

ATTITUDES TOWARDS INTERNET-BASED DISTANCE EDUCATION AMONG ACADEMIC STAFF OF MALAYSIAN UNIVERSITIES

Nabeel Abedalaziz^a, Hasan Muaidi^b

^a Faculty of Education, Department of Educational Psychology and Counseling,
University of Malaya, Kuala Lumpur, Malaysia.

^b Faculty of Science & Information Technology, Information Technology Department,
AlBalqa' Applied University, Jordan

^a Corresponding author: : nabeelabdelazeez@yahoo.com

©Ontario International Development Agency ISSN: 1923-6654 (print)
ISSN 1923-6662 (online). Available at <http://www.ssrn.com/link/OIDA-Intl-Journal-Sustainable-Dev.html>

Abstract: The purpose of this study is to examine the academic staff of local universities' attitudes toward internet-based distance education. A survey was distributed to 61 academic university staff in 3 public universities (University of Malaya, International Islamic University Malaysia and Sultan Idris Education University). The questionnaire used is called 'Attitudes Toward Internet-Based Distance Education'. The study yielded several findings. First, the level of attitudes towards internet-based distance education among academic staff of local universities which is at the moderate level (mean=66.7). Second, there is no significant difference in attitudes toward internet-based distance based learning on gender, university of employment, academic rank and years of experience. Third, Pearson Correlation test result shows that there is a significant relationship between attitudes toward internet-based distance education and computer and internet access ($r=.368$, $\rho=0.04$), institutional support ($r=.519$, $\rho=0.00$), computer and internet skills ($r=.325$, $\rho=0.01$) and perceived values ($r=.750$, $\rho=0.00$). Finally, only institutional support and perceived value have a significant impact on attitudes toward internet-based distance education.

Keywords: Attitudes, distance education, computer and internet access, institutional support, institutional support, perceived values, computer and internet skills

INTRODUCTION

Distance education is "formalized instructional learning where the time/geographic situation constrains learning by not affording in-

person contact between student and instructor" ([1], p. 10). Bilings et al. [2] defined distance education as an education environment where the educators are separated by time and/or space. Web-based distance education provides educational opportunities for those with limited time and space through the combination of systematic teaching plans and computer technology. Educators can flexibly select suitable times, places, and teaching methods, while learning occurs via interaction with the instructors and learners through media.

The internet communication systems in Malaysia have become more efficient. The Malaysian government is interested in integrating new telecommunication technologies into higher education and making Malaysia one of the main competitors in Asia when it comes to internet-based distance education.

Malaysia has started to apply Web-based education as a promising field in which to invest its educated human resources. The Malaysian government provides educational institutions with the required digital infrastructure, computer labs, and low-cost internet connections. With these new technological developments in Malaysia, there is a need to investigate the academic staff's attitudes toward internet-based distance education in order to identify their willingness, readiness, and ability to implement internet-based distance education courses and programs in their curricula. Faculty members play a critical role because they are responsible for curricula change in universities. Faculty members will be

responsible for the planning, design, implementation, and subsequent evaluation of any widespread use of internet-based distance education courses and programs [3].

Technology enabled education has opened up new frontiers for all the stakeholders in education. However, it appears those faculty members' perceptions or attitudes about technology enabled distance education are not studied in depth. Such a study is essential as it can reveal the concerns of faculty members about distance education. If properly addressed, it will help make distance education programs more acceptable among the faculty members. [39].

The theory of attitude-behavior relation [4] indicates that one's behavior can be predicted through measuring one's attitudes toward that behavior. Attitudes toward the internet-based distance education environment have been considered as a key to successful introduction and implementation of Web-based instruction [3]. The attitudes of the potential Web-based education faculty members represent one of the most important factors that control the diffusion and the success of internet-based distance education in institutions of higher education. Providing faculty members with the required materials and experiential resources as well as making them aware of the value of internet-based distance education would help in improving their attitudes toward Web-based distance education [3]. Positive attitude is favorable for teaching [5] because of its influence on learning efficiency, motives, and knowledge application [6].

Previous studies have investigated participants' attitudes toward internet-based distance education in relation to different factors (i.e., [3, 7, 8, 9, 10, and 11]). For instance, Gasaymeh [3] found out that computer and internet skills, institutional supports, and perceived value are significant predictors of faculty members' attitudes toward internet-based education. Jones et al. [12] found that perceived value of Web-based distance education is significantly related to the faculty's philosophical positions towards Web-based distance education, while faculty competency and technology support are not significantly related to the faculty philosophical positions towards Web-based distance education. In addition, appropriate computer equipment and Internet connection [14, 15] as well as a supportive learning environment [13, 14] can influence a person's willingness to participate in Web-based distance teaching and learning.

Factors Affecting Attitudes Toward Web-based Distance Education

Marcus [16] module's presented the factors affecting faculty members' attitudes toward internet-based education. He assumed that most potential adopters who have positive attitudes toward the innovation would have: (a) high level of computer and internet access, (b) high level of readiness for time commitments required for internet-based distance education, (c) high level of institutional support, (d) high level of computer and internet skills, and (e) high perceived value attached to internet-based distance education.

Computer and internet access had been frequently identified as the high-ranked barrier to the implementation of internet-based distance education in institutions of higher education [3, 9, and 17]. Level of access to technology represents an important factor that determines faculty's intentions to use internet-based distance education [3, 11, and 17]. Willingness to invest time to implement internet-based distance education represents one of the early considerations for the potential internet-based distance education users [11]. Time commitments are also ranked among the top factors influencing faculty attitudes toward internet-based distance education [18]. Participants' level of computer and internet skills is also one of the main determinants of their attitudes toward internet-based distance education [3, 19, and 20]. Also, participants' perceptions of the value of internet-based distance education were found to have a significant relationship with faculty attitudes toward Web-based education [21]. Finally, institutional support had been found to have a significant influence on faculty members' attitudes toward Web-based distance education [3, 8, 22, and 23].

PROBLEM STATEMENT

The exponential growth of the mature learner population is making distance learning an increasingly popular choice, which also underscores the need for comprehensive and thoughtful evolution of distance education if it is to be a sustainable educational model of the future. The number of Malaysian students in need of a university education is increasing. Furthermore, Malaysian universities provide higher education for both Malaysian and international students. The use of information technology in distance learning could be one way to deal with this challenging situation. Using technology in instruction has been a part of education for decades; however, Internet-based distance learning and education is still a new pedagogy [37], especially in countries challenged to provide universal technology access. The role of the faculty in higher education across the world is also changing as technology evolves.

Faculty attitudes toward internet-based education affect the success or failure of its implementation [37]; some faculty members show a willingness to participate in offering Web-internet-based education courses, while others do not. The differences in the level of willingness may be related to factors such as attitudes, incentives, support, training, policies, time, and tenure problems [37]. Understanding how these factors inhibit or encourage faculty members in Malaysian universities to participate in distance education will facilitate decisions on the use of internet-based education in the Malaysian educational system. Therefore, understanding faculty members' attitudes and exploring the factors that encourage or impede their participation in internet-based education would be useful in the implementation process.

Unfortunately, few studies have explored attitudes toward internet-based distance education in Asian countries [38]. In Malaysia, there is a lack of relevant studies to explore faculty members' (academic staff) attitudes toward internet-based education. Moreover, findings of previous studies are inconsistent and even contradictory. For instance, Clay [18] found that time issues related to the implementation of internet-based distance education were ranked among the top factors that influenced faculty attitudes toward internet-based distance education, whereas Gasaymeh [3] found that time commitments are an insignificant predictor of faculty members' attitudes toward internet-based education. As such, this study aimed at determining if its findings were similar to those derived from studies conducted at the global level.

Since the success of technology implementation is heavily dependent on the faculty members and their interest in this technology [20, 24] the present study attempts to gain better understanding of participants' attitudes toward web-based distance education, and to provide Malaysian university members with information on important issues related to implementation of internet-based distance education. Furthermore, improving faculty positive attitudes toward the use of technology to teach in online environment, would be possible by convincing the faculty with a positive value of the use of technology in education, increasing faculty access to computer and internet technologies, improving faculty technical skills, and improve their willingness to invest time in training and learning the use of technology in education [3].

Based on Marcus's [16] model, the present study tested the following hypotheses: most potential adopters who have positive attitudes toward the innovation would have: (a) high level of computer and internet access, (b) high level of readiness for time commitments required for internet-based distance education, (c) high level of institutional

support, (d) high level of computer and internet skills, and (e) high perceived value attached to internet-based distance education. So, the present study sought answers to the following questions: (a) What are the overall participant's attitudes toward internet-based education? (b) Are there significant relationships between participant's attitudes toward internet-based education and some factors such as: computer and internet access, time commitments, institutional support, computer and internet skills, and perceived value? (c) What are the predictors of attitudes toward internet-based education?

METHODOLOGY

Participants

The participants for this study were 261 Faculty of Education members from four public universities in Kuala Lumpur/Malaysia, namely: University of Malaya (UM), Sultan Idris University of Education (UPSI), International Islamic University Malaysia (IIUM), and MARA University of technology (UITM). They were chosen as samples because they had been using internet facilities to conduct distance education. Fifty six percent (56%, $n = 170$) of the participants were females while forty four percent (44%, $n = 91$) were males. Fifteen percent (15%; $n = 39$) of the respondents were from UM, thirty two percent (32%, $n = 84$) were from UPSI, thirty eight percent (38%, $n = 99$) were from IIUM, and fifteen percent (15%; $n = 39$) of the respondents were from (UITM). Forty eight percent (48%, $n = 125$) of the participants were lecturers, thirty percent (30%, $n = 78$) were senior lecturers, twenty percent (20%, $n = 52$) were associate professors, and two percent (2%, $n = 6$) of them were professors. The mean of participant ages was 39.65 years, and the mean of their experiences was 23.25 years.

Research Instrument

Attitudes Toward Internet-Based Distance Education questionnaire (ATIBE) developed by Gasaymeh [3] was validated and used to collect the data. ATIBE consists of six subscales, namely: attitude toward internet-based education scale (20 items), computer and internet access scale (4 items), time commitment scale (3 items), institutional support scale (7 items), computer and internet skills scale (15 items), and perceived value scale (14 items).

The Cronbach's alpha coefficients calculated for the attitudes, computer and internet access, time commitments, institutional support, computer and internet skills, and perceived value subscales were .77, .78, .77, .78, .80, and .76 respectively, and it was calculated to be .81 for the entire scale. The scale correlation coefficients ranged between .37 and .49 on attitudes, between .36 and .57 on computer and internet access, between .36 and .62 on time

commitments, between .54 and .61 on institutional support, between .37 and .41 on computer and internet skills, and between .38 and .53 on perceived value. It is generally agreed that correlations in the range of .35 to .65 are useful and statistically significant beyond the 1% level, whereas correlations less than .25 are not useful and statistically non significant [25, 26]. Thus, the results show that the alpha coefficients for all subscales were significantly high, suggesting that the internal reliability index of the six subscales and the entire scale is adequate.

Confirmatory Factor Analysis (CFA) was conducted to test the fit between the six-factor model and the data. The maximum likelihood estimation method was used. Multiple criteria were used to assess the goodness-of-fit between the model and the data. Multiple goodness-of-fit tests were used to evaluate the fit between the hypothesized model and the data to determine if the model being tested should be accepted or rejected. These are Normed Fit Index (NFI; [27]), the Comparative Fit Index (CFI; [28]), the Root Mean Square Error Approximation (RMSEA; [29]), and the minimum fit function Chi-Square ratio degrees of freedom (CMIN/DF, [30]). NFI and CFI greater than 0.90 indicates a good fit to the data, and the RMSEA of about 0.05 indicates a close fit of the model and 0.08 represents a reasonable error of approximation. Therefore, in this study, CMIN/DF indices were considered rather than chi-square indices, for the ratio should be close to one for correct models. CMIN/DF value in the range of 2 to 1 or 3 to 1 are indicative of an acceptable fit between the hypothetical model and the sample data [31]. All coefficients are significant at $p < .01$. $NFI = 0.92$; $CFI = 0.95$; $RMSEA = 0.05$; $CMIN/DF = 1.89$

RESULTS

Overall profile of participants perceptions toward internet-based education

All 61 participants responded to all items in the ATIBE and no missing data was found in the survey. Table 1 presents the participants' mean scores with the standard deviations of the six subscales. The participants scored the lowest on the *perceived value* ($mean = 3.48$) followed by the *attitudes subscale* ($mean = 3.51$), time commitments ($mean = 3.77$), institutional support ($mean = 3.88$), and computer and internet access (4.13). At the global level, the mean score for each subscale is well above the mid-point (3.00) and this indicated that participants held: (1) positive attitudes towards internet-based education, (2) positive perceptions about their level of computer and internet access, (3) positive perceptions of their readiness for time investment in internet-based distance education, (4) positive perceptions of the

level of provided institutional support, (5) positive perceptions of their level of computer and internet skills, and (6) positive perceptions of the value of internet-based distance education.

Correlation analysis

In the present study, the correlation coefficients were interpreted by employing Davis [32] descriptors (*negligible* = .00 to .09; *low* = .10 to .29; *moderate* = .30 to .49; *substantial* = .50 to .69; *very strong* = .70 to 1.00). The relationships among the subscales are shown in Table 2. A very strong relation was between participants' attitudes toward internet-based education and their perceptions about the level of perceived value ($r = .756$; $p < .01$). A substantial relation was between participants' attitudes toward internet-based education and their perceptions about the level of institutional support ($r = .519$; $p < .01$). Moderate relations were between participants' attitudes toward internet-based education and their perceptions about: their level of computer and internet access ($r = .368$; $p < .01$); and their level of computer and internet skills ($r = .325$; $p < .01$). A low relation was observed between participants' attitudes toward internet-based education and their perceptions of their readiness for time investment associated with internet-based distance education ($r = .238$; $p = .061$).

Regression Analysis

Before conducting multiple regression analysis, some assumptions have been checked; they include lack of multicollinearity, normality, linearity, homoscedasticity, influential points and outliers, and independence of participants' scores [33]. No violation for conducting multiple regressions was found.

A multiple regression analysis was conducted to identify the best predictors of the dependent variable and to show the proportion of variance in the dependent variable (attitudes toward internet-based education) explained by the independent variables (computer and internet access, institutional support, time commitment, computer and internet skills, and perceived value). A direct method entry was used for the multiple linear regression analyses. The standard multiple regression with a direct method entry was used to measure the relationships among variables. The summary of the multiple regression results are presented in Table 3 and Table 4. The results indicated that 61.4% of the variance in attitudes toward internet-based education was explained by the independent variables. The test statistic was significant at the .01 level of significance ($F(5, 55) = 17.255$; $p = .000$).

Table 1: Descriptive statistics for each subscale (n=61)

Variable	Mean	Standard Deviation
Computer and Internet Access (CIA)	4.13	3.55
Time Commitment (TC)	3.77	2.70
Institutional Support (IS)	3.88	4.44
Computer and Internet Skills (CIS)	3.58	11.49
Perceived Value	3.48	8.73
Attitudes toward Internet-Based Education (ATIBE)	3.51	9.06

Table 2: The Correlation Matrix between Independent Variables.

	CIA	TC	IS	CIS	PV
Computer and Internet Access (CIA)	1				
Time Commitment (TC)	.149	1			
Institutional Support (IS)	.373**	.322**	1		
Computer and Internet Skills (CIS)	.112	.479**	.163	1	
Perceived Value (PV)	.382**	.227	.464**	.347**	1
Attitudes toward Internet-Based Education (AIBE)	.368**	.238	.519**	.325**	.756**

** Correlation is significant at the .01 level (2-tailed).

Table 3: Standard Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784	.614	.579	7.544

Table 4: ANOVA: Regression Significance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4986.578	5	997.316	17.525	.000
Residual	3129.979	55	56.909		
Total	8116.557	60			

Table 5: Regression Coefficients of Standard Regression Model

Variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std Error	Beta			Tolerance	VIF
Constant	12.284	6.530		1.881	.065		
Computer and Internet Access (CIA)	.153	.294	.048	.519	.606	.773	1.293
Time Commitment (TC)	-.049	.396	-.012	-.124	.902	.982	1.018
Institutional Support (IS)	.444	.218	.206	2.039	.046	.753	1.329
Computer and Internet Skills (CIS)	.077	.100	.077	.770	.445	.811	1.234
Perceived Value	.774	.129	.618	6.010	.000	.804	1.244

Table 6: Correlations Coefficients and Beta Values.

Variable	Correlations			
	Zero-order	Partial	Part	Part squared
Computer and Internet Access (CIA)	.368	.070	.043	.002
Time Commitment (TC)	.238	-.017	-.010	.000
Institutional Support (IS)	.519	.265	.171	.029
Computer and Internet Skills (CIS)	.325	.103	.064	.004
Perceived Value (PV)	.756	.630	.503	.253

The standardized regression coefficients (Beta), give an indication of the contribution of each independent variable in predicting the dependent variable [34] (Table 5). The Sig (p) for each independent variable represent a measure of the significance of this variable in predicting the dependent variable.

For Computer and Internet Access variable, the test was not statistically significant ($t = .519$, $Beta = .048$; $p = .606$). These suggested participants' perceptions of their computer and internet access to implement internet-based distance education were not significant predictor of participant' attitudes toward internet-based distance education. The Computer and Internet Access variable had a significant positive relationship with participants' attitudes toward internet-based education, but this relationship was not significant when it examined in context of other independent variables as group.

For the Time Commitment variable, the test was not statistically significant ($t = -.124$, $Beta = -.012$; $p = .902$). These suggested participants' perceptions of their readiness for time commitments to implement internet-based distance education were not a significant predictor of faculty members' attitudes toward internet- based distance education.

For Institutional Support variable, the test was statistically significant ($t = 2.39$, $Beta = .206$; $p = .046$). These suggested participants' perceptions of the level of provided institutional support to implement internet-based distance education were a significant predictor of their attitudes toward internet-based distance education.

For the Computer and Internet Skills variable, the test was not statistically significant ($t = .770$, $Beta = .077$; $p = .445$). This suggested faculty participants' perceptions of their computer and internet skills to implement internet-based distance education were not

significant predictors of their attitudes toward internet-based distance education. The computer and internet skills variable had a significant positive relationship with the dependent variable (attitude), but this relationship was not significant when examined in context of other independent variables as a group.

In contrast, for the Perceived Value variable, the test was statistically significant ($t = 6.010$, $Beta = .616$; $p = .00$). This suggested student participants' perceptions of the value of internet-based distance were a significant predictor of their attitudes toward internet-based distance education.

To determine the best predictors among computer and internet access, time commitment, institutional support, computer and internet skills, and perceived value variables in predicting the participant's attitudes toward internet-based education, standardized regression coefficients (Beta), partial correlation coefficients, and part correlation coefficients were used. Table 6 shows that Perceived Value has the greatest value of Beta, partial correlation coefficient, and part correlation coefficient. Perceived Value variable was the best predictor of dependent variable that had the most significant effect in predicting participants' attitudes toward internet-based education. This predictor accounted for 25.5% of the total variance of participant's attitudes after controlling for the other four variables in this study. The second most important predictor in predicting participant's attitudes toward internet-based education was the Institutional Support variable that accounted for 2.9% of the total variance of attitudes toward internet-based education after controlling for the other four variables in this study. Computer and internet access, Time Commitment variable and computer and internet skills variable had negligible unique contribution in predicting participants' attitudes toward internet-based distance education.

DISCUSSION

In this study, the participants had positive attitudes ($M = 3.51$, $SD = 9.06$) toward internet-based distance education. This finding suggests that the participants would accept the implementation of internet-based distance education in the Malaysian universities. Positive attitudes toward internet-based distance education may be due to: (1) Increasing students' access to education and its consequences of increasing the number of educated and qualified people in Malaysia, (2) self development, (3) financial promises and its impact on the university's economic progress [3, 20], (4) participants' beliefs about the effectiveness of Distance Learning technology, (5) the strong motivation to include the Distance Learning methods in the educational

process, and (6) high level of institutional support in terms of high level of training, financial support, technical support, and incentives. A higher level of institutional support perhaps would enhance the positive attitudes of the faculty members and thus lead to increased use of internet-based distance education among the Malaysian lecturers

Results reveal that participants' attitudes toward internet-based education were correlated positively ($.238 \leq r \leq .756$) with their perceptions of their level of computer and internet access, readiness for time commitments associated with internet-based distance education, their level of computer and internet skills, institutional support, and perceived value of the internet-based distance education. These findings were aligned with Marcus's [16] model. As such, participants who have positive attitudes toward internet-based distance education have: (a) high level of computer and internet access, (b) high level of readiness for time commitments required for internet-based distance education, (c) high level of institutional support [8, 23], (d) high level of computer and internet skills [3, 19, 22, 35, and 36], and (e) high perceived value attached to internet-based distance education. These findings seem to be inconsistent with Gasaymeh's [3] study. He found a significant positive relation between faculty members' attitudes toward internet-based distance education and time commitments; and negative relation between their attitudes toward internet-based distance education and their perceptions of the provided institutional support.

In order to examine the impact of all the five independent variables on attitudes towards internet based distance education, only two independent variables (perceived values and institutional support) positively and significantly predict the attitudes towards internet-based distance education. This finding is similar to those by Gasaymeh [3] who found that perceived value and institutional support was individually significant in predicting the faculty attitudes toward internet-based distance education. This shows that perceived value and institutional support are the vital factors in determining the attitudes towards internet-based distance education.

One of the causes which might explain the insignificance of time commitments, computer and internet access, and computer and internet skills in predicting participants' attitudes toward internet-based education, was the level of its relationships with the other independent variables. For instance, a moderate positive relationship was found between participants' perceptions of their readiness for time commitments to implement internet-based distance education and their perceptions of their level of computer and internet skills, and institutional

supports. As a result, when all these variables were included in the regression model, there would be a high level of shared variance between them that is statistically removed due to their overlaps [3].

CONCLUSION

In conclusion, this study found that attitudes toward internet based distance education among the academic staff of the three local universities are positive and relatively high. Significant relationships were also found between attitudes toward internet based distance education and four factors, namely: computer and internet access, institutional support, computer and internet skills, and perceived value. There is no significant relationship between attitudes toward internet based distance education and time commitment. On regression analysis, the results revealed that institutional support, and perceived values are predictors of participant attitudes towards internet based distance education.

There were three main limitations for this study, (1) the sample size was small, (2) the participants were faculty of education members, and (3) the respondents were not heavy or regular users of internet (some were and some were not). Although they are academic staff, their teaching was more on classroom meetings than distance education. It is also felt that the sample respondents be more specifically focused on academic staff who use internet widely as a tool for teaching rather than who use internet occasionally and not as a method of instruction.

The present study examined possible current and potential barriers to the spread of Web-based distance education in Malaysia, and the possible motivations for participants to get involved in internet-based distance education in Malaysia. The findings of this study represent a baseline for further investigation concerning internet-based distance education in Malaysia. In addition, the study provides guidance in developing training programs in the use of internet-based distance education for Malaysian educators [3].

RECOMMENDATIONS

Based on the findings, the present study makes the following recommendations: First, this study should be replicated using additional Malaysian universities. Further research in Malaysian universities is required to determine and evaluate barriers, incentives, and attitudes that could affect the implementation of internet-based distance education.

Second, further qualitative studies should be conducted to determine if there are other factors affecting the implementation of internet-based education at Malaysian universities beyond those investigated in this research study.

Third, it is recommended that the Malaysian government and Ministry of Higher Education seek ways to increase faculty participation in developing more Internet-based programs. Since institution support is a predictor of faculty members' attitudes toward internet-based education, increasing Malaysian government and Ministry of Higher Education support will help faculty have the resources needed to develop and implement high-quality Internet-based programs.

REFERENCES

- [1] King, F., Young, M., Drivere-Richmond, K., & Schrader, P. (2001). Defining distance learning and distance education. *AACE Journal*, 9(1), 1-14.
- [2] Billings, D.M., Ward, J.W., Penton-Cooper, L. (2001). Distance learning in nursing. *Seminars in Oncology Nursing*, 17(1), 48-54.
- [3] Gasaymeh, A. (2009). A Study of Faculty Attitudes toward Internet-Based Distance Education: A Survey of Two Jordanian Public Universities. Unpublished Doctoral Dissertation, Ohio University, USA.
- [4] Ajzen, I. & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- [5] Clark, R. E. (1984). Research on student thought processes during computer 5-based instruction. *Journal of Instructional Development* 7, 2-5.
- [6] Hamby, C. S. (1986). A study of the effects of computer-assisted instruction on the attitude and achievement of vocational nursing students. *Computers in Nursing* 4, 109-113.
- [7] McKenzie, B., Mims, N., Bennett, E., & Waugh, M. (2000). Needs, concerns and practices of online instructors. *Online Journal of Distance Learning Administration*, 3(3). Retrieved January 11, 2009, from <http://www.westga.edu/~distance/ojdla/fall33/mckenzie33.html>
- [8] Bower, B. (2001). Distance education: Facing the faculty challenge. *Online Journal of Distance Learning Administration*, 4(2). Retrieved January 11, 2009, from <http://www.westga.edu/~distance/ojdla/summer42/bower42.html>
- [9] Butler, D. & Sellborn M. (2002). Barriers to adopting technology for teaching and learning. *Educouse Quarterly*, 25(2), 22-28.
- [10] Covington, D., Petherbridge, D. & Warren, S. E. (2005). Best practices: A triangulated support approach in transitioning faculty to online teaching. *Online Journal of Distance Learning Administration*, 8(1). Retrieved October 25, 2008, from <http://www.westga.edu/~distance/ojdla/spring81/covington81.htm>

- [11] Gammill, T. & Newman, M. (2005). Factors Associated With Faculty Use of Web-Based Instruction in Higher Education. *Journal of Agricultural Education*. Retrieved January 11, 2009, from <http://pubs.aged.tamu.edu/jae/pdf/Vol46/46-04-60.pdf>
- [12] Jones, E., James, L., Murphy, T., & Dooley, K. (2002). Faculty philosophical position towards distance education: Competency, value, and educational technology support. *Online Journal of Distance Learning Administration*, 5(1).
- [13] Pym, F. R. (1992). Women and distance education: a nursing perspective. *Journal of Advanced Nursing* 17 (3), 383–389.
- [14] Garland, M. R. (1993). Student perceptions of the situational, institutional, dispositional and epistemological barriers to persistence. *Distance Education* 14 (2), 181–198.
- [15] Cragg, C. E. (1994). Nurses' experiences of a post-RN course by computer mediated conferencing: Friendly users. *Computers in Nursing* 12(5), 221–226.
- [16] Marcus, J. A. (1986). Diffusion of innovations and social learning theory: Adoption of the context text-processing system at Stanford University. *Dissertation Abstracts International*, A 46/12, 3553 (University Microfilms No. AAT 8602506).
- [17] Berge, Z. (1998). Barriers to online teaching in post-secondary institutions: Can policy changes fix it. *Online Journal of Distance Learning Administration*, 1(2), Retrieved October 10, 2008, from <http://www.westga.edu/~distance/Berge12.html>
- [18] Clay, M. (1999). *Faculty attitudes toward distance education at the State University of West Georgia*. Retrieved October 19, 2007, from <http://www.westga.edu/~distance/attitudes.html>
- [19] Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, 11(4), 342-365
- [20] Valentine. D. (2002). Distance learning: Promises, problems, and possibilities. *The Online Journal of Distance Learning Administration*, 5 (3). Retrieved October 15, 2008, from <http://www.westga.edu/~distance/ojdla/fall53/valentine53.html>
- [21] Kim, M. (2008). Factors influencing the acceptance of e-learning courses for mainstream faculty in higher institutions. *International Journal of Instructional Technology and Distance Learning*. Retrieved September 2, 2008, from http://www.itdl.org/Journal/Feb_08/Feb_08.pdf#page=33
- [22] Dooley, K. E. & Murphy, T. H. (2001). College of Agriculture faculty perceptions of electronic technologies in teaching. *Journal of Agricultural Education*, 42(2), 1- 10.
- [23] Pajo, K. & Wallace, C. (2001). Barriers to the uptake of web based technology by university teachers. *Journal of Distance Education*, 16(1), 70-84.
- [24] Allen, E. & Seaman, J. (2007). *Online nation: Five years of growth in online learning*. Needham, MA: The Sloan Consortium.
- [25] Brown, F. (1983). *Principles of educational and psychological testing*. 3rd ed. New York: Holt, Rinehart & Winston.
- [26] Bryman, A., & Cramer, D. (1997). *Quantitative data analysis with SPSS for Windows: A guide for social scientists*. London: Routledge.
- [27] Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588–606.
- [28] Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin*, 107, 238–246.
- [29] Steiger, J. H., & Lind, J. C. (1980). Statistically based tests for the number of common factors. *Paper presented at the Psychometric Society Annual Meeting*, Iowa City, IA
- [30] Marsh, H.W., & Hocevar, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First- and higher-order factor models and their invariance across groups. *Psychological Bulletin*, 97, 562–582.
- [31] Arbuckle, J. L. (2006) *Amos 7.0 User's Guide*. Chicago, IL: SPSS.
- [32] Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin*, 107, 238–246.
- [33] Davis, J. A. (1971). *Elementary survey analysis*. Englewood Cliffs, NJ: Prentice-Hall.
- [34] Stevens, J. (1990). *Intermediate statistics: a modern approach*. Mahwah, NJ: Erlbaum.
- [35] Aron, A., Aron, E. N., & Coups, E. J. (2005). *Statistics for the behavioral and social sciences: A brief course* (3rd ed.). Upper Saddle River, NJ: Pearson Education.
- [36] Chau, P. (1996). An empirical assessment of a modified technology acceptance model. *Journal of Management Information Systems*, 13(2), 185-204.
- [37] Levy, S. (2003). Six factors to consider when planning online distance learning programs in higher education. *Online Journal of Distance Learning Administration*, 6(1). Retrieved October 2, 2008, from <http://www.westga.edu/~distance/ojdla/spring61/levy61.htm>

- [37] Huang, P. (2001). University faculty perceptions on WebCT for delivering courses (Doctoral dissertation, University of South Dakota, 2001). *Dissertation Abstracts International*, 62(3), 149B. (UMI No. 3007064).
- [38] Yu, S., & Yang, K. (2006). Attitudes toward web-based distance learning among public health nurses in Taiwan: A questionnaire survey. *International Journal of Nursing Studies* 43, pp. 767–774.
- [39] Hattangdi, A., Jha, S., & Ghosh, A. (2010). A literature review of the perceptions of faculty about technology enabled distance education. *International Journal of Arts and Sciences*, 3(18), 379-390.