

## *Examining Pre-Service Primary Education Teachers' TPACK Competencies and Teacher Self-Efficacies*

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### **Summary**

#### **INTRODUCTION**

It is unlikely to reach sufficient articles examining all grades primary education prospective teachers' TPACK efficacies regarding different variables and studying whether prospective primary education teachers' TPACK efficacies predict their teaching self-efficacies. Therefore, it was aimed to examine prospective primary education teachers' TPACK efficacies based on different variables and to reveal whether their TPACK efficacies predicted their teaching efficacies. In the study, the questions below were aimed to be answered:

1. What are the prospective primary education teachers' TPACK's efficacies?
2. Do prospective primary education teachers' TPACK efficacies differ on gender, grade level, technology efficacy level, and having personal computer, internet access, and smart phone?
3. To what extent do prospective primary education teachers' TPACK efficacy grades predict teaching self-efficacy grades?

#### **METHOD**

271 prospective primary education teachers including 68 freshman, 55 sophomore, 72 junior, and 76 senior year students studying in Muğla Sıtkı Koçman University Faculty of Education in 2015-2016 academic year fall semester participated in the study that was designed on survey model. 193 of prospective teachers were females and of 78 were males. The data were gathered via "Techno pedagogical Education Efficacy (TPACK-deep) Scale" and "Teacher Self-Efficacy Scale." While the whole grades of prospective primary education teachers TPACK' efficacies were included due to examining different variables, only the senior year prospective primary education teachers were included to examine the TPACK efficacies predictive effect on teaching self-efficacy. The reason is that teaching self-efficacies have been affected by prospective teachers' taken courses and teaching practices. The data were analyzed applying descriptive statistics, Mann-Whitney U test, Kruskal-Wallis test, and linear regression method. The data analysis was conducted in SPSS 22 package program and the significance level was determined as .05.

#### **FINDINGS**

It was found that there was not any significant difference between prospective primary education teachers' TPACK efficiency perceptions and gender. The result is the same for design, practice, and ethic sub-dimensions. On the other hand, there was found a significant difference on specialization sub-dimension in favor of males.

It was found that there was a significant difference on prospective primary education teachers' TPACK efficiencies regarding technology use efficacy levels. Considering sub-dimensions, there are similarities in design, practice, ethics, and specialization dimensions.

It was found that prospective primary education teachers' TPACK efficacies had a significant difference on their owning a personal computer. Considering sub-dimensions, there are similarities in design, practice, ethics, and specialization dimensions.

It was found that prospective primary education teachers' TPCK efficacies had a significant difference on access to internet. Considering sub-dimensions, there are similarities in design, practice, ethics, and specialization dimensions.

It was found that prospective teachers' having a smart phone was not a critical variable on their TPCK efficacies.

It was found that there was a significant difference between prospective primary education teachers' TPCK efficacies and their grade levels. While there are similar findings in design, practice, and ethic sub-dimensions, there is not a similar result for specialization sub-dimension. When the grade levels were examined for difference, it was found that the significant difference between freshmen and sophomores, freshmen and juniors, and freshmen and seniors was found to the detriment of freshmen. The result is same for design and practice sub-dimensions; however, for ethics sub-dimension, the significant difference between freshmen-juniors, and freshmen-seniors was found to the detriment of freshmen.

The prospective primary teachers' TPCK efficacies were found as an important predictor for teaching self-efficacies.

### **DISCUSSION and CONCLUSION**

It is very crucial to develop preservice teachers' TPCK efficiencies for applying technology effectively in future classroom environment and enhancing teaching self-efficacies. One of the most striking findings of this study is that the specialization sub-dimension of prospective teachers TPCK efficacies is in medium level and there is no significant difference on grade level regarding specialization sub-dimension. It is also important that there is not any significant difference between freshmen and sophomores' ethic sub-dimension. Therefore, there can be ethical topics in Computer I and II courses in order to develop prospective primary education teachers' TPCK efficacies starting from freshman year. Similarly, there can be instructions based on TPCK model in Instructional Technology and Material Design course for prospective teachers to develop their specialization sub-dimension. In order to enhance prospective primary education teachers' TPCK efficacies, campaigns or projects can be organized in cooperation with technology companies to access internet and own a personal computer.

It is recommended that similar studies can be conducted with different preservice teachers of primary education to generate study results.