

Self-Efficacy and Technology in Higher Education

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### **Brief Description of the Study**

College students today have grown up in a world full of technology. To engage these students, it is necessary to modify the traditional educational technique of lectures to a more technology-rich experience (Lumpkin, Achen & Dodd, 2015). Many faculty members in higher education did not grow up in this technological society, and they have to learn both the technology and how to effectively integrate it into teaching and content (Coskun, 2015). Using the TPACK framework, this study will seek to measure faculty perceptions of their knowledge of technology, pedagogy and content, alone and in combination (Mishra & Koehler, 2006). The study will focus on tenured, tenure-track, and adjunct faculty in higher education. A modified version of Garrett's (2014) HE-TPaCK survey will be used to capture the data.

### **Participants**

The study participants will be faculty members in a public university in New Jersey. The sample will include tenured, non-tenured and adjunct faculty across multiple disciplines. All faculty members at the target university will be sent an invitation to participate in the study by e-mail. The survey will be provided to participants using a Qualtrics link. Assuming a total population of 750 faculty members, a sample size of approximately 250 respondents would be desirable (Siegel, n.d.). These estimates are subject to modification once actual population numbers are available from the target university.

The biggest potential issue is a low response rate. This was an issue in Garrett's (2014) original research using the HE-TPaCK instrument, and she suggested that subsequent researchers modify the instrument to reduce the number of items. If the modification is not sufficient to

improve the response rate, it may be necessary to add another New Jersey public university to the study.

### **Research Questions**

The following questions will be investigated in this study:

1. How do higher education faculty members assess themselves with respect to the TPACK dimensions of technology, pedagogy and content?
2. Is there a difference in faculty self-assessments of the TPACK domains based on age or gender?
3. Is there a difference in faculty self-assessment of the TPACK domains based on academic discipline, academic ranking, or tenure/non-tenure status?

### **Significance of the Study**

This study is important because a greater understanding of faculty self-assessment data can lead to improved professional development opportunities and more effective faculty support. Garrett (2014) notes that while the TPACK framework has been studied extensively in K-12 education, there has been much less research on higher education and TPACK. She also notes that her study focused on one southeastern Research I institution, and cannot be generalized to all higher education. Garrett advised that future research should focus on academic ranking as an important variable. She also advocated for the use of a modified HE-TPaCK instrument by future researchers to allow data to be compared across studies (Garrett, 2014).

### **Research Design**

This quantitative study will attempt to extend the work that was started by Garrett with respect to higher education faculty self-assessment of the TPACK domains. The use of a modification of the HE-TPaCK survey will ensure that this dataset can be compared and

contrasted to others which were developed using the same instrument. Extending the original author's work beyond the Research I university will contribute to the creation of a more accurate picture of higher education in the United States.

### **Instrument**

The HE-TPaCK survey was designed to capture faculty self-assessment of the TPACK domains. The original survey, developed by Garrett (2014), had 57 items, and she believed that was a contributing factor in the low response rate for her study. She also suggested that the instrument be modified to make it less daunting, and hopefully increase the response rate (Garrett, 2014).

Below is a representative sampling of items on Garrett's HE-TPaCK survey. Each of the questions below are designed with a five-point Likert scale:

- I have a clear understanding of pedagogy (e.g. designing instruction, assessing students' learning).
- I am familiar with a variety of hardware, software and technology tools that I can use for teaching.
- I have a comprehensive understanding of the curriculum I teach.
- I understand that there is a relationship between content and the teaching methods used to teach that content

These is a selection of questions for each of the primary TPACK domains, technology, pedagogy and content, as well as their combinations (Garrett, 2014). Permission from the author will be sought to modify and use her survey in this study.

## References

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