

Self-Efficacy Perceptions and the Attitudes of Prospective Teachers towards Assessment and Evaluation

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Abstract—Making the right decisions about students depends on teachers' use of the assessment and evaluation techniques effectively. In order to do that, teachers should have positive attitudes and adequate self-efficacy perception towards assessment and evaluation. The purpose of this study is to investigate relationship between self-efficacy perception and the attitudes of prospective teachers towards assessment and evaluation and what kind of differences these issues have in terms of a variety of demographic variables. The study group consisted of 277 prospective teachers who have been studying in different departments of Marmara University, Faculty of Education. In this study, 'Personal Information Form', 'A Perceptual Scale for Measurement and Evaluation of Prospective Teachers Self-Efficacy in Education' and 'Attitudes toward Educational Measurement Inventory' are applied. As a result, positive correlation was found between self-efficacy perceptions and the attitudes of prospective teachers towards assessment and evaluation. Considering different departments, there is a significant difference between the mean score of attitudes of prospective teachers and between the mean score of self-efficacy perceptions of them. However, considering variables of attending statistics class and the class types at the graduated high school, there is no significant difference between the mean score of attitudes of prospective teachers and between the mean score of self-efficacy perceptions of them.

Keywords—Attitude, perception, prospective teacher, self-efficacy.

I. INTRODUCTION

EDUCATION system is a system which includes students, teachers, administrators, educational programs, the building and environmental elements. One of the basic elements of this system is the teacher [1]. Teachers must have some competencies to perform effective teaching. Özdemir and Yalın [2] describe teacher competencies as having knowledge, skills and attitudes to carry out teaching effectively and efficiently. Ministry of Education [3] determined general competencies that a teacher must have. These are: a) Personal and Professional Values-Professional Development b) Learner Recognition c) Learning and Teaching Process d) Monitoring and Evaluation of Learning and Progress e) The School, Family and Community Relations f) Program and Content Knowledge. As seen, one of the teacher competencies is monitoring and evaluation of learning

and progress. In this general competence, the teacher evaluates students' progress and learning, helps students to make self-assessment and peer assessment, and uses assessment results for more effective teaching, shares the results with students, parents, administrators and other teachers [3]. Teacher competencies towards assessment and evaluation are relevant to how they perceive themselves in this field (self-efficacy perception).

Self-efficacy perceptions of teachers towards assessment and evaluation can be determined with their faith in whether they implement assessment and evaluation principles in accordance with educational purposes. To be proficient at the field of assessment and evaluation, teachers should be able to use methods, techniques and principles of assessment and evaluation effectively to assess and evaluate student achievement. This competence of the teachers has been associated with their assessment and evaluation knowledge, skills and attitudes in the field. Trained teachers should be able to know and practice assessment and evaluation activities. Their assessment and evaluation knowledge, skills and attitudes can be associated with their chance to benefit from the lecture on assessment and evaluation during their undergraduate education. The effectiveness of lectures on the assessment and evaluation during undergraduate education can be considered as one of the key factors in ensuring their competencies in this field [4], [5]. It is difficult to talk about the competencies of prospective teachers because they cannot reveal knowledge and skills they have at the actual implementation. However, their belief on assessment and evaluation in education, in other words self-efficacy levels, can be determined [6].

Another factor in ensuring teacher competencies is teachers' attitudes towards assessment and evaluation. Attitudes are directly related to individual behaviors and actions. The individual's beliefs determine their behavior tendencies. These behavior tendencies indicate their attitudes. In this regard, owned beliefs and attitudes are related to each other directly or indirectly. This case brings the concepts of self-efficacy and attitude into the forefront [7]. The object of attitude can be a matter, a situation, a group or a profession. Recognition of individual attitudes towards a profession and activities that are included in certain occupations contributes prediction of professional success and satisfaction [8].

Can [9] states that teachers' attitudes towards their profession reflect the perception of their profession, namely the understanding of the teaching profession, because attitudes

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towards the profession are one of the most powerful determinants of professional behavior. Erdoğan [5] specifies that being able to use the principles, methods and techniques of assessment and evaluation would not only be enough with teachers' knowledge and skills in this field. If they have positive attitudes towards assessment and evaluation, it would be possible to be able to use the competencies they have. Therefore, learning experiences in teachers' student years constitute the fundamental of understanding of their profession and these experiences must be arranged to have a positive attitude towards the profession [9].

Erdoğan and Kurt [10] stated that, in general, teachers perceive themselves competent in the basic concepts and assessment techniques but their perception of themselves about statistical techniques is less adequate. The main reason of this situation is explained with negative attitudes of teachers towards mathematical operations or the need of higher mathematical operational skills. Pektaş [11] examined the efficacy of teachers as a whole and concluded that they perceive themselves competent in "Basic Concepts" and "Assessment Techniques" but they perceive themselves moderately competent in "Statistical Analysis and Reporting". Yanpar [12] points out lack of knowledge of primary school teachers about assessment and evaluation and skills for evaluating results and judging the measured achievement of the student. The study also brought teachers' wish to attend in-service training to solve the problems associated with assessment and evaluation. Arda [13] intended to determine shortcomings and the level of proficiency encountered in the assessment and evaluation practices. He indicated that lectures on assessment and evaluation during undergraduate education are not enough. Lectures remain at theoretical level but theoretical knowledge should also apply in practice.

Karaca [14] has developed a perception scale towards assessment and evaluation competencies of prospective teachers and investigated whether there is significant difference between their scale points considering several variables. In this research which is carried out with the causal comparative design, the study group consists of 1190 fourth grade students. These students are studying in education faculties of seven State Universities in 2001-2002 academic year. There is a significant difference between the scale points according to the program they are enrolled and the general average grade. On the other hand, there is no significant difference between the scale points according to order of preference in admission to the program, whether they are satisfied with the program, gender, type of graduated high school and class type at the graduated high school. It is also stated that prospective teachers were found to be incompetent in assessment and evaluation. Vardar [15] investigated the assessment conceptions of teachers who have been teaching Turkish, English, Mathematics, Science and Technology, and Social Sciences at sixth, seventh, and eighth grades. The author also aimed to find out the differences, if any, in teachers' conceptions of assessment according to their teaching subject, years of teaching experience, in-service training, and the undergraduate institution they graduated

from. Teaching subject and in-service training did not make any significant difference in teachers' conceptions of assessment. However, there was a significant difference in teachers' conceptions of assessment based on years of teaching and graduated institution.

Daniel and King [16] determined the educational testing and measurement literacy of elementary and secondary school teachers, to examine the degree to which various testing and measurement concepts are applied in the classroom assessment environment, and the variation of assessment strategies across elementary and secondary school teachers. They found the elementary and secondary school teachers are lack of adequate knowledge about testing and measurement. Teachers were lack of knowledge about psychometric characteristics of scales and simple statistical tests. In addition, there is no significant difference between elementary and secondary school teachers when compared in terms of knowledge and skills that they have in these matters.

Zhang and Burry-Stock [17] investigated how adequate are the perceptions of elementary, secondary and high school teachers in assessment and evaluation practices and what type of assessment and evaluation practices they apply. They found that elementary teachers often use performance assessment as an alternative while secondary teachers use paper-pencil tests more frequently. Secondary school teachers also were concerned about the quality of assessment. It means that as grade level increases, teachers tend to use objective techniques in classroom assessment. In addition, the research has emphasized importance of university coursework in assessment and evaluation. Assessment and evaluation training enhances teachers' perception of self-efficacy, so university coursework in assessment and evaluation is important.

As mentioned above, assessment and evaluation competence of prospective teachers is closely related to their knowledge and skills obtained during the assessment and evaluation lectures at the undergraduate level. If they have positive attitudes towards assessment and evaluation, it would be possible to be able to use the owned competence. In this direction it is necessary to investigate self-efficacy perceptions and the attitudes of prospective teachers towards assessment and evaluation due to teachers' expressions about their lack in this field.

A. Purpose of the Study

The purpose of this study is to investigate relationship between self-efficacy perceptions and the attitudes of final year prospective teachers at Marmara University towards assessment and evaluation and to determine whether there are significant differences between the mean scores of attitudes and between the mean scores of self-efficacy perceptions of them considering a variety of demographic variables. In order to fulfill this purpose, following questions had to be answered:

- 1) Considering different departments, is there a significant difference between the mean scores of attitudes of prospective teachers towards assessment and evaluation?
- 2) Considering attending statistics class, is there a significant

- difference between the mean scores of attitudes of prospective teachers towards assessment and evaluation?
- 3) Considering class type at the graduated high school, is there a significant difference between the mean scores of attitudes of prospective teachers towards assessment and evaluation?
 - 4) Considering different departments, is there a significant difference between the mean scores of self-efficacy perceptions of prospective teachers towards assessment and evaluation?
 - 5) Considering attending statistics class, is there a significant difference between the mean scores of self-efficacy perceptions of prospective teachers towards assessment and evaluation?
 - 6) Considering class type at the graduated high school, is there a significant difference between the mean scores of self-efficacy perceptions of prospective teachers towards assessment and evaluation?
 - 7) Is there a significant correlation between the mean scores of self-efficacy perceptions and of the attitudes of prospective teachers towards assessment and evaluation?

B. Significance of the Study

Attitudes and self-efficacies of teachers towards assessment and evaluation affect their achievements in this field, making the right decisions about students and carrying out effective educational activities. Serious consequences can emerge when they begin their career if attitudes and self-efficacy perceptions of prospective teachers towards assessment and evaluation are at low level. With this study, determining how attitudes of prospective teachers towards assessment and evaluation are and to what extent they perceive their efficacy in this field before beginning their career is thought to be important. Therefore, it is expected to provide contribution that lecturers can review their teaching process and take necessary precaution in order to enable prospective teachers to have positive attitudes and gain the necessary competence.

In this study, attitudes and self-efficacy perceptions of prospective teachers towards assessment and evaluation were examined in terms of some variables. Identifying whether there are significant differences considering different departments, attending statistics class, class type at the graduated high school were thought to be important for the regulation of educational activities. If there is any significant difference between attitudes of prospective teachers and self-efficacy perceptions towards assessment and evaluation, it gives information about what could be the source of these differences.

II. METHODOLOGY

A. Research Design

This research is designed with relational screening model which is one of the general screening models. Relational screening is a research model which aims to determine the existence and/or degree of joint variation between two or more variants [18].

B. The Study Group

The study group consists of 277 final year prospective teachers who have been studying in different departments of Marmara University, Faculty of Education in the spring term of 2013-2014 academic year. Information of the sample is given in Table I.

TABLE I
INFORMATION OF THE SAMPLE

	Frequencies (f)	Percentage (%)
Gender		
Female	196	70.8
Male	81	29.2
Departments		
German Language Teaching	13	4.7
French Language Teaching	8	2.9
Guidance and Psychological Counseling	51	18.4
Turkish Language Teaching	58	20.9
Science Teacher Education	40	14.4
Pre-School Education	25	9.0
Physics Teacher Education	16	5.8
Geography Teacher Education	16	5.8
History Teacher Education	14	5.1
Elementary Teacher Education	36	13.0
Attending Statistics Class		
Yes	169	61.0
No	108	39.0
Class Type at the Graduated High School		
Maths-Physics	80	28.9
Social Studies	80	28.9
Maths-Turkish	107	38.6
Linguistics	10	3.6
Total	277	100

C. Data Collection

Three instruments were used in this study. These were:

- 1) Personal information form prepared by the researcher,
- 2) A perceptual scale for measurement and evaluation of prospective teachers' self-efficacy in education developed by [6]
- 3) Attitudes toward educational measurement inventory adapted by [19].

Personal information form was prepared to collect demographic information about prospective teachers.

The perceptual scale for measurement and evaluation of prospective teachers' self-efficacy in education is a 23-item scale. Respondents are requested to choose one of five categories which are (1) Strongly Disagree - (2) Disagree - (3) Undecided - (4) Agree - (5) Strongly Agree. There are some items to have to be scored the reverse. As a result of validity and reliability analysis of the scale, 23 items collected under two factors named the cognitive-based and skill-based self-efficacy. Factor loading of items in the scale changes from .36 to .86. Cronbach's alpha coefficients were calculated as .96 for total scale, as. 0.93 for the first dimension and as 0.95 for the second dimension. These results showed the scale can be accepted as valid and reliable.

The scale of attitudes towards assessment and measurement

in education is a 31-item scale. Respondents are requested to choose one of five categories which are (1) Strongly Disagree - (2) Disagree - (3) Undecided - (4) Agree - (5) Strongly Agree. The correlation coefficients between the points obtained from the original and Turkish forms of the inventory are between .70 and .93. The linguistic equivalence of the English and Turkish forms is provided for each item in the inventory. The total variance explained was 47.4% and factor loadings ranged from .31 to .83. The internal consistency reliability coefficient of the scale was found as .92 and the test-retest reliability coefficient was found as .78. These results showed that the adapted Turkish form of the scale is valid and reliable that can be used to determine the attitudes of the prospective teachers towards measurement and evaluation in education.

D. Data Analysis

Data was collected from 300 participants. Firstly, missing data and extreme values were examined. 14 participants' data were deleted as the result of missing data analysis then nine participants' data were deleted as the result of extreme value analysis. Data analysis was carried out of the remaining 277 individuals.

After testing assumptions, one-way ANOVA test was used to measure statistical significance for attitudes and self-efficacy perceptions of prospective teachers between different departments. Mann Whitney U test was used to measure statistical significance for attitudes and self-efficacy perceptions between prospective teachers considering attending statistics class. This test was used since assumption of normality was violated. One-way ANOVA test was used to measure statistical significance for attitudes and self-efficacy perceptions between prospective teachers considering class type at the graduated high school.

Pearson Product-Moment correlation coefficient was used to measure statistical significance between the mean scores of self-efficacy perceptions and of the attitudes of prospective teachers towards assessment and evaluation.

III. FINDINGS

A. Data Analysis for Question 1

The results of one-way analysis of variance (ANOVA) used to determine whether there is a significant difference between the mean scores of attitudes of prospective teachers who have been studying in different departments towards assessment and evaluation were presented in Table II.

As seen in Table II considering different departments, there is a significant difference between the mean scores of attitudes of prospective teachers ($F = 6.426, p < .05$). Post hoc analysis was used to determine between which groups have differentiation. Firstly, homogeneity of variance between groups was tested by Levene's test. The test result showed that the groups were homogeneous (Levene's = 1.255, $p > .05$). The post hoc Scheffe test identified significant differences between the groups.

TABLE II
RESULTS OF ONE-WAY ANOVA FOR ATTITUDES ACCORDING TO DIFFERENT DEPARTMENTS

	Sum of Squares	df	Mean Squares	f	p
Between Groups	18684.125	9	2076.014		
Within Groups	86258.922	267	323.067	6.426	.000
Total	104943.047	276			

According to the results of the analysis, there was a significant difference between the mean scores of attitudes of prospective teachers who have been studying at Guidance and Psychological Counseling department and at Pre-school Education department, and between Guidance and Psychological Counseling department and History Teacher Education department. When examining the difference between groups, the mean scores of attitudes of prospective teachers who have been studying at Guidance and Psychological Counseling department were higher than the mean scores of attitudes of prospective teachers at Pre-school Education department and at History Teacher department ($GPC_{ave} - PS_{ave} = 18.28588, p < .05$; $GPC_{ave} - HIST_{ave} = 22.70588, p < .05$). In addition, there was a significant difference between the mean scores of attitudes of prospective teachers who have been studying at Turkish Language Teaching department and at Pre-school Education department, and between Turkish Language Teaching department and History Teacher Education department. When examining the difference between groups, the mean scores of attitudes of prospective teachers who have been studying at Turkish Language Teaching department were higher than the mean scores of attitudes of prospective teachers at Pre-school Education department and at History Teacher Education department ($TLT_{ave} - PS_{ave} = 17.92138, p < .05$; $TLT_{ave} - HIST_{ave} = 22.24138, p < .05$).

B. Data Analysis for Question 2

The results of Mann Whitney U test used to determine whether there is a significant difference between the mean scores of attitudes of prospective teachers who have attended and have not attended statistics class towards assessment and evaluation were presented in Table III.

TABLE III
RESULTS OF MANN WHITNEY U TEST FOR ATTITUDES ACCORDING TO ATTENDING STATISTICAL CLASS

Groups	n	Mean Rank	Sum of Ranks	U	Z	p
Attitude scores	Yes	169	137.12	23173.00		
	No	108	141.94	15330.00	8808.00	-.489 .625

As seen in Table III, there is no significant difference between the mean scores of attitudes of prospective teachers who have attended and have not attended statistics class towards assessment and evaluation ($p > .05$).

C. Data Analysis for Question 3

The results of one-way analysis of variance (ANOVA) used to determine whether there is a significant difference between the mean scores of attitudes of prospective teachers graduated

from different class types at high school towards assessment and evaluation were presented in Table IV.

TABLE IV
RESULTS OF ONE-WAY ANOVA FOR ATTITUDES ACCORDING TO CLASS TYPE AT THE GRADUATED HIGH SCHOOL

	Sum of Squares	df	Mean Squares	f	p
Between Groups	1864.891	3	621.630		
Within Groups	103078.156	273	377.576	1.646	.179
Total	104943.047	276			

As seen in Table IV, considering class type at the graduated high school there is no significant difference between the mean scores of attitudes of prospective teachers ($F=1.646$; $p>.05$).

D. Data Analysis for Question 4

The results of one-way analysis of variance (ANOVA) used to determine whether there is a significant difference between the mean scores of self-efficacy perceptions of prospective teachers who have been studying in different departments towards assessment and evaluation were presented in Table V.

TABLE V
RESULTS OF ONE-WAY ANOVA FOR PERCEPTIONS ACCORDING TO DIFFERENT DEPARTMENTS

	Sum of Squares	df	Mean Squares	f	p
Between Groups	7711.010	9	856.779		
Within Groups	55023.885	267	206.082	4.157	.000
Total	62734.895	276			

As seen in Table V, considering different departments there is a significant difference between the mean scores of self-efficacy perceptions of prospective teachers ($F=4.157$; $p<.05$). Post hoc analysis was used to determine between which groups have differentiation. Firstly, homogeneity of variance between groups was tested by Levene's test. The test result showed that the groups were not homogeneous (Levene's = 2.062, $p<.05$). The post hoc Dunnett C test identified significant differences between the groups.

According to the results of the analysis, there is a significant difference between the mean scores of self-efficacy perceptions of prospective teachers who have been studying at Science Teacher Education department and at Guidance and Psychological Counseling department, and between at Science Teacher Education department and at Pre-school Education department. When examining the difference between groups, the mean scores of self-efficacy perceptions of prospective teachers who have been studying at Science Teacher Education department were higher than the mean scores of self-efficacy perceptions of prospective teachers at Guidance and Psychological Counseling department and at Pre-school Education department ($STE_{ave} - GPC_{ave} = 10.14657$, $p<.05$; $STE_{ave} - PS_{ave} = 12.39167$, $p<.05$).

E. Data Analysis for Question 5

The results of Mann Whitney U test used to determine whether there is a significant difference between the mean scores of self-efficacy perceptions of prospective teachers who

have attended and have not attended statistics class towards assessment and evaluation were presented in Table VI.

TABLE VI
RESULTS OF MANN WHITNEY U TEST FOR PERCEPTIONS ACCORDING TO ATTENDING STATISTICAL CLASS

	Groups	n	Mean Rank	Sum of Ranks	U	Z	p
Perceptions scores	Yes	169	135.52	22903.00	8538.00	-.905	.366
	No	108	144.44	15600.00			

As seen in Table VI, there is no significant difference between the mean scores of self-efficacy perceptions of prospective teachers who have attended and have not attended statistics class towards assessment and evaluation ($p>.05$).

F. Data Analysis for Question 6

The results of one-way analysis of variance (ANOVA) used to determine whether there is a significant difference between the mean scores of self-efficacy perceptions of prospective teachers graduated from different class types at high school towards assessment and evaluation were presented in Table VII.

TABLE VII
RESULTS OF ONE-WAY ANOVA FOR PERCEPTIONS ACCORDING TO CLASS TYPE AT THE GRADUATED HIGH SCHOOL

	Sum of Squares	df	Mean Squares	F	p
Between Groups	1417.374	3	472.458		
Within Groups	61317.522	273	224.606	2.103	.100
Total	62734.895	276			

As seen in Table VII, considering class type at the graduated high school there is no significant difference between the mean scores of self-efficacy perceptions of prospective teachers ($F=2.103$; $p>.05$).

G. Data Analysis for Question 7

The results of Pearson Product-Moment correlation were used to determine whether there is a significant correlation between the mean scores of self-efficacy perceptions and the attitudes of prospective teachers towards assessment and evaluation. The correlation coefficient was found .517 ($p<.01$) which means that there was a positive moderate significant correlation between them.

IV. CONCLUSION

In this study, significant differences were found both between the mean scores of attitudes and of self-efficacy perceptions of prospective teachers who have been studying in different departments towards assessment and evaluation. Considering attending statistical class and class type at the graduated high school, significant differences were not found both between the mean scores of attitudes and of self-efficacy perceptions of prospective teachers towards assessment and evaluation.

It is concluded that the mean scores of attitudes of prospective teachers who have been studying at Guidance and Psychological Counseling and Turkish Language Teaching

department were higher than the mean scores of attitudes of prospective teachers at Pre-school Education department and at History Teacher Education department. In addition, the mean scores of self-efficacy perceptions of prospective teachers who have been studying at Science Teacher Education department were higher than the mean scores of self-efficacy perceptions of prospective teachers at Guidance and Psychological Counseling department and at Pre-school Education department.

It is found that there was a positive moderate significant correlation between attitudes and self-efficacy perceptions of prospective teachers. It can be inferred that if positive attitudes increase, self-efficacy perceptions increase or vice versa.

In accordance with the research results, lecturers can review their teaching process and take necessary precautions in order to enable prospective teachers have positive attitudes and gain the necessary competence. They can regulate their educational activities considering particularly departments at which prospective teachers have been studying. In addition, reasons of differentiation of attitudes and self-efficacy perceptions of prospective teachers towards assessment and evaluation according to different departments can be explored. Different variables thought to influence attitudes and self-efficacy perception can be examined.

REFERENCES

- [1] H. İ. Öztürk, *Öğretmenlik mesleğine giriş*. Ankara: HD Yayıncılık, 2002.
- [2] S. Özdemir, ve H. İ. Yalın, *Her yönüyle öğretmenlik mesleği*. 1. Basım, Ankara: Nobel Yayın Dağıtım, 1998.
- [3] Milli Eğitim Bakanlığı, *Öğretmenlik mesleği genel yeterlikleri*. Temel eğitime destek projesi: Öğretmen eğitimi bileşeni. Öğretmen yetiştirme ve eğitimi genel müdürlüğü, Ankara, 2006.
- [4] M. Aktaş, ve D. Alıcı, Eğitimde ölçme ve değerlendirme dersine yönelik tutum ölçeğinin (EÖD-TÖ) geliştirilmesi. *Journal of Qafqaz University*, 2012, 33, 66-73.
- [5] M. Y. Erdoğan, Öğretmenlerin ölçme ve değerlendirmeye yönelik tutumlarının bazı değişkenler açısından incelenmesi, *International Conference on New Trends in Education and Their Implications*. 2010, 849-857.
- [6] M. Kılınç, Öğretmen adaylarının eğitimde ölçme ve değerlendirmeye yönelik özyeterlik algı ölçeği. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi*, 2011, 12 (4), 81-93.
- [7] D. Deryakulu, *Eğitimde bireysel farklılıklar*. 2.Baskı, Ankara: Nobel Yayın Dağıtım, 2004.
- [8] A. Erkuş, N. Sanlı, M. T. Bağlı, ve K. Güven, Öğretmenliğe ilişkin tutum ölçeği geliştirilmesi. *Eğitim ve Bilim*, 2000, 25(116), 27-32
- [9] N. Can, *Öğretmen ve yöneticinin etkinliğinin öğretimdeki rolü*. İstanbul: PegemA Yayıncılık, 1998.
- [10] M. Y. Erdoğan ve F. Kurt, Öğretmenlerin ölçme ve değerlendirme yeterlik algılarının bazı değişkenler açısından incelenmesi. *Elektronik Eğitim Bilimleri Dergisi*, 2012, 1(2), 23-36.
- [11] S. Pektaş, Öğretmen adaylarının ölçme ve değerlendirme yeterlik algılarının incelenmesi. Yayınlanmamış yüksek lisans tezi, Abant İzzet Baysal Üniversitesi Sosyal Bilimler Enstitüsü, Bolu, 2010.
- [12] T. Yanpar, Ankara ilkokullarındaki ikinci devre öğretmenlerinin öğretmenlik mesleği ve konu alanlarıyla ilgili eğitim ihtiyaçları. Yayınlanmamış yüksek lisans tezi, Hacettepe Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara, 1992.
- [13] D. Arda, İlköğretim sınıf öğretmenlerinin 2005 öğretim programı ekseninde ölçme ve değerlendirme alanındaki yeterlilik ve görüşlerinin incelenmesi. Yayınlanmamış Yüksek Lisans Tezi. Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü, 2009.
- [14] E. Karaca, Öğretmen adaylarının ölçme ve değerlendirme yeterliklerine ilişkin algıları. Yayınlanmamış doktora tezi, Ankara Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara, 2003
- [15] E. Vardar, Sixth, seventh and eighth grade teachers' conception of assessment. Yayınlanmamış yüksek lisans tezi, Ortadoğu Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara, 2010
- [16] L. G. Daniel, & D. King, A knowledge and use of testing and measurement literacy of elementary and secondary teachers. *Journal of Educational Research*, 1998. 91 (6), 331-344.
- [17] Z. Zhang, & J. A. Burry-Stock, Classroom assessment practices and teachers' self- perceived assessment skills. *Applied Measurement in Education*, 2003, 16 (4), 323-342.
- [18] N. Karasar, *Bilimsel araştırma yöntemleri*. Ankara: Nobel yay., 2009.
- [19] C. Ozan, ve E. Köse Eğitimde ölçme ve değerlendirmeye yönelik tutum envanterinin Türkçeye uyarlanması. *E-uluslar arası eğitim araştırmaları dergisi*, 2013, 4 (2), 29-47.