

Examination of Class Teacher Candidates' Mathematics Teaching Self-Efficacy

Ayla ARSEVEN¹, İlhami ARSEVEN², Tercan TEPEHAN³

Summary

INTRODUCTION

Today, almost every kind of occupation requires mathematics and especially mathematical thinking more or less. Employers expect their employees to solve problems that have never been encountered before. This creates the need to solve problems through reasoning (Olkun and Uçar, 2012). The achievement of students in such an important subject is generally low and mathematic lessons and mathematics in general have become a nightmare for people (Baykul, 2012).

Mathematics Teaching Self-efficacy Perception

Although research in literature is generally focused on self-efficacy beliefs, recently self-efficacy beliefs are also researched in special fields as self-efficacy belief is based on field specific education (Kaya, Polat and Karamüftüoğlu, 2014). However, when relevant literature is examined, we can say that the number of studies especially those carried out in our country (Kaya, Polat, Karamüftüoğlu, 2014; Temiz, 2012; Gülten, Güneş and Kırbaşlar, 2012; Tarım and Bulut, 2006) is very low. Questions for the following questions were sought:

- What is the mathematics teaching self-efficacy perception levels of class teacher candidates?
- Does mathematics teaching self-efficacy perceptions levels vary in terms of gender, class and grade point averages of class teachers?

METHODOLOGY

The Model of the Study

The study is in "survey model". The study group of the study is composed of 160 third and fourth grade students attending Elementary Education Department, Faculty of Education of Cumhuriyet University.

Data Collection and Analysis

In the study, "Personal Information Form", which was developed by the researcher, was used to collect personal information about class teacher candidates and the Turkish version of "the Mathematics Teaching Self-Efficacy Scale" developed by Enochs, Smiths and Huinker (2000) was used to measure their mathematics teaching self-efficacy levels. Frequency, arithmetic mean, t-test and Kruskal-Wallis were used as statistical techniques.

FINDINGS

1. Findings with Regard to Class Teacher Candidates Personal Information

72% of the participants which corresponds to 116 of them were female and 28%, that is 44 of them were male. While two of them (1%) had low grade point average, 4 of them

¹ Assist. Prof., Cumhuriyet University, Faculty Of Education, aylaarseven2004@yahoo.com

² Turkish National Police, ilhamiarseven@yahoo.com.tr

³ Turkish Naval High School Command

(3%) had very high grade point average. Besides, 97 of them (61%) had medium academic grade point average and 57 of them (35%) had good academic grade point.

2. Findings with regard to Class Teacher Candidates Mathematics Teaching Self-efficacy Perception Levels

When their mean scores on the mathematics teaching self-efficacy scale ($\bar{X}=3.17$, $SS=0.27$) and on its sub-dimensions are taken into consideration, it is seen that mean scores of the class teachers have medium level of mean score from all sub-dimension except for "outcome expectancy" sub-dimension. In this case, it can be said that the mathematics teaching self-efficacy perceptions of class teacher candidates is not as high as desired especially in terms of instructional methodology.

3. Findings with Regard to Variation in Class Teacher Candidates' Mathematics Teaching Self-efficacy Levels in terms of Gender and Grade

Class teacher candidates' mathematics teaching self-efficacy perceptions did not change significantly in terms of gender, $t(158) = 0.27, p > .05$. Although the scores that female class teacher candidates got on mathematics teaching self-efficacy perception level ($\bar{X} = 3.17$) are slightly higher than those of male teacher candidates ($\bar{X} = 3.16$), there is not a significant difference.

4. Findings with Regard to Variation in Class Teacher Candidates' Mathematics Teaching Self-efficacy Levels in terms of Grade Point Average

To test whether class teacher candidates' mathematics teaching self-efficacy perceptions vary according to grade point average or not Kruskal Wallis test was conducted [$\chi^2(4)=4.728, p < .05$] and it was found that there was no significant difference in their mathematics teaching self-efficacy levels in terms of grade point average.

CONCLUSION

It was concluded that class teacher candidates have medium level of mathematics teaching self-efficacy perception. It was also concluded that although class teacher candidates' external expectations perceptions were at a good level, their individual self-efficacy perceptions and the overall mean scores they got on the scale were at medium level. Class teacher candidates' mathematics teaching self-efficacy perceptions did not vary according to grade point average variable. Accordingly, it can be said that grade point average is not an important factor in mathematics teaching self-efficacy levels. In a study by Schunk (1995) investigated the relation between self-efficacy in cognitive areas and sports and motivation and performance. The study showed that self-efficacy is linked to motivation and performance.