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Cognitive levels regarding articulation marks among violin students in Department of Music Education in Gazi University

Gamze Elif TANINMIS

Department of Music Education, Gazi Faculty of Education, Gazi University, 06500, Ankara, Turkey.

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The purpose of this study is to determine violin students' cognitive levels about articulation marks in Department of Music Education, Fine Arts Education, Gazi Faculty of Education, Gazi University (GUGEF), and to identify the variables on which the cognitive levels vary. It is a descriptive research considering the study purpose, method and nature of study data. In the study, Turkish and international literature was reviewed to identify the place and importance of articulation marks in violin education. The study was carried out during the fall semester of 2015 to 2016 academic year. 59 violin students from the GUGEF Music Education Department participated in the study. The study data were obtained after the students filled in a questionnaire comprised of seventeen items. It was found out that majority of the violin students recall playing techniques as articulation marks are mentioned. A great majority of the students learnt articulation marks in detail during violin lessons. Again, the vast majority said they find themselves partially sufficient in recognizing and applying articulation marks. From overall success levels in the test regarding articulation marks, it was concluded that the respondents do not know the names and functions of the articulation marks. After the cognitive levels of violin students in Music Education concerning articulation marks were identified, certain recommendations were proposed: Content of instrument courses, mainly including Musical Hearing, Reading, and Writing Course, should be rearranged in the light of the study data and findings. Typing of musical notation by using articulation marks should be taught in Computer Skills course offered in the Department of Music Education. Lastly, practical training could be run by specialists to improve violin students' cognitive and behavioural levels regarding articulation marks.

Key words: Music education, instrument training, articulation, articulation marks, violin students.

INTRODUCTION

An overview of music education

In music, as in other arts and sciences, there are no shortcuts to knowledge and mastery. Therefore, individuals can be unique with cognitive, affective and motor skills in arts at the most convenient and advanced

E-mail: gamzelifb@gmail.com. Tel: +905334692960.

level as a result of fieldtraining only.Professional music training, one of the three main sorts of music training as general, amateurish and professional, is the training in formal educational institutions offered to people who choose the whole of the music, a specific branch or subarea as profession (Uçan, 1997).

In Turkey, professional music education is provided in State Conservatories at higher education level, faculties of music and performing arts and music education departments of education faculties or in divisions of music education. Music education offered in fine arts departments under Faculty of Education aims at bringing up music teachers at all levels of general music education, which also seeks to train the individuals who can express feelings and thoughts with music and share it with others (Büyükkayıkcı, 2008).

One of the main dimensions of professional music training is instrumental education. According to Konakcı (2010), “Instrument training offered in faculties of education is in the form of practical component of music education and can be defined as training for interpretation of music by integrating theoretical knowledge of music with physical skills” (Gülüm, 2013). In instrument training, the goal is not only to train advanced students in terms of technicality and musicality but also to train individuals who are able to use their instruments functionally throughout both music education and professional lives (Ertem, 2003). As a formal educational institution for professional music education, music education department in faculties of education offers instrument training. Such training consists of mainly learning to play the instrument, to use the instrument effectively and to teach to play the instrument. The students studying in these institutions receive training after choosing one of the keyboards, strings, woodwind, plucked (for example, ud) or percussion instruments.

Through the instrument, students develop their abilities, enrich their knowledge about music, try to elevate their music appreciation, and learn by applying the principles, methods and techniques required for teaching of instrument training. In this way, they will be prepared for their future task as music trainers. In this regard, instrument education is a very important lesson for a music teacher candidate (Günay and Uçan, 1975). According to Bayraktar (1996), “Besides being an educator, artist identity of music teacher is very important. Music lesson is an art lesson. A music teacher must be able to impress students with her/his artistic identity because it is the cause of being in the classroom in a sense”. Say (1998) thinks “A music teacher is not only an educator but also an art educator, so s/he must be competent in music due to her/his chosen art field. A music teacher with missing musician qualities may be ineffective in improving students' music appreciation and musical behaviours”.

One of the main branches of instrument training is string instrument training. With the closest sound colour and timbre to human voice, string instruments hold an important place in the development of world music culture. “Violin, as one of these instruments, effective voice, wide range of use, and ease of transportation to pricing, is an important instrument in the scope of all kinds of music education due to its effective sound, wide usage area, ease of carrying and purchasing, its efficiency as an educational instrument, its place in world music and a rich repertoire” (Özen, 1994).

Violin training, which is a leading branch of strings training, plays an important role in institutions which train music teachers. In the scope of violin training in such institutions, certain expectations are of great importance such as the capability of perceiving, comprehending, expressing violin works musically and reaching musical integrity. These expectations can be summarized as the ability to perform the sine qua non of the language of music in the most effective and efficient way.Apart from that, violin training poses a certain difficulty at the first step. The difficulty lies in ensuring development of musical playing skills by conveying desired effect in the work performed. This could be achieved by knowing and applying correctly the elements of musical writing on the note.

Cognitive domain

What instrument educators want to achieve through education they apply, is to detect students’ level of success, then to elevate it from lower to upper or more advanced levels. Here *success* means targeted results of acquiring information, maturation and skill development. In other words, it refers to ensuring the development of an individual's cognitive, affective and psychomotor skills as a whole. According to the researches, cognitive domain can be defined as the field where mental activities are dominant; affective domain as the field where the learned emotional behaviours are encoded, lastly, psychomotor domain refers to the field where actual skills are encoded. There is a tight correlation among these areas. In other words, a learned behaviour can fall under three of the domains at the same time, or it can be expressed through one of these three domains depending on the dominant nature of the behaviour (Erden, 1999; Sönmez, 2007).

In this study, cognitive level of students is discussed in relation to the first four stages in Bloom's Taxonomy (Huitt, 2011). First, at *information* stage, which is defined as recognizing of some features belonging to an object or a phenomenon at sight, students are expected to be able to define articulation and tell the names of articulation marks. Second, *comprehension* stage is the bottom step of digestion of the concepts acquired at knowledge level and comprehension. Here students are expected to know and learn the importance and functions of the articulation

marks learned. At *implementation* stage, learners are expected to show by doing based on their learning at comprehension level. Thus, the students at this level must be able to use the articulation marks in place and correctly. Lastly, *analysis* stage consists of several steps such as finding the relationship between the parts, revealing similarities and differences. At this stage, students are expected to put forward the differences of the same articulation marks that express more than one style of playing.

For this purpose, a test case was designed to find out whether the *cognitive behaviours* have been acquired, and whether there are shortcomings, mistakes and difficulties in acquisition of the cognitive behaviours. Indeed, effectiveness and efficiency of instrument education, as the first and foremost factor, depends on sovereignty of the understanding of 'cognitive practical education' in itself". Because "the understanding of cognitive practical education" does not finish with “memorizing” and “comprehending” what is learnt; it has further goals such as "actualizing", "realization", "use", "adaptation" and "benefiting" from what is learnt (Uçan, 2005). In the study, the data collection instrument was developed comprising of questions concerning the first four stages of cognitive level in order to determine the participants’ cognitive levels on musical articulation marks.

Articulation

In musical performance, the method that helps present music to audience in an understandable way is musical articulation. Musical articulation is perhaps the most important of the various elements that lead to a good piece of music and artistic play. Literary meaning of articulation refers to creating and uttering sounds through organs such as tongue, lips, palate, and nasal cavity and so on; joints (Resimli et al., 1990). Articulation is the basic element of speech. Understanding of all words uttered in speech requires right articulating of the sounds. Therefore, an individual who knows how to articulate sounds can easily transmit her/his words to the others as s/he can articulate the sounds well (Çelik, 1999).

In speech, a variety of tones are used in order to make the message more understandable and stress the statement. Bearing in mind that music is also a language; articulation marks play a decisive role in expressing music in a meaningful and understandable way. *Music notes* and all elements involved in *musical notation* that allow us to think concretely the concept called sounds (which is used in music - the ear can detect) are within a system, interrelated and interdependent on each other. Thus, music notes emerge as a matter which deserves focused care for formation of correct understanding and perception at audio-interpretation, reading and writing stages (Günay and Özdemir, 2003).

“As one of the main expressive feature in music, articulation affects a wide range of tone attributes. Humans achieve expression in music performances by several features” (Hähnel and Berndt, 2010).

According to Schmidt-Jones “articulation generally refers to how the pieces of something are joined together; for example, how bones are connected to make a skeleton or syllables are connected to make a word. Articulation depends on what is happening at the beginning and end of each segment, as well as in between the segments. In music, the segments are the individual notes of a line in the music. This could be the melodic1 line, the bass2 line, or a part of the harmony3. The line might be performed by any musician or group of musicians: a singer, for example, or a bassoonist, a violin section, or a trumpet and saxophone together. In any case, it is a string of notes that follow one after the other and that belong together in the music. The articulation is what happens in between the notes. The attack - the beginning of a note - and the amount of space in between the notes are particularly important”.

Articulations are represented by symbols different from one another above or below the note. The symbols which are written above or below notes, give various meanings to the notes and indicate the way or style to perform the notes, are called articulation marks. Articulation marks, specify how notes should be performed, either in terms of duration or stress. “Articulation markings in music are indicated by various dots, lines and shapes attached to the note. Generally, a note with a dot above or below is played short, and one with a line is played long. These markings inform which gesture the violinist will make with the bow. A passage of quavers, for example, all articulated with dots, might be played with a spiccato bow stroke. The symbol > above or below a note indicates that the note is played with an accent” (http://www.violinschool.org/articulation/).

Regarding implementation of the musical expressions of their works in accordance with their wishes, since composers did not have any control about who played or were supposed to play their works during the second half of the 18th century, they wanted to use the signs and statements on the notes more clearly to fix musical performance of such works. This request showed that the composers were against random performance of their works by players (Kapçak, 2014).

It goes without saying that in standard editions of the classical and modern violin works, musical signs which are important in interpretation are indicated as complete and detailed as possible. These include guiding musical signs in interpretation such as rhythms, melodies, the playing techniques, nuances, dynamics, accents, and tone changes. In order to create a really pleasant and desirable effect with violin, it makes it easier to avoid uniformity and the lack of colours and to present the highlights and accents in the right place (Auer, 1980).

Although articulation marks are shown on notes as

complete and detailed as possible, the biggest challenge in playing is that such marks vary according to the instrument and the work played from time to time. In this case regarding terminology, sometimes the same sign contains more than one musical meaning or different signs may be used to give the same musical effect (Schmidt-Jones, 2013; Rabin and Smith, n.d.). This confusion is seen as a challenge in instrument education encountered by students while playing etudes or concertos. In fact, it is of great importance to knowing the meaning of articulation marks on musical works for increasing the performance levels to the desired level. On this topic, the studies from different universities covering different years reveal that students have shortcomings in their knowledge about marks and terms on musical notes.

In a study by Tufan et al. (2007), an investigation was carried out on students studying in the GÜGEF Music Education Department who are graduates of Anatolian Fine Arts High School. The study titled "The Assessment and Evaluation of Students' who graduated from Fine Arts Anatolian High Schools and registered to the Faculties of Education knowledge about Theories of Music" aimed at finding out whether or not these students registered in the Faculty of Education have reached the objectives of the mentioned course taken during secondary education. Taking as basis, the objectives of the course; specific questions were prepared and administered to determine the cognitive level of the study group. The questions aimed at finding out the level of knowledge in such matters as intervals, the concepts of tempo and loudness in music, formation of the concept of scale, recognizing the mode scales, recognizing major and minor scales, knowledge of form, recognizing types of chords and cadence, recognizing note duration and rest duration, clefs and recognizing types of dots and ties, recognizing measure and time signature, knowledge of accidentals, knowledge of ornaments and knowledge of Turkish Music accidentals. The percentages of the obtained data were given. It was found out that the level of achievement of the specific objectives of the Musical Hearing, Reading and Writing course by the students was low.

As another example, the study titled "The Assessment and Evaluation of Notation Knowledge of Students Registered in the Department of Music Education" was carried out by Bulut (2010). The study aimed to identify the level of musical nota knowledge of students attending the Department of Music Education, Faculty of Education at Niğde University during the 2010 to 2011 fall semester. For data collection, a scale was developed to find out the knowledge level of students about clef, staff, note duration, rest duration, scales and key signature, meter, accidentals, ledger lines, octave mark, ornament information, notation abbreviation and accidentals in Turkish music. The obtained data were presented in a way to illustrate frequency (f) and percentage (%) distributions in tables. The results showed that the students have lower level of knowledge about notation, and they do not even know the names and functions of some marks.

In 2012, the study "Cognitive Level Analysis on Musical Terms and Playing Techniques in Piano Education" was implemented in Mehmet Akif Ersoy University. The study aimed at determining the cognitive levels of students studying in the Department of Music Education at Mehmet Akif Ersoy University about musical terms and playing techniques. To this end, the "Cognitive Level Test" was prepared by taking into account the opinions of experts in piano education. The obtained data were processed and interpreted by means of calculation of frequency (f) and percentage (%) values by researchers. In the test, a number of musical terms were used. Those included terms regarding tempo in the curriculum of piano education such as moderato, grave, allegro, largo, allegretto, andante, vivace and presto; tempo variables such as accelerando, rallentando, ritenuto, a tempo and tempo primo; nuance terms such as crescendo, forte, forzando, piano, mezzopiano, fortissimo, decrescendo, fortepiano, pianissimo and mezzoforte; musical expressions like rubato, smorzando, violente, risoluto, scherzo, perdendosi, cantabile, dolce, espressivo and maestoso; lastly, playing techniques such as legato, portato, non legato, staccato and marcato. The results of the survey were reported in tables in categories of true, false, and blank answers, and relevant comments were added below those categories. As a result, it was found out that the students mostly had incorrect information about tempo terms, tempo variables, nuance terms, and meanings of playing techniques and musical expression.

Undoubtedly, various problems are experienced in the process of violin training in institutions training music teachers, and solutions are sought for these problems. As regards to the field of interest, the study represents a process during which the cognitive level is investigated while carrying out violin education, theory and practice at the same time. It was revealed that the students registered in the Department of Music Education under Faculties of Education mainly focus on correct and clean playing of the notes during the 4-year violin education; however, they do not pay necessary attention to articulation marks and playing techniques. This study aims to determine the students' level of cognitive information regarding articulation marks in terms of their effect on violin performance. In this respect, it is important to identify cognitive levels of violin students about articulation marks. Moving from this point, the research problem was stated as follows: At what level is the cognitive information of Music Education Department Violin Students about articulation marks?

Assumptions

The study was based on the assumptions that the

Table 1. Percentage of participation of violin students and surveyed violin students in the study from undergraduate violin programme.

Variables	Total number of violin students	Number of surveyed violin students	Percentage
Freshman	18	17	94.4
Sophomore	17	16	94.1
Junior	12	12	100
Senior	14	14	100
Total	61	59	96.7

participants constitute a true example of the population, a suitable method is selected for the research problem, the data collection instrument is reliable and valid for present study, and responses obtained from the participants are true.

METHODOLOGY

Research type

This is a descriptive research aiming at identifying cognitive levels of violin students in GUGEF Music Education Department about articulation marks. A descriptive study is design to find out facts regarding a specific situation by collecting a certain type of data by means of a corresponding data collection method.

Participants

The study was carried out with 59 students studying undergraduate violin program of Music Education Department of GUGEF during the fall semester of 2015 to 2016 academic year. As shown in Table 1, the number of violin students attending the undergraduate program during the 2015 to 2016 academic year ranges between 12 and 18 in all grades of undergraduate level. One freshman and one sophomore student did not participate in the survey. As a result, the questionnaire was administered to 96.7% of all violin students in the faculty.

Data collection

The qualitative data in this study were collected by means of literature review/analysis, while quantitative data were collected by means of a questionnaire. During the literature review, direct or indirect references were made to studies carried out in this area in both Turkish and other languages. Such studies consist of books, theses, articles and internet and on other materials relevant to the topic. Before the survey was administered to respondents for collecting quantitative data, a pilot study was implemented in each class to find out if the survey questions were understandable in GUGEF Music Education Department. The questionnaire was finalized accordingly also in the light of revision by specialists. The questionnaire which was prepared specifically for this study consisted of seventeen items, three of which were open-ended, the rest being in multiple choice type. The questions could be answered by choosing the only right option and writing the correct answer.

Study findings were obtained by using the questionnaire: in what course violin students learnt articulation marks in detail, whether writing and playing of articulation marks varies depending on the instrument, at what extent they regard themselves sufficient in recognizing and applying the articulation marks, whether they do not need a guide for applying the articulation marks, what kind of a path they follow in distinguishing the marks referring to more than one playing technique, and how they define articulation. The last 4 questions in the survey resembled a mini test consisting of sub-questions regarding recognizing and describing of the articulation marks. In question one, the respondents were asked to write the name of the six articulation marks in the table (for example, ), while the other three required writing the names of the articulation marks on the passage given along with what technique(s) they could play. Each question carried 10 points. The first question in the passage contained two techniques. That question was given 20 points. The maximum point in the test was determined as 100. The questionnaire was administered to study participants in the institutions they currently study.

Data analysis

Statistical processing and analysis of the “quantitative” data collected in this study was performed by specialists with specific software (SPSS). The following statistical methods were used for data analysis:

In data analysis, “frequency” (f) and “percentage” (%) were used to display the survey data collected from closed-ended items. Obtained frequency percentages were row percentages and column percentages were only used in “total” columns. Pearson X^2 test was used to display whether students’ cognitive levels regarding articulation marks vary against two variables (grade level and providing a definition) and whether such difference is significant, if any. Pearson X^2 test is used to find out if there is difference between two or more groups (Güngör and Bulut, 2008). Apart from that, to find out whether there is difference between providing a definition of articulation and knowing and writing the articulation marks, the Kruskal-Wallis test was used due to the small number of those who could not provide a definition for articulation.

RESULTS

As seen in Table 2, study participants are comprised of 59 violin students, 53 of who are females and 6 males. It indicates that the proportion of female students is about 8.8 times the proportion of male students.

According to the distribution of participants bythe type of high school they graduated from, it seems remarkable that a vast majority of the violin students (93.2%) are graduates of Anatolian Fine Arts High School. In relation

Table 2. Personal information about violin students.

Personal information of violin students		f	Percentage
Gender	Female	53	89.8
	Male	6	10.2
	Total	59	100
Type of high school graduated	Anatolian Fine Arts High School	55	93.2
	Regular High School	1	1.7
	Anatolian High School/Science High School	2	3.4
	Others (private school, conservatory, etc.)	1	1.7
	Total	59	100
Class	Freshman	17	28.8
	Sophomore	16	27.1
	Junior	12	20.3
	Senior	14	23.7
	Total	59	100
Defining “Articulation”	Those who could define completely	27	45.8
	Those who could define partially	25	42.4
	Those who could not define	7	11.9
	Total	59	100

Table 3. Marks of articulation recalled by violin students.

Variable	f	Percentage
Symbols above the note (For example,: . , >, - , slur, etc.)	9	15.3
Playing techniques (detache, staccato, spiccato, marcato, etc.)	31	52.5
Nuance symbols	4	6.8
Dynamics	2	3.4
No response	13	22.0
Total	59	100

with grade levels of participants, it could be said that the numbers of students in different grade levels are so close, which indicates a well-balanced distribution.

As a whole, distribution of the violin students according to “complete” and “partial” definition of articulation reveals that majority of the students (45.8+42.4 = 88.2) could define articulation. Table 3 displays the students’ responses for the question “What comes to your mind as articulation marks are mentioned? Please write on your paper.” It is seen that most of the students (52.5%) mentioned playing techniques. Only 9 students stated that they recall symbols above notes such as dot, slur, line, etc. 13 students provided no response to the question.

Table 4 shows that majority of the students (62.7%) learnt articulation marks in detail during the violin course. 2 students stated that they did not learn it at all. It seems that there is no significant difference between grade level of students and course of learning the articulation marks. It seems noteworthy that the students learnt a part of the theoretical course during practical courses.It is seen in Table 5 that majority of the students who could define articulation accurately and half of those who could provide a partial definition learnt the articulation marks in the scope of the violin course. There seems to be no significant difference between courses in which students learnt the signs and the status of defining articulation.

As shown in Table 6, 64.4% of the students stated that writing of the articulation marks does not vary depending on the specific instrument. Cluttering is seen in sophomores and seniors. Significant difference was not found between knowledge of the variance of the writing on the instrument and grade level. It draws attention that majority of the senior students do not know that writing of the articulation marks varies depending on the instrument.

Table 4. Distribution of course in which articulation marks are learnt in detail by grade level of violin students.

Course	Freshman		Sophomore		Junior		Senior		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage	f	Percentage
Musical hearing, reading and writing	5	55.6	0	0	1	11.1	3	33.3	9	15.3
Violin	6	16.2	14	37.8	9	24.3	8	21.6	37	62.7
Orchestra	0	0	1	25.0	1	25.0	2	50.0	4	6.8
Computer skills	4	100	0	0	0	0	0	0	4	6.8
Not learnt in any course	1	50.0	0	0	1	50.0	0	0	2	3.4
Other (Singing)	1	33.3	1	33.3	0	0	1	33.3	3	5.1.
Total	17	28.8	16	27.1	12	20.3	14	23.7	59	100

Pearson X^2: 24.597; p = 0.056; df = 15.

Table 5. Distribution of course in which articulation marks are learnt in detail by definition of articulation.

Course	Those who could define accurately		Those who could define partially		Those who could not define		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage
Musical hearing, reading and writing	3	33.3	5	55.6	1	11.1	9	15.3
Violin	22	59.5	13	35.1	2	5.4	37	62.7
Orchestra	1	25.0	2	50.0	1	25.0	4	6.8
Computer skills	0	0	2	50.0	2	50.0	4	6.8
Not learnt in any course	0	0	2	100	0	0	2	3.4
Other (Singing)	1	33.3	1	33.3	1	33.3	3	5.1.
Total	27	45.8	25	42.4	7	11.9	59	100

Pearson X^2: 15.799; p = 0.106; df = 10.

Table 6. Distribution of knowledge about dependence of writing of articulation marks on instrument by grade level of violin students.

Variable	Freshman		Sophomore		Junior		Senior		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage	f	Percentage
Yes: Depends on the instrument	8	38.1	3	14.3	7	33.3	3	14.3	21	35.6
No: Does not depend on the instrument	9	23.7	13	34.2	5	13.2	11	28.9	38	64.4
Total	17	28.8	16	27.1	12	20.3	14	23.7	59	100

Pearson X^2: 6.887; p = 0.076; df = 3.

Table 7. Distribution of knowledge about dependence of writing of articulation marks on instrument by definition of articulation.

Variable	Those who could define accurately		Those who could define partially		Those who could not define		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage
Yes: depends on the instrument	7	33.3	10	47.6	4	19.1	21	35.6
No: does not depend on the instrument	20	52.6	15	39.5	3	7.9	38	64.4
Total	27	45.8	25	42.4	7	11.8	59	100

Pearson X^2: 2.731; p = 0.255; df = 2.

Table 8. Distribution of knowledge about dependence of playing of articulation marks on instrument by grade level of students.

Variable	Freshman		Sophomore		Junior		Senior		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage	f	Percentage
Yes: depends on the instrument	9	22.5	10	25.0	11	27.5	10	25.0	40	67.8
No: does not depend on the instrument	8	42.1	6	31.6	1	5.3	4	21.0	19	37.2
Total	17	28.8	16	27.1	12	20.3	14	23.7	59	100

Pearson X^2; 5.140; p = 0.162; df = 3.

Table 9. Distribution of knowledge about dependence of playing of articulation marks on instrument by definition of articulation.

Variable	Those who could define accurately		Those who could define partially		Those who could not define		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage
Yes: depends on the instrument	19	47.5	16	40.0	5	12.5	40	67.8
No: does not depend on the instrument	8	42.1	9	47.4	2	10.5	19	37.2
Total	27	45.8	25	42.4	7	11.8	59	100

Pearson X^2: 0.289; p = 0.865; df = 2.

According to Table 7, 20 of the students who could provide an accurate definition for articulation think that writing of the articulation marks does not depend on the specific instrument. It is seen that there is cluttering around those who could define and who could define articulation partially. No significant difference was found between knowledge about dependence of writing of articulation marks on instruments and definition of articulation. It needs emphasizing that most of the students who could provide an accurate definition do not know that it depends on the instrument.

Table 8 reveals that 67.8% of the students stated that playing of the articulation marks varies depending on the instrument. The cluttering seems to be well distributed between grade levels. There is no significant difference between students' knowing that playing of articulation marks depends on the instrument and grade level of students. It is considered remarkable that majority of the participants know that it varies.

Table 9 shows that 70% of the students who could provide an accurate definition of articulation think that playing of the articulation marks varies

Table 10. Distribution of students' self-efficacy in recognizing articulation marks by grade level of students.

Variable	Freshman		Sophomore		Junior		Senior		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage	f	Percentage
I find completely sufficient	0	0	0	0	0	0	0	0	0	0
I find substantially sufficient	4	44.4	1	11.2	0	0	4	44.4	9	15.3
I find partially sufficient	9	23.7	10	26.3	9	23.7	10	26.3	38	64.7
I find slightly sufficient	3	42.9	3	42.9	1	14.2	0	0	7	11.9
I do not find sufficient at all.	1	20.0	2	40.0	2	40.0	0	0	5	8.5
Total	17	28.8	16	27.1	12	20.3	14	23.7	59	100

Pearson X^2: 11.227; p = 0.260; df = 9.

Table 11. Distribution of students' self-efficacy in recognizing articulation marks by definition of articulation.

Variable	Those who could define accurately		Those who could define partially		Those who could not define		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage
I find completely sufficient	0	0	0	0	0	0	0	0
I find substantially sufficient	3	33.3	4	44.4	2	22.2	9	15.3
I find partially sufficient	19	50.0	17	44.7	2	5.3	38	64.4
I find slightly sufficient	3	42.8	2	28.6	2	28.6	7	11.9
I do not find sufficient at all	2	40.0	2	40.0	1	20.0	5	8.5
Total	27	45.8	25	42.4	7	11.8	59	100

Pearson X^2: 5.018; p = 0.542; df = 6.

depending on the instrument. It is seen that there is cluttering around those who could provide a definition and those providing a partial definition. There was no significant difference between knowing that playing varies on instruments and definition of articulation. Table 10 reveals that majority of the students (64.7%) regard themselves partially sufficient in relation with recognizing articulation marks. It can be said that those who find themselves partially sufficient show a balanced distribution among grade levels. There is no significant difference between students' perceived efficacy in recognizing articulation marks and grade level. It is worth noting that none of the students see themselves sufficient in this regard.

As shown in Table 11, half of those regarding themselves partially sufficient in recognizing articulation marks comprised of those who could provide an accurate definition for articulation. There is no significant difference between self-efficacy of students and definition of articulation. It is worth noting that none of those who could define articulation see themselves completely sufficient in this regard. Table 12 reveals that most of the students (59.3%) find themselves partially sufficient in applying articulation marks. It is noticeable that majority of those who find partially sufficient are comprised of those attending the grade level I. There was no significant difference between self-efficacy level of students regarding applying articulation marks and grade level attended. It is also remarkable

Table 12. Distribution of students' self-efficacy in applying articulation marks by grade level of students.

Variable	Freshman		Sophomore		Junior		Senior		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage	f	Percentage
I find completely sufficient	0	0	0	0	0	0	0	0	0	0
I find substantially sufficient	4	36.4	2	18.2	2	18.2	3	27.2	11	18.6
I find partially sufficient	11	31.4	9	25.7	6	11.7	9	25.7	35	59.3
I find slightly sufficient	2	18.2	3	27.3	4	36.3	2	18.2	11	18.6
I do not find sufficient at all	0	0	2	100	0	0	0	0	2	3.4
Total	17	28.8	16	27.1	12	20.3	14	23.7	59	100

Pearson X^2: 8.305; p = 0.504; df = 9.

Table 13. Distribution of students' self-efficacy in applying articulation marks by definition of articulation.

Variable	Those who could define accurately		Those who could define partially		Those who could not define		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage
I find completely sufficient	0	0	0	0	0	0	0	0
I find substantially sufficient	4	36.4	5	45.5	2	18.2	11	18.6
I find partially sufficient	17	48.6	15	42.9	3	8.6	35	59.3
I find slightly sufficient	5	45.5	5	45.5	1	9.0	11	18.6
I do not find sufficient at all.	1	50.0	0	0	1	50.0	2	3.4
Total	27	45.8	25	42.4	7	11.8	59	100

Pearson X^2: 4.392; p = 0.624; df = 6.

that none of the students find themselves completely sufficient in this regard.

Table 13 reveals that majority of those who regard themselves partially sufficient in applying the articulation marks (48.6%) are comprised of those who could make an accurate definition of articulation. Significant difference was not found between students' perceived sufficiency level in applying articulation marks and providing a definition for articulation. It is also interesting that none of those who could define articulation accurately found themselves completely sufficient in applying those marks.

Table 14 shows that 79.7% of the students stated that they need a guide during implementation stage of the articulation marks. They added that such guides are violin instructors and they need the instructors to tell and show them how to play. It can be said that distribution of the students in need of guidance is well-balanced across grade levels, even the numbers are equal. There is no significant difference between the need for guidance during implementation of articulation marks and grade level of students.

As shown in Table 15, majority of the students who need a guide are comprised of those who could define articulation and those who could define it partially. Significant difference was found between the need for guidance at implementation stage of articulation marks and definition of articulation. It could be explained with the challenges they face at implementation stage or their lacking of practice despite being able to know/define articulation. Table 16 reveals that 61% of the students get help from the teacher for distinguishing articulation marks that symbolize more than one playing technique. As the second way of distinguishing, the students noted that they decide on how to play by watching and listening

Table 14. Distribution of violin students' need for a guide for applying articulation marks by grade level.

Variable	Freshman		Sophomore		Junior		Senior		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage	f	Percentage
Yes I need the instructor to tell me how to play and teach by showing	12	25.5	12	25.5	11	23.5	12	25.5	47	79.7
No explanations are given above passages about how to play in most books	5	41.7	4	33.3	1	8.3	2	16.7	12	20.3
Total	17	28.8	16	27.1	12	20.3	14	23.7	59	100

Pearson X^2: 2.462; p = 0.482; df = 3.

Table 15. Distribution of violin students' need for a guide for applying articulation marks by definition of articulation.

Variable	Those who could define accurately		Those who could define partially		Those who could not define		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage
Yes I need the instructor to tell me how to play and teach by showing	24	51.1	16	34.0	7	14.9	47	79.7
No explanations are given above passages about how to play in most books	3	25.0	9	75.0	0	0	12	20.3
Total	27	45.8	25	42.4	7	11.8	59	100

Pearson X^2: 6.991; p = 0.030; df = 2.

to records. Under the option "other", one respondent stated that each of the articulation marks is different in the Braille. Two other students pointed out that they have challenge in distinguishing such marks. It is worth noting that those who get help from the teacher mostly consist of freshmen. The significance between the ability to distinguish such articulation marks and grade level of students was found insignificant.

According to Table 17, in the group that gets help from the teacher, the numbers of those providing an accurate definition for articulation and those providing a partial definition are equal. As for the students who decide on how to play by watching and listening to the records, it is seen that majority is comprised of those who could make an accurate definition of articulation. There is no significant difference between the ability to distinguish articulation marks referring to more than one playing technique and definition of articulation.

As seen in Table 18, there is difference between students' test score averages regarding articulation marks according to grade level of students, and such difference is at significant level. The statistical tests revealed that the groups are homohenous except that difference was found between Freshmen-Seniors and Sophomores-Seniors. The difference could be explained with increased test scores obtained by students at higher grades. It could be due to the changes in students' knowledge and education as their grade level increases. In addition, it is interesting that average scores were seen to be 50% in all grade levels. It could be inferred that the students do not have the sufficient level of knowledge about articulation marks.

It is seen in Table 19 that there is no significant

Table 16. Distribution of violin students' distinguishing the articulation marks referring to more than one playing technique by grade level.

Variable	Freshman		Sophomore		Junior		Senior		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage	f	Percentage
I receive assistance from my instructor	12	33.3	8	22.2	7	19.5	9	25.0	36	61.0
I decide on how to play by listening to and watching records	2	18.2	5	45.5	1	9.1	3	27.3	11	18.6
I decide on how to play according to the time of writing and composer of the work	3	33.3	3	33.3	2	22.2	1	11.1	9	15.3
I have trouble in distinguishing the same signs	0	0	0	0	2	100	0	0	2	3.4
Other	0	0	0	0	0	0	1	100	1	1.7
Total	17	28.8	16	27.1	12	20.3	14	23.7	59	100

Pearson X^2: 15.009; p = 0.241; df = 12.

Table 17. Distribution of violin students' distinguishing the articulation marks referring to more than one playing technique by definition of articulation.

Variable	Those who could define accurately		Those who could define partially		Those who could not define		Total	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage
I receive assistance from my instructor	16	44.4	16	44.4	4	11.2	36	61.0
I decide on how to play by listening to and watching records	7	63.6	3	27.3	1	9.1	11	18.6
I decide on how to play according to the time of writing and composer of the work	4	44.4	3	33.3	2	22.2	9	15.3
I have trouble in distinguishing the same signs	0	0	2	100	0	0	2	3.4
Other	0	0	1	100	0	0	1	1.7
Total	27	45.8	25	42.4	7	11.8	59	100

Pearson X^2: 6.569; p = 0.584; df = 8.

Difference between students' knowing and writing the articulation marks and definition of articulation. The group with the highest average score was comprised of those who could define articulation partially. It attracts attention that the group providing an accurate definition of articulation could obtain the lowest average score. Table 20 reveals that 20 of the 59 participants, which is almost one third of the study participants, wrote their views regarding the importance of articulation. The students pointed out that articulation marks are important for strengthening the meaning of the work, identifying the character of the work, playing the work in an accurate and effective way, performing the work in accordance with its time characteristics and expressing the emotions conveyed by the work.

Majority of the students recall playing techniques as articulation marks are mentioned. Majority of the students stated that they learnt articulation marks in detail in violin course. 64.4%

Table 18. Distribution of violin students' average score of knowing and writing articulation marks by grade level.

Variable	Test score averages
Freshman	26.18
Sophomore	27.19
Junior	38.75
Senior	45.71

F: 5.564; p= 0.002.

Table 19. Distribution of violin students' average score of knowing and writing articulation marks by definition of articulation.

Variable	Test score averages
Those who could define accurately	30.74
Those who could define partially	36.40
Those who could not define	35.00

Kruskal-Wallis: 1.643; p =0.440.

Table 20. Violin students' remarks about importance of articulation marks.

Questionnaire No.	Grade level	Remark
1	Freshman	It affects understandability of the work to be played
2	Freshman	It makes music what it is
4	Freshman	It is important for accurate playing of the work. It adds an aesthetic spirit to the work
6	Freshman	It strengthens to express the feelings in the works
7	Freshman	It helps play the work emotionally and extraordinarily rather than monotonous playing
9	Freshman	These marks are necessary for music to be really music
12	Freshman	Articulation is very important for us to be able to express ourselves by language in our everyday life. Music also includes articulation. To make music, articulation (to feel the emotions and putting forward the art by making the emotions felt) is a must. It makes the work which is played richer and more effective. Moreover, rich articulation is needed for a work which is performed to be a real artwork
16	Freshman	It strengthens the meaning of a melody, it adds feelings
18	Freshman	It puts forward how to play a passage, its character
22	Sophomore	It reflects the characteristics of the time. It increases musicality
27	Sophomore	It is the most important factor which identifies the character of a work. Applying its accent, nuance and necessary techniques is important for playing the work in compliance with the time it was written
34	Junior	Articulation is of great importance for playing the work accurately according to its time
38	Junior	Besides playing the notes accurately and clearly, such marks add meaning to the work
40	Junior	If we completely remove articulation marks from a work, it becomes like a meaningless group of notes. However, as they are added, a real work is created.
41	Junior	It helps to better express the character of the work and the point of the composer. The work becomes something beyond merely a collection of notes
43	Junior	It is important for playing a work in accordance with its time
49	Senior	They are the marks which add meaning and bring different dimensions to the work which we perform
55	Senior	We need to know the meaning of these marks in order to be able to perform the work according to the time characters and meaning of it and to understand accurately what is meant and express it to the listener

Table 20. Contd.

56	Senior	It is important for notes' gaining an identity and character
59	Senior	These marks are of great importance for playing works and studies more accurately and effectively

of the students stated that writing of the articulation marks does not vary depending on the instrument.67.8% of the students stated that playing of the articulation marks varies depending on the instrument. Majority of the students stated that they find themselves partially sufficient in recognizing the articulation marks. Majority of the students stated that they find themselves partially sufficient in applying the articulation marks.79.7% of the students stated that they need guidance during implementation stage of the articulation marks. 61.0% of the students stated that they get help from the teacher for distinguishing the articulation marks which refer to more than one playing technique. According to overall test scores obtained by students regarding articulation marks, it was understood that the students do not know the names and functions of articulation marks.

DISCUSSION

Performance of a piece of music is shaped by not only musical notes but also by integrating with musical marks on the notes. All marks, expressions and certain accents located on musical notes with significant impact on musical understanding are important factors that help us understand the music. Moreover, the marks and expressions on and except the note, even when considering a single composer, are designed specifically for every single work. So, in this sense, it is of great importance to pay attention to these marks and expressions before playing the work. Therefore, players need to consider the subtitles above notes and some basic expressions except for the notes because any performance regardless of these signs makes the work ordinary, deprives the composer of the features that will allow us to distinguish them from other composers even at basic level, and only causes to play notes. Most of the signs located on musical notes in a work are comprised of the articulation marks.

There is a lot of research on the importance of articulation markings in music. In this regard, Schmidt-Jones (2013) in her article provided an overall definition for articulation, provided specific explanations for the articulation marks, and gave examples about forms of writing the marks. Parncutt (n.d.) in his study "Accents and Expression in Piano Performance" mentioned piano education, types of accent, and the relationship between timing/dynamics and musical structure, also presented examples of note. In a study by Geringer et al. (2007) titled "The effect of articulation style on perception of tempo in the solo violin playing", investigation was carried out to identify the effects of legato, staccato and pizzicato articulation styles on tempo perception of the audience.

In order to compare research on the subject of musical articulation, the studies conducted in Turkey are mentioned. As studies by Tufan et al. (2007), Bulut (2010) and Gün and Köse (2012) are considered as a whole, it is noticed that all these studies were carried out in institutions that train music teachers. In this sense, they are similar to that of this study. Those studies were carried out in 2007 and 2010 aiming at revealing general information level of students about writing notes in the scope of the Musical Hearing, Reading and Writing course. Findings obtained from these studies showed that the students had low levels of knowledge and achievement about notation. In 2012, another study was carried out to find out cognitive levels of students concerning musical terms and playing techniques that are commonly used and give the same meaning in piano education. As a result, the students were not found at an adequate cognitive level about the importance of terms of speed, variables of speed, and terms of nuance, the musical expression and playing techniques, which could affect their performance in a positive direction in piano education. Present study was carried out to identify the cognitive levels of violin students regarding articulation marks in the context of violin education. It was found out that the students do not have adequate level of knowledge referring to lower cognitive levels. All of the four Turkish studies carried out in different institutions of music education at different times showed that there are shortcomings in students' cognitive levels regarding the markings on the noted, which is noteworthy. Possible reasons could be:

1. As higher education institutions educating music teachers in faculties of education, violin education in department of music education has distinct goals, scope, functioning and process compared to other instruments. The reason is that the objective of those departments is to educate music teachers, not educate violinists. Still, it should not be ignored that primary goal of the instrument education given during education of music teachers is to offer a musical instrument education process in which musical behaviours of students are developed. It is known that students neglect knowledge and skills related to the marks written on musical notes because of anxiety for playing the notes.
2. In the department of music education, individual violin education lesson is offered one hour weekly. It seems

that weekly hours of the lesson is not adequate realization of the course at desired level. It was also revealed in a variety of research that this shortage is also the source of other problems (Küçükosmanoğlu, 2014; Tanınmış, 2013; Umuzdaş, 2012).

3. Violin education must be considered as a whole together with courses of musical theory and auditory training, harmony, music history and music culture. Students learn theoretical knowledge in musical hearing and theory education and harmony lessons. On the basis of such knowledge, they can study the harmonic structure and forms of the works played in violin education course. Music history and music culture courses give learners an idea about the era and composer of the violin works played in violin education lessons (Gün and Yıldız, 2013). This in turn is directly reflected in the students' capability to play, leading them to start thinking in a more musical manner to reflect the period of the work as they play. However, it is seen that students do not transfer the theoretical knowledge from theoretical courses to practical courses. In addition, adequate level of details or emphasis is not placed on the articulation marks on notes in theoretical courses. This could account for the lower cognitive levels of the students.

4. Students' cognitive levels regarding the articulation marks on that work play an important role in their performing the work accurately and beautifully. It is known that cognitive level affects the performance. However, it is thought that students do not pay the necessary attention to the cognitive level to turn their knowledge into better practice.

5. Another basic factor that needs to be considered during performance of violin works is accurate interpretation of the expression marks on the notes. Therefore, a violin student is responsible for understanding the content specified by the violin teacher, violinist and composer. In this regard, a violin teacher is also supposed to guide students to learn to read all expressions and marks on the notes in a work to be studied. But violin teachers who are responsible for guiding students are thought not to give due attention to this matter.

Also as implied in the discussion, the present study is thought to be a significant, useful and guiding attempt to scientifically describe the extent at which especially theoretical knowledge is utilized in practical violin education. It is also the first example in particular context of violin education in Turkey.

RECOMMENDATIONS

To start with, cognitive level of violin students in the Department of Music Education should be determined, and contents of the instrument training courses, mainly including Musical Reading and Writing Course, should be revised in the light of these data and relevant findings.

Second, it seems necessary to increase consciousness among students that they need to reveal the musical expression while rehearsing the works, it is not enough just to play the notes as they are, and their consciousness should be increased about reading and applying the other musical writing elements above notes. At this point, violin teachers should provide further guidance to students.

Third, the curriculum of the Computer Skills course offered in the Department of Music Education should cover topics regarding teaching how to type musical notation including articulation marks. According to Bulut (2010), "To support theoretical courses for the purpose of retentive and effective acquisition of note knowledge, the Note Typing Course should be included in the curriculum for the Department of Music Education as note typing software is used in this course. In this course, content should be created based on the toolbars clustering in a systematic manner the elements used in typing of notes by the software, and a teaching model should be applied which is in parallel with elements of theoretically clustered notation in teaching of musical notes knowledge".

Another suggestion is that applied seminars should be given about articulation marks by specialists in order to improve cognitive and behavioural levels of violin students regarding articulation marks. In the light of the study findings; it is suggested to draw attention to the importance of cognitive information level regarding such terms on the rising of performance level in violin classes. The terms must be addressed as prioritized criteria in education-teaching and assessment and evaluation processes so that the cognitive level can be enhanced as a whole. Also, it is recommended that the students acquire the habit of rehearsing and studying only after they understand the cognitive meanings of the articulation marks on the work to be played. It would be beneficial to carry out the present study, which is about articulation marks, on larger groups of participants in music education departments of other universities.

Finally, it is thought that this study, which was carried out on violin as an individual instrument, could be repeated on other string instruments for further findings.

LIMITATIONS

This study is mainly limited to theoretical resources and views of violin students in Department of Music Education, Fine Arts Education, Gazi Faculty of Education, Gazi University (GUGEF) during the fall semester of 2015 to 2016 academic year.

Conflict of Interests

The author has not declared any conflict of interest.

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