

5TH IFSCOM2018 ABSTRACT BOOK  
ISBN: 978-605-68670-1-9

IFSCOM2018  
5TH IFS AND CONTEMPORARY MATHEMATICS CONFERENCE  
SEPTEMBER, 05-09, 2018, KAHRAMANMARAS, TURKEY  
pp:41-42

**EXAMINATION OF THE RELATIONSHIP BETWEEN  
MATHEMATICS DEPARTMENT STUDENTS' MATHEMATICS  
ANXIETY LEVELS AND THEIR ACADEMIC SELF-EFFICACY  
LEVELS**

MEHMET ÇITIL, FERIDE TUĞRUL, SIDDİK DOĞRULUK, AND YALÇIN MUTLUAY

**ABSTRACT**

This research concentrates on the relationship between mathematics anxiety levels of students who receive mathematics education at the Department of Mathematics, Faculty of Science and Letters and their academic self-efficacy. The research has a relational survey model. The population of the study constitutes the students who receive maths education at the Department of Mathematics, Faculty of Science and Letters at a state university located within the province of Kahramanmaraş during the spring semester of 2017 – 2018 academic year. The research sample consists of 154 students who were selected by simple random sampling method. The study has deployed three data collection tools: The "Personal Information Form" developed by the researchers, "Mathematics Anxiety Scale" developed by Bai et al.(2009) and adapted to Turkish by Akçakın, Cebesoy and İnel (2015), and the Academic Self-efficacy Scale" adapted by Ekici (2012). The Personal Information Form includes questions related to gender, class level, grade point average, department preference order, reasons for the preference of the department and job preference after graduation. Being a 5-point Likert type scale, the Mathematics Anxiety Scale contains 2 sub-scales and 14 items. The internal consistency coefficient Cronbachs alpha reliability coefficient has been found to be 0.91 for the overall scale. Cronbach alpha values of the sub-scales are as follows: negative factors  $\alpha = 0.90$ , positive factors  $\alpha = 0.84$ . Cronbachs  $\alpha$  assessing the consistency of the tool on responses from the validation sample for the total item is 0.83 in the present study. The reliability coefficients are 0.79 for the positive subscale and 0.82 for the negative subscale. The Academic Self-efficacy Scale is a five-point Likert-scale composed of 3 factors and 33 items. Cronbachs alpha reliability coefficient of the scale has been determined to be 0.86 for the overall scale. Cronbachs correlations of the factors were 0.88

---

*Key words and phrases.* Mathematics anxiety, Academic self-efficacy, Mathematics department.

for Social situations, 0.82 for Cognitive operations and 0.90 for Technical skills. The Cronbach alpha values for the present study are as such: 0.92 for the overall scale, social situations  $a = 0.81$ , cognitive operations  $a = 0.88$  and technical skills  $a = 0.74$ . Descriptive statistics, independent samples t-test, one way analysis of variance (ANOVA), LDS significance test and Pearson product-moment correlation were used during the data analysis. Research results have indicated that math anxiety levels of the students significantly differ across gender, class level, grade point average and job preference after graduation. However, no significant difference has been identified across department preference order and reasons for the preference of the department. A closer look at students academic self-efficacy indicates a statistically significant difference across gender, grade point average, reasons for the preference of the department and job preference after graduation. Students academic self-efficacy does not significantly vary in terms of class level and department preference order. The results have highlighted that the students are neutral concerning mathematics anxiety levels. It has also been determined that they have partially higher level of academic self-efficacy. Besides, a low level, negative and statistically significant relation has been found between students mathematics anxiety levels and their academic self-efficacy. In this regard, academic self-efficacy of the students is expected to decrease provided that their mathematics anxiety levels increase. Based upon the research findings, various seminars and motivational activities may be organized for students with the aim of reducing their math anxiety levels and increasing academic self-efficacy.

#### REFERENCES

- [1] H. Bai, L. Wang, W. Pan, M. Frey, Measuring mathematics anxiety: Psychometric analysis of a bidimensional affective scale, *Journal of Instructional Psychology*, Vol.36, N.3, pp.185-193(2009).
- [2] V. Akçakın, Ü.B. Cebesoy, Y.İnel, Validity and Reliability Study of Turkish Version of Bidimensional Mathematics Anxiety Scale, *GEFAD / GUJGEF* Vol.35, N.2, pp.283-301(2015).
- [3] G. Ekici, Academic Self-Efficacy Scale: The Study of Adaptation to Turkish, Calidity and Reliability, *H.U. Journal of Education*, Vol.43, pp.174-185(2012).

DEPARTMENT OF MATHEMATICS, KAHRAMANMARAŞ SÜTCÜ İMAM UNIVERSITY,KAHRAMANMARAŞ,TURKEY  
*E-mail address:* [citil@ksu.edu.tr](mailto:citil@ksu.edu.tr)

DEPARTMENT OF MATHEMATICS, KAHRAMANMARAŞ SÜTCÜ İMAM UNIVERSITY,KAHRAMANMARAŞ,TURKEY  
*E-mail address:* [feridetugrul@gmail.com](mailto:feridetugrul@gmail.com)

GÖKSUN VOCATIONAL COLLEGE DEPARTMENT OF COMPUTER TECHNOLOGIES,KAHRAMANMARAŞ  
 SÜTCÜ İMAM UNIVERSITY,KAHRAMANMARAŞ,TURKEY  
*E-mail address:* [sdogruluk@ksu.edu.tr](mailto:sdogruluk@ksu.edu.tr)

DEPARTMENT OF INFORMATICS,KAHRAMANMARAŞ SÜTCÜ İMAM UNIVERSITY,KAHRAMANMARAŞ,TURKEY  
*E-mail address:* [mutluay@ksu.edu.tr](mailto:mutluay@ksu.edu.tr)