IECMSA - 2018

August 28-31, 2018, Kyiv, Ukraine

Examination of The Cross Section Finding Achievements of Pre-Service Math Teachers According to The Various Factors

İsmet Ayhan [1], Osman Sinecen [2]

Abstract. The aim of this study was to examine the cross section finding achievement of pre-service math teachers according to some factors such as gender, class level, academic achievement, taking Analytic Geometry courses, note taking during Analytic Geometry courses. This study was carried out by the participation of 145 pre-service math teachers in Pamukkale University, Faculty of Education, Department of Mathematics Education. Santa Barbara Solids Test was administered to the participants. The results obtained from the analysis of survey data showed that there is a significant difference between the cross section finding achievement of 3rd grade students and 1st or 2nd grade students, but there is not a significant difference between the cross section finding achievement of 3rd grade students and 4st grade students. Moreover, there is not a significant difference the cross section finding achievement of pre-service mat teachers according to both academic achievements and genders. Furthermore, there is not a significant difference the cross section finding achievement of pre service math teacher who taken Analytic geometry courses according to note-taking during the course, genders, academic achievements.

Keyword: Santa Barbara Solid Test, The Cross Section Finding Achievement, Elementary Mathematics Pre-Service Teachers.
AMS 2010: 97D60, 97B50.

References

[1] Bishop, J. E., Developing students spatial ability. Science Teacher, 45, 2023, 1978.

[2] Cohen C. A., Hegarty M. , Inferring cross sections of 3D objects: A new spatial thinking test, Learning and Individual Differences: 22,868-874, 2012.

[3] Cohen C.A., Hegarty M. , Sources of difficulty in imagining cross sections of 3D objects, Proceedings of the TwentyNinth Annual Conference of the Cognitive Science Society, Austin TX: Cognitive Science Society, 179184, 2007.

[1]Pamukkale University, Denizli, Turkey, iayhan@pau.edu.tr
[2]Pamukkale University, Denizli, Turkey, osinecen@pau.edu.tr

[4] Guay R. B., McDaniel E. D. , The Relationship between Mathematics Achievement and Spatial Abilities among Elementary School Children, Journal for Research in Mathematics Education, 8, (3), 211-215, 1977.

[5] Karasar N., Bilimsel Arastirma Yontemi, Nobel Yayin Daitim, Ankara, 2009.

[6] Katsioloudis P., Jovanovic V., Jones, M. A comparative analysis of spatial visualization ability and drafting models for industrial and technology education students. Journal of Technology Education, 26(1), 88-101, 2014.

[7] Kosa T., The Effect of Using Dynamic Mathematics Software: Cross Section and Visualization, International Journal of Technology in Mathematics Education, 23(4), 121-128, 2015.

[8] Mohler J. L., A Review of Spatial Ability Research, Engineering Design Graphics Journal, 72(3), 19-30, 2008.

[9] Tartre L. A., Spatial skills, gender, and mathematics. In E. H. Fennema, G. C. Leder, Eds., Mathematics and Gender, pp. 27-59, New York, Teachers College Press, 1990.

[10] Sorby S. A., Developing 3-D Spatial Visualization Skills, Engineering Design Grafics Journal, 63(2),21-32, 1999.

[11] Turgut M., Ilkogretim II. Kademede Ogrencilerin Uzamsal Yeteneklerinin Incelenmesi. Yuksek Lisans tezi, Izmir, 2007.

[12] Uygan, C., Kurtulus, A., Effects of teaching activities via Google Sketchup and concrete models on spatial skills of preservice mathematics teachers. Turkish Journal of Computer and Mathematics Education, 7(3), 510-535, 2016.