

School Counselors' Intention to Use Technology: The Technology Acceptance Model

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ABSTRACT

This study assessed school counselors' intention to use computer technology to support school counseling services. A total of 125 school counselors (74.8% female) completed an online questionnaire that assessed the main constructs of the Technology Acceptance Model (TAM). Confirmatory factor analysis and alpha technique results provided evidence of the validity and reliability of this measure. Structural equation modeling provided support for the TAM. Specifically, school counselors who perceived ICT to be easy to use were more likely to perceive ICT as useful and to have a positive attitude about ICT; perceived usefulness also predicted positive attitudes toward ICT; and positive attitudes toward ICT predicted intention to use these technologies. The results are discussed in terms of school counselors' technology acceptance in the Indonesian context.

Keywords: Intention to use technology; school counselor; Technology Acceptance Model

INTRODUCTION

Information and communication technologies (ICT) provide many benefits in the educational system, such as classroom management, educational research, teaching and learning processes, multimedia and hypermedia learning, and school administration. Previous studies documented the systematic use of ICT to enhance students' academic achievement (Carle, Jaffe, & Miller, 2009) through application multimedia (Schweppe, Eitel, & Rummer, 2015) and hypermedia (Chrisman & Harvey, 1998), classroom and workload management (Lai and Pratt, 2008), improving school administration and management (Baskin & Williams, 2006), and support research (Birnbaum, 2004).

In the school counseling services context, ICT has many potential applications such as electronic discussion forums, accessing students' information, delivering individual and group counseling sessions, and depositing student information for research (Oraegbunam, 2009). Multimedia, hypermedia, and websites are important to optimize school counseling services (Beidoglu, Dinçyürek, & Akıntug, 2015). Unfortunately, many school counselors do not apply ICT to support school counseling services. For example, Steele, Jacoke and Stones (2014) showed that only 28% of school counselors perceived that ICT can be used to support the school counseling core curriculum services. Thus, most school counselors (72%) had the perception that the application of ICTs would make little contribution to their work. Owen and Weikel (1999) also reported that although around 88% of school counselors in one U.S. state were already using computers, most of them only used the routine applications such as word processing, record keeping, and class scheduling. It seems that even school counselors who do accept ICT do not apply them in the development of school counseling services.

To date, there have been no studies on school counselors' intention to use ICT in school counseling services. The Technology Acceptance Model (TAM) provides a framework for predicting ICT use based on users' beliefs and attitudes about technology (Handayani, et al., 2016; Teo, Lee, Chai, & Wong, 2009). However, there are only a few studies of the TAM in the education context. For example, the TAM model has been tested in studies on the intention to use hypermedia (Gao, 2005) and e-learning (Alsofyani, Aris, Eynon, & Majid, 2012; Cheung & Vogel, 2013), and in a study of pre-service teachers' intentions to use ICT (Teo, Lee, Chai, & Wong, 2009). The current study makes a unique contribution to the literature by assessing ICT acceptance among Indonesian

school counselors, and testing whether perceptions of ICT predict the intention to use ICT in providing school counseling services.

The Technology Acceptance Model

The TAM originally was developed by Davis (1989) based on the Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980), which holds that individuals’ beliefs and attitudes predict their intention to perform a behavior. According to the TRA, attitude toward a behavior is determined by beliefs about the consequences of the behavior and the affective evaluation of those consequences. Beliefs, in this case, are defined as the individual’s prediction that performing a given behavior will produce a given consequence (Ajzen & Fishbein, 1980). However, compared to the TRA, the TAM makes more specific predictions because it applies to computer usage behavior, not behavior in general (Davis, Bagozzi, & Warshaw, 1989).

The TAM describes a pathway in which personal beliefs shape attitudes about ICT use, which in turn shape intentions to use ICT. In this model, the two beliefs that are critical are perceived usefulness and perceived ease of use. Perceived usefulness is the user’s subjective belief that using ICT will increase his/her performance and productivity. Perceived ease of use refers to the user’s belief that the use of ICT will not take much effort. Recent studies employing the TAM as the conceptual framework have shown that perceived usefulness and perceived ease of use are significant predictors of attitude towards technology use and intention to use it (Ducey & Coovert, 2016; Teo, Lee, Chai, & Wong, 2009).

The Current Study

This is the first test of the TAM in a sample of school counselors, an important step in understanding school practitioners’ perspectives on ICT use. As a first step in testing this model, we tested the validity and reliability of the measure used to assess the core constructs of the TAM in our sample of Indonesian school counselors, extending earlier psychometric tests of this measure in other samples (Gao, 2005; Hu, Griffin, & Bertuleit, 2016). We then used structural equation modeling to test the following hypotheses: (H1) perceived ease of use will positively predict perceived usefulness and (H2) positive attitudes toward computer use; (H3) perceived usefulness will also predict positive attitudes toward computer use; and (H4) attitude toward computer use will have a positive influence on intention to use ICT.

METHODS

Participants

Data were collected from 125 school counselors. They were from several cities in Central Java, Indonesia. They were invited to voluntarily participate by responding to an online questionnaire. Participants’ demographic information is provided in Table 1.

Table 1: Participants’ demographic information

Demographic information	%	
Gender	Male	25.2
	Female	74.8
Working experience	0-5 years	42
	6-15 years	51.3
	16-25 years	4.2
	> 25 years	2.5
Work school level	Junior high school	46.6
	Senior high school	53.4

Measurement

A 17-item questionnaire was used to assess technology acceptance, particularly Perceived Usefulness (PU; 3 items), Perceived Ease of Use (PEU; 6 items), Attitude toward Computer Use (ATCU; 3 items), and Intention to Use (ITU; 2 items). Items were rated on five-point Likert Scale ranging from 1 (strongly disagree) to 5 (strongly agree). The scale was translated into Bahasa Indonesia by applying back-translation procedures; one Indonesian-English interpreter translated the English language measure into Bahasa Indonesia, and a second Indonesian-English interpreter back-translated the measure into English to determine the accuracy of the version to be used in the study. Any discrepancies were rectified through discussion.

RESULTS

Descriptive Data, Validity and Reliability

As seen in Table 2, the means for perceived ease of use (PEU), perceived usefulness (PU), attitude toward computer use (ATCU), and intention to use (ITU) were 4.07 (SD = 0.61), 4.53 (SD = 0.56), 4.29 (SD = 0.71),

and 4.11 (SD = 0.62), respectively. Table 2 also shows the intercorrelations among study variables. All correlations were positive, and moderate to strong in magnitude.

Table 2: Intercorrelations, means, and standard deviations of study variables

	M	SD	1	2	3
1. PEU	4.07	.61			
2. PU	4.53	.56	.66**		
3. ATCU	4.29	.71	.66**	.70**	
4. ITU	4.11	.62	.33**	.38**	.43**

Notes: $N = 125$; PEU = Perceived ease of use; PU = Perceived usefulness; ATCU = Attitude toward computer use; ITU = Intention to use

** $p < .01$

Confirmatory factor analysis (CFA) was then used to test the measure’s construct validity and alpha technique to test reliability, to determine if it was appropriate for use in an Indonesian sample. Table 3 presents the results of confirmatory factor analysis, showing the average variance extracted (AVE) and reliability coefficient of each subscale. All items had factor loadings above .50, suggesting good construct validity. The alpha coefficients of reliability indicated that the scale had good reliability (PEU = .88; PU = .93; ATCU = .86; and ITU = .81) in a sample Indonesian participant.

Table 3: Construct validity and alpha reliability coefficient of the measure of the TAM constructs

	Factor Loading ^{a)}	Average Variance Extracted	α
<i>Perceived Ease of Use (PEU)</i>			
PEU1	.63		.86
PEU2	.87		
PEU3	.69		
PEU4	.66		
PEU5	.82		
PEU6	.70		
<i>Perceived Usefulness (PU)</i>			
PU1	.74		.93
PU2	.86		
PU3	.89		
PU4	.81		
PU5	.83		
PU6	.76		
<i>Attitude toward Computer Use (ATCU)</i>			
ATCU1	.75		.85
ATCU2	.83		
ATCU3	.88		
<i>Intention to Use (ITU)</i>			
ITU1	.76		.81
ITU2	.89		

*) Goodness of fit indices of CFA: $\chi^2 = 186.37$; $df = 108$; $\chi^2/df = 1.73$; CFI = .94; SRMR = .06

Model Testing

The structural equation modeling technique was implemented to test the Technological Acceptance Model (TAM) for Indonesian school counselors. To evaluate the match between the data and the model, we used χ^2 , df , CFI, and SRMR as goodness-of-fit indexes (Hu & Bentler, 1999). Because χ^2 is highly sensitive to sample size, the ratio of χ^2 to its degrees of freedom (df) was used. The model is acceptable when the value of the ratio of χ^2 to its df is less than 3. Following recommendations by Hu and Bentler (1999), the standardized root mean square residual (SRMR) was used as the measure of absolute fit and the Comparative Fit Index (CFI) as the index of incremental fit. From the literature (e.g., Hair, Anderson, Tatham, & Black, 1999), values of .90 or more for the CFI, and values of .08 or less for the SRMR, reflect a good fit between the model and the data. The conceptual model showed a good fit with the data: $\chi^2 = 186.68$, $df = 110$, $p < .01$, $\chi^2/df = 1.70$, CFI = .95, SRMR = .06.

The figure 1 shows that the hypotheses of the present study were fully supported. The school counselors’ intention to use information technology was predicted by perceived ease of use, perceived usefulness, and

positive attitude toward computer use. These variables together explained 29% ($R^2 = 0.29$) of the variance in intention to use. Attitude toward computer use was predicted by perceived ease of use and perceived usefulness; together, these variables explained 68% ($R^2 = 0.68$) of the variance in attitude. Finally, perceived usefulness explained 55% ($R^2 = 0.55$) of the variance in perceived ease of use.

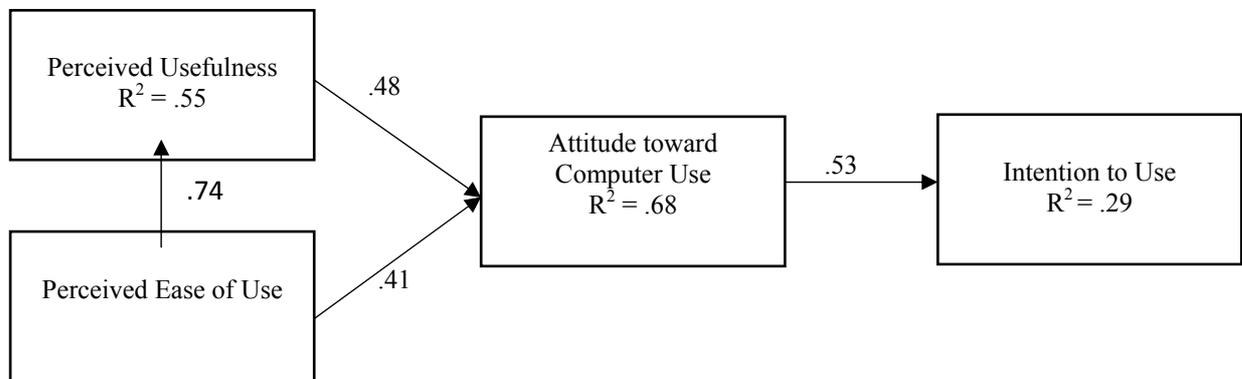


Figure 1. Parameter estimates of the Technological Acceptance Model (TAM) for school counselors

DISCUSSION

The present study tested the validity and reliability of the measure of the Technology Acceptance Model in a sample of Indonesian school counselors, and then tested the hypothesized associations among these constructs using structural equation modeling. The measure had good reliability and validity when implemented in an Indonesian sample. The study hypotheses were fully supported. Specifically, perceived ease of use and perceived usefulness positively predicted attitude toward ICT and intention to use ICT. Perceived ease of use also positively predicted perceived usefulness. These results are consistent with other studies showing support for the TAM in different types of samples (Ducey & Coovert, 2016; Gao, 2005; Teo, Lee, Chai & Wong, 2009).

The results have clear implications for the implementation of ICT in school settings. Developing school counselor competencies in the use of ICT should be oriented toward helping school counselors build familiarity with ICT applications and awareness of the potential contributions of ICT in school counseling services. The resulting positive beliefs about ease of use and usefulness lay the groundwork for positive attitudes about ICT and, in turn, increased motivation to use ICT in school counseling services.

Several limitations are of note. First, data were collected only through self-report, and all constructs were assessed by the same questionnaire. This shared method variance may have inflated the correlations reported in the current study. Second, it will be important in future research to take into account the influence of volition and a sense of choice as influences on the link between attitude and intention (Venkatesh, Morris, Davis, & Davis, 2003). Third, data were collected only in Central Java Province, and further study should be conducted in other provinces of Indonesia as a test of the generalizability of our findings.

CONCLUSION

The present study showed that the measure used to test the TAM was reliable and valid for use in assessing Indonesian school counselors' beliefs, attitude and intention with regard to ICT use. Support was also found for the TAM itself. School counselors who perceived ICT to be easy to use as well as useful had a more positive attitude about ICT and in turn, a stronger intention to use ICT in the context of providing counseling.

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