



## **METACOGNITION SKILLS OF PRESERVICE MUSIC TEACHERS\***

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### **ABSTRACT**

In curriculum of education faculties, where future teachers are trained, the relation between pre-service teachers' perceptions, attitudes and cognitive skills must be considered. In this context, teacher education programmes have become important. Effective instruction in music teacher education programme should not only increase learning, but also help pre-service music teachers develop the lifelong learning skills needed to succeed at higher levels of music education, and reconstruct their conceptual knowledge and procedural strategies when necessary. This research has simple descriptive survey approach. The purpose of this study is to identify how effects of a four-semester music teacher education programme on meta-cognition skills changes as students' progress through the programme. The participants of the study consisting of a total of 113 pre-service music teachers in four different semesters of their teacher preparation programme. The instrument used in this study is Meta-cognition Scale. One-way ANOVA was used to identify patterns within cohorts regarding pre-service teachers' beliefs about meta-cognition skills. A significant difference hasn't observed between grades. Mean of the following results of independent t-test shows that there is a statistically significant difference between the means of scores, which female and male students at 1<sup>st</sup> and 4<sup>th</sup> grades get from meta-cognition effectiveness scale, in female's favour and there is not a statistically significant difference at other grades due to gender variance.

**Key Words:** Meta-cognition skills, pre-service music teacher, teacher education programme.

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## MÜZİK ÖĞRETMEN ADAYLARININ BİLİŞÜSTÜ BECERİLERİ

### ÖZET

Biliş, üstü, bireyin bilişsel becerilerini anlaması, değerlendirmesi ve kontrol etmesiyle de ilgilidir. Öğrenenin kendi öğrenme süreçlerinin farkında olmayışları ve bu süreci kontrol etmek için uygun becerilere sahip olmayışları, öğrenmelerine engel olabilir. Bu nedenle öğrenenlerin anlamlı öğrenmeyi gerçekleştirmelerinde ve öğrendiklerini uzun süreli belleklerine yerleştirmelerinde bilişsel süreçlerin yanı sıra bu süreçlerin farkındalığını vurgulayan biliş üstünün (metacognition) etkili olabileceği öne sürülmektedir. Öğrencilerin öğrenmelerinin ilerletilmesi için biliş üstü farkındalıklarının ve becerilerinin de dikkate alınması gerekir. Bu sayede öğrencilerin kendi bilişsel yapılarını tanımaları, bu bilişsel yapıları izlemeleri, kontrol etmeleri ve öğrenmeleriyle ilgili değerlendirme yapabilmeleri sağlanmış olur. Müzik öğretmenliği mesleği için de, araştıran, yaratıcı olan ve nasıl öğrendiğini bilip kendini değerlendirebilen öğretmen adaylarının yetiştirilmesi önemli görülmektedir. Müzik alanındaki teknolojik gelişmeler sayesinde, birçok öğretim materyalinin, yeni öğretim, yöntem ve tekniklerin geliştirilmesi, müzik eğitime zenginlik kazandırmaktadır. Bu gelişmeler ışığında, müzik öğretmenin yenilikleri araştırması, sorgulaması ve değerlendirmesi için üst biliş becerilerinin farkında olması gerektiği düşünülmektedir. Bu çalışma betimsel bir çalışmadır. Müzik öğretmenlik öğretim programında eğitim görmekte olan 113 gönüllü müzik öğretmen adayı çalışmaya katılmıştır. Araştırma verileri, aday öğretmenlerin bazı kişisel özelliklerinin belirlenmesi için "Kişisel Bilgi Formu", üst biliş becerilerini ölçmek için "Üst Biliş Ölçeği" ile toplanmıştır. Verilerin analizinde Anova kullanılmıştır. Müzik öğretmen adaylarının sınıf düzeyleri arasında anlamlı farklılık bulunamamıştır. Gelecek öğretmenlerin eğitimi eğitim fakültelerinin, müfredatına, hizmet öncesi öğretmenlerin algıları, tutumları ve bilişsel beceriler arasındaki ilişki dikkate alınmalıdır. Bu bağlamda, öğretmen eğitimi programlarının önemli hale gelmiştir. Müzik öğretmeni eğitim programı etkili talimatı sadece öğrenmeyi artırmak, aynı zamanda hizmet öncesi müzik öğretmenleri, müzik eğitiminin yüksek seviyelerde başarılı olmak için gerekli yaşam boyu öğrenme becerilerini geliştirmelerine yardımcı olmak ve gerektiğinde kendi kavramsal bilgi ve usul stratejilerini yeniden olmamalı.

**Anahtar Kelimeler:** Üst biliş becerileri, müzik öğretmen adayı, öğretmen öğretim programı.

### Introduction

Cognition is all of works that human's mind performs in order to understand the world and the incidents around them (Fidan, 1986: 65). According to Flavell (1987), meta-cognition is knowledge related to individual's cognition process. From the mid of 1970s to now, increase in the studies, which include meta-cognition in the fields of psychology, sport, health, defence and education, has brought up new definitions concerning meta-cognition. Meta-cognition is related to individual's understanding; assessment and controlling of his/her own cognitional skills. That's why, meta-cognitional is grouped into two sub-constituents as follows: knowledge of cognition and

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regulation of cognition (Nietfeld, Cao and Osborne, 2005; Pintrich, 2002).

Learners' being unaware of their own learning process and not having proper skills to have control over this process may hinder their learning. Therefore, it is stated that meta-cognition, which underlines the awareness of these processes, may be effective on learners to achieve meaningful learning and store what they learnt into long-term memories besides cognitional processes (Georghiades, 2004). For instance, that learners become aware of what they learnt by associating subject with their daily lives and can express and use this knowledge in different fields is an example of meta-cognition.

Music has an educational quality with regard to its essence. Everybody obtains something from it depending on manner, direction, scope and degree of their relation with music; gains something (Uçan, 1996: 30). In this context, purposes of music education, which is one of the indispensable factors of contemporary education, include improving human's intelligence and abilities at highest levels and making them perfect. Effects of music on individual's development of intelligence and cognitional success as a dimension of education process have been mentioned in various researches for many years (McPherson, Welch, 2012).

Music learning should first be student-centred and established on the experiences that students bring to classroom. However, appropriate music curricula should utilize practices that will develop those cognitive skills necessary to ensure the musical growth of students over time (Jeanneret and Degraffenreid, 2012). Recognition of importance of development of the meta-cognitive (learning to learn) skills increases related to this, so that learners become autonomous and take increasing responsibility for their own learning. Equipped with these skills, learners can continue their engagement with music long after they cease to have lessons (Hallam, 2012; Hallam and Bautista, 2012).

An important factor in the acquisition of expertise(teacher) is the development of meta-cognitive (learning to learn) skills. Executive, meta-cognitive strategies are concerned with the planning, monitoring, and evaluation of learning. They are critical to all aspects of practicing and can be considered at the level of a particular task (learning a new piece) or in relation to the more global concerns of the musician to maintain or improve the standards of her playing (sustaining and enhancing) technical skills in an ongoing process, in part, dictated by the extremely competitive nature of the music performance profession. In both cases, knowledge of individual strengths and weaknesses, the nature of the task to be completed, possible strategies, and the nature of the learning outcome are important. There are considerable differences between beginners, novices, and experts in their knowledge and development of different practicing and meta-cognitive strategies ( Hallam, 2001a,2001b; Pitts et al, 2000a, 2000b ;Renwick&McPherson,2002; Sloboda et al.,1996) as well as individual differences among musicians and novices at the same level of competence (Austin&Berg,2006; Nielsen, 1999a,1999b, 2001; akt. Hallam and Bautista, 2012).

Hallam (2001) demonstrated a correlation between extensive meta-cognition developments in professional teachers as compared to pre-service teachers. Hallam (2001) finds that novice musicians(pre-service teachers) also displayed a complex relationship between the development of meta-cognitive expertise and the use of planning strategies (akt. Hollenbeck, 2008).

Moving from this point of view, the cognitive, affective, and meta-cognitive skills are important contributing factors to the academic achievement and success of students in society. The results displayed that while a teacher is providing instruction for music students many skills, which are gained, are not traditionally items tested from the affective and meta-cognitive domains. These two areas, affective and meta-cognition, influence specific skills that allow transfer of knowledge from subject to subject and assist the potential for student to achieve success.

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As a result, one of the factors, which are regarded to be effective on learning, is also meta-cognition. Meta-cognition awareness and skills of students must be taken into account for development of their learning. Thus, it is provided that students know their own cognitive structures, are able to monitor these cognitive structures and evaluate their own learning. Once national literature is reviewed, it is remarkable that scales developed and studies conducted for meta-cognition are not adequate. Studies for development and assessment of meta-cognition, which has a significant effect on lasting and meaningful learning, require to be increased.

In curriculum of education faculties, where future teachers are trained, the relation between pre-service teachers' perceptions, attitudes and cognitive skills must be considered. In this context, teacher education programmes have become important (Sönmezöz, 2014). Effective instruction in music teacher education programme should not only increase learning, but also help pre-service music teachers develop the lifelong learning skills needed to succeed at higher levels of music education, and reconstruct their conceptual knowledge and procedural strategies when necessary.

Moving from this point of view, this study has been designed to investigate the development and change in meta-cognition skills of pre-service music teachers at the Pamukkale University Music Teacher Education Programme (MTEP) over the four-semester sequence. The following main question was presented:

How have the changes in meta-cognition skills of pre-service music teachers been aimed to be evaluated according to grade?

## **Method**

### *Research Design*

This research has simple descriptive survey approach. The simple descriptive survey approach is one-shot survey for the purpose of describing the characteristics of a sample at one point in time apart from the other approaches namely cross sectional and longitudinal surveys (Mertens, 98 p. 108). In this research, simple descriptive survey is conducted in order to describe how a four-semester sequence teacher education programme helps pre-service teachers' perceptions about metacognition skills change.

### *Research Sample*

113 pre-service teachers enrolled in Pamukkale University Music Teacher Education Programme (MTEP) during the fall semester of 2013 were invited to participate in the study. Purposive sampling is used to select the participants. In purposive sampling procedure, it is assumed that the persons chosen possess the necessary information about the target population (Frankel & Wallen, 1996). All of them volunteered to participate in the study. There are 72 female and 41 male music teachers. 31 freshman pre-service music teachers have enrolled in basic music courses (Piano I-II, Major Performance I-II, School Instruments I-II, Solo Vocal Training I-II, Ear Training and Musical Literacy I-II, Chorus I). At this level, they have taken the courses of introduction to educational music and educational psychology. 25 sophomore pre-service music teachers have enrolled in basic music courses (Piano III-IV, Major Performance III-IV, Solo Vocal Training III-IV, Ear Training III-IV, Chorus II-III, Harmony-Counterpoint Accompany I-II, History of Music, Traditional Turkish Folk Music Training, Electronic Organ Education) and also started to take courses about music teaching and music education programme and planning. 28 juniors pre-service music teacher have completed the sets of basic music courses (Piano V, Major Performance V, Orchestra Chamber Music I, Ear Training V, Chorus IV, Traditional Turkish Art Music, Repertoire of School Music, Contemporary Popular Music, History Of Turkish Music) and also started to take courses on Teaching Music Education (such as Special Methods of Music

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Teaching I, Instrument Maintenance and Repair). 29 seniors, who are at their last year of pre-service teacher programme, have completed courses on music teaching (such as Special Methods of Music Teaching II, School Experience, Teaching Practice, Turkish Educational System and School Management, Community Service Applications).

#### *Research Instrument and Procedure*

Meta-cognition Effectiveness Scale:

It has been used in the study in order to determine meta-cognition skill levels of pre-service teachers. The scale, whose origin was developed by Cooper, Urena and Stevens, and adapted to Turkish by Tüysüz and at al. (2008), has been used. At the end of the analysis performed in the light of data, which obtained from results of preliminary implementations, reliability co-efficient has been calculated as cronbach  $\alpha$ - and internal consistency co-efficient has been calculated as 0,783. The test form has 27 items.

#### *Data Analysis*

Descriptive statistical techniques were applied to determine the demographic characteristics of the participants. The ANOVA analysis was chosen because the analysis of variance deals with differences between or among sample means; it imposes no restriction on the number of means. The one-way variance analysis was conducted for two variables to determine whether the students' answers varied according to personal variables such as sex, age, school, grade, daily practise duration and year of playing. This technique tests whether there is a significant relation between two categorical variables (Büyüköztürk, 2010, p. 148).

#### **Results**

Results of one way ANOVA test were given in Table 1 in order to determine whether there is a significant difference between the scores, which pre-service music teachers got from Meta-cognitive Effectiveness Scale, according to their grades they have attended.

Table1. *Meta-Cognition Skills Of Pre-Service Music Teachers According To Their Grades*

<i>Variance source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
Inter group	502,745	3	167,582	1,115	,346*
In groups	16375,981	109	150,238		
Total	16878,726	112			

\* $p>0,05$

As a result of one-way variance analysis carried out according to Table 1, it has been determined that there is not a statistical difference at 0,05 significance level between the scores which pre-service music teachers receiving education at different grades got from Meta-cognitive Effectiveness Scale ( $F=1,115$ ;  $p>0,05$ ).

A statistically significant difference could not be found between results of variance analyses and the means of scores, which pre-service teachers got from meta-cognition effectiveness scale according to their grade. The means are as follows:

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Table 2. Means Of Meta-Cognition Skills Of Music Pre-Service Teachers Between Grades

Grade	N	Minimum	Maximum	Mean	Std. Deviation
1 Total	31	77,00	114,00	94,8710	9,87165
2 Total	25	59,00	123,00	96,7200	15,80485
3 Total	28	72,00	129,00	95,7500	12,29461
4 Total	29	77,00	121,00	100,3100	10,98084

When Table 2 is examined, it is seen that the scores, which pre-service music teachers got from Meta-cognitive Effectiveness Scale no matter what grade they have been attending, are nearly similar. In other words, it is stated that meta-cognitions of pre-service music teachers do not depend on the grade at which they are trained.

Results of independent Samples T-test, which was carried out regarding if pre-service music teachers' scores obtained from Meta-cognitive Effectiveness Scale displayed a difference according to gender, were given in Table 3.

Table 3. Meta-Cognitions Of Pre-Service Music Teachers According To Their Genders (Results Of Independent Samples T-Test According To Gender Variance)

Variable	Category	n	$\bar{X}$	SS	T	p
Gender	Girl	72	98,6667	11,63288	2,064	0,458*
	Boy	41	93,7805	12,89091		
	Total	113				

\*p>.05

When Table 3 is analysed, a significant difference could not be found according to gender variance. In other words, it can be concluded that female ( $X_f=98,67$ ) and ( $X_m=93,79$ ) male pre-service music teachers' meta-cognitions are at similar levels.

Results of one way ANOVA test were given in Table 4 in order to determine whether there is a significant difference between meta-cognitions, which pre-service music teachers have according to gender variance by also regarding their grades they have attended.

Table 4. Variance Analysis Between Grades Depending On Gender Variance Of Pre-Service Music Teachers

Gender	Variance source	Sum of Squares	df	Mean Square	F	Sig.
1	Inter group	595,189	3	198,396	1,497	,223*
	In groups	9012,811	68	132,541		
	Total	9608,000	71			
2	Inter group	116,892	3	38,964	,221	,881*
	In groups	6530,133	37	176,490		
	Total	6647,024	40			

\*p>0,05

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Results of variance analysis have indicated that a statistically significant difference is not present between means of scores which male ( $p>0,05$ ) and female ( $p>0,05$ ) students got from meta-cognition scale depending on their grades.

Finally, results of Independent Samples T-test, which was carried out so as to determine if there is a significant difference between meta-cognitions of pre-service music teachers according to their gender by regarding the variance of their grades, where they are trained, were given in Table 5.

Table 5. Examination Of Pre-Service Music Teachers In Terms Of Gender Variance Depending On Their Grades

Variable	Category	n	$\bar{X}$	SS	T	p
1. Grade	Girl	24	96,08	10,830	1,280	0,014*
	Boy	7	90,71	3,402		
2. Grade	Girl	15	99,27	13,962	0,986	0,552
	Boy	10	92,90	18,327		
3. Grade	Girl	15	96,73	13,761	0,448	0,762
	Boy	13	94,62	10,798		
4. Grade	Girl	18	103,22	7,417	1,911	0,002*
	Boy	11	95,55	14,278		

\* $p<0,05$

The Independent Samples T-tests have indicated that there is a statistically significant difference between the means of scores, which female and male students got from meta-cognition effectiveness scale at 1<sup>st</sup> and 4<sup>th</sup> grades, in female students' favour and that there is not a statistically significant difference in other grades depending on gender variance.

### Discussion and Conclusion

“Learning to learn” has been often mentioned by many people recently. Coinciding in the constructivist approach, this skill means that individuals become aware of their own cognition processes and know how their learning occurs (Vygotsky, 1978). Therefore, individuals are expected to have a high meta-cognition. Teacher education programmes have an important role in developing teacher candidates' meta-cognition levels. Music teacher education programme was rearranged taking account into constructivist approach in 2005-2006. This programme came into effect as of 2006-2007 in all faculties (MNE, 2006).

Music teacher education programme is a four-year graduate programme lasting for eight semesters. During this process, intensive lessons are usually given and certain pedagogic information is also taught. Fourth-grade pre-service teachers observe learning-teaching process of a music teacher, who works at a secondary school, at least three times a week. Pre-service teachers also experience teaching under the guidance of a form teacher and university advisers when they are in the eighth semester. Purpose of this practice is to determine the effects of Music Teacher Education Programme on meta-cognition skills of pre-service music teachers.

According to the result of the study, a significant difference could not be observed between meta-cognition skills of pre-service music teachers according to their grades. It can be concluded that pre-service music teachers' meta-cognition skills are equal no matter what grade they are at. It can be resulted from absence of lessons in Music Teacher Education Programme, which will help pre-service music teachers' meta-cognition skills increase, and absence of concerning studies.

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According to another result of the study, whereas there is as statistically significant difference in females' favour between the means of the scores, which female and male students got from Meta-cognition Effectiveness Scale at 1<sup>st</sup> and 4<sup>th</sup> grades, it has been observed that there is no statistically significant difference at other grades depending on gender variance. These findings were consistent with many studies (Tüysüz ve ark. 2008; Özsoy ve Günindi, 2011). In other words, first-grade female students' level of knowledge about their own cognitional processes is higher than first-grade male students' level of knowledge about their own cognitional processes. Similarly, fourth-grade female students' level of knowledge about their own cognitional processes is higher than fourth-grade male students' level of knowledge about their own cognitional processes. The reason for this result is that if it is regarded in first-grade students' perspective, the number of female students, who are successful in the test to enter in Music Teaching Department, is more than the number of male students. Accordingly, it can be remarked that female students study harder than male students for university admission test to be accepted in Music Teaching Department and therefore, they become more successful (Özcan, 2007). According to Female students' being more successful may point out that they use their meta-cognition more and so their meta-cognition levels results in higher scores. The reason for which there is not a statistically significant difference in terms of gender between the means of scores that second and third-grade students attending in Music Teaching Department have obtained from Meta-cognitive Effectiveness Scale, may be that female and male students adjust flow of the Music Teacher Education Programme and that they do not feel the need for studying hard because the programme does not force them much. In the lights of findings obtained in fourth-grade students' perspective, fourth-grade female students have been seen to be appointed more than male students. Female students have higher anxieties about appointment because there is no other field to work for them. However, appointment is not only choice for male students because they are able to work as musician in various places (performing on stages of places at nights). Therefore, it may be considered that female students have higher meta-cognition level because they study for KPSS (Public Personnel Selection Examination) harder in comparison with male students (Aykaç ve ark. 2014; Yalçınkaya ve ark. 2014).

This study introduces some important results regarding developing programme. More studies are required for surveying effects of Music Teacher Education Programme on meta-cognitive awareness levels of pre-service teachers because there are not enough studies in the literature so as to determine meta-cognitive awareness levels of pre-service music teachers. One of the limitedness of this study is to be a descriptive study. In this context, it is recommended that researchers, who want to survey on this issue, complement their quantitative data with qualitative data. In addition, this study was limited with one hundred and thirteen people. It can be tried by using more samples. The same study can also be conducted again in order to determine meta-cognitive levels of academicians in Music Teaching Department.

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