306 students who are 1st, 2nd, 3rd and 4th year undergraduate students of Music Education Department, studying at three different universities. Rotated principal components analysis was performed to see whether the scale items were separated into independent and significant factors, and item-total score correlation was calculated to explain the relationship between the scores obtained from the test items and the total score of the test. According to factor analysis, 8 items were collected in the 1st factor, 5 items in the 2nd factor and 4 items in the 3rd factor. The first factor was titled “Interest”, the second factor “Anxiety” and the third factor “Care”. After determining the latent structure of the measurement tool with exploratory factor analysis, the LISREL program was used to confirm this latent structure with confirmatory factor analysis. At the end of the confirmatory factor analysis, the fit index values of the model were calculated as GFI=0.89, AGFI=0.85, NFI=0.95, CFI=0.97 and RMSEA=0.080. As a result of the analyzes made in the development study of the attitude scale, it was seen that the 17-item scale had 3 factors and the Cronbach Alpha coefficient calculated to determine the internal consistency of the scale was found to be 0.909. One of the dimensions that emerged as a result of both studies is the anxiety dimension can be considered as partly overlapping of these two studies.

Attitude scale development studies have been carried out in many areas of music education. Bağcı (2020), Engin (2019), Canakay (2006), Tufan and Güdek (2008), Lehimler and Cengiz (2018), Küçükosmanoğlu et al. (2016) also set an example for scale development studies in the field of music education.

RECOMMENDATIONS

It is important to know and measure the attitudes of the individual in the evaluation and correct orientation of the education-teaching process. Education is one of the most important tools used in changing attitudes. Increasing the quality of education is possible by measuring and analyzing students' attitudes about any concept and phenomenon. Since attitudes cannot be observed directly, measurement tools that measure attitudes numerically need to be developed. In this context, the importance of valid, reliable and qualified attitude scales and studies to develop attitude scales are increasing. However, the scales to be developed should be able to reliably measure attitudes with cognitive, affective or psychomotor dimensions.

It is recommended that new studies be carried out to determine the attitudes of students in order to increase and improve the effectiveness, quality and permanence of education and to create a functional education system

that can adapt to the innovations and developments brought by time. In addition, it is suggested that new attitude scales should be made for different concepts and phenomena by examining the variables of student attitudes.

ETHICAL TEXT

This article, journal writing rules, publication principles, research and publication ethics rules, journal ethics rules have been followed. Responsibility for any violations that may arise regarding the article belongs to the authors.

Author(s) Contribution Rate: The 1st author's contribution rate to the article is 50%. The second author's contribution rate to the article is 50%.

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