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Research Article

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A Quantitative Study of Nursing Faculty's Personal and Professional Use of Technology

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Abstract

The purpose of this quantitative correlational study was to determine if there is a relationship between nursing faculty's acceptance and intent to use technology, with the adoption of informatics in nursing education. The framework that guided this study was the Unified Theory of Acceptance and Use of Technology 2. The study was guided by three research questions. Research question 1 asked the relationship between nursing faculty use of informatics in nursing education? There is significant evidence to support the claim there is a relationship between faculty's user acceptance/behavioral intent to use technology and the adoption of informatics in nursing education.

Research question 2 asked the relationship between the constructs of UTAUT2 and the behavior intent of the nursing faculty to use technology? The results support a relationship between the UTUAT2 constructs and behavioral intention to use technology thus the alternate hypothesis was supported.

Research question 3 asked the relationship between age, gender, and experience of nurse faculty moderators that influence performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit on personal behavior intent to use technology. The results indicated there is not significant evidence to support the claim that there is a relationship between behavioral intent to use technology and the age, gender, or experience of faculty.

The results suggest that faculty's personal and professional use of technology influences the integration of informatics into curriculum.

Keywords: Quantitative Study, UTAUT, UTUAT2, Nursing Curriculum, Nursing Education, Nursing Faculty

Introduction

Technology permeates every aspect of life and healthcare is no exception. Informatics is an important aspect of health care information technology (HIT) and is present throughout all the clinical areas with a critical component in the field of nursing. Nursing has embraced the opportunity to reform health care by using technology; yet most state boards of nursing (SBON) do not require information literacy [1]. SBON establish the requirements and expectations for pre-licensure graduates of their respective states. Schools of nursing are required to meet these requirements in their curricula for accreditation. SBON asked, via a 2008 survey, whether there was a requirement for nursing programs to include informatics in their curricula. The survey revealed an overwhelming response from 76% of the states; there was no requirement for including informatics in the curricula. By 2008, because no official requirement was stated or established by accrediting bodies, only four states had the initiative to focus on informatics [1].

The American Nurses Association definition of Nursing Informatics (NI) is a nursing specialty focused on integrating computer science, nursing science, and information technology to guide nursing practice [2]. In the study by Morris and Hancock, the utilization of informatics, which is the fifth Institute of Medicine Competency, found nursing education lags behind practice primarily due to faculty training not current with practice [3]. Information technology competency is imperative to the Institute of Medicine Competency, and nursing leaders in clinical practice need to collaborate with educational institutions to ensure competencies are identified. Faculty acceptance and intent to use informatics are integral to successful integration into nursing education [4].

Nursing leaders believe the successful integration of informatics into nursing curricula greatly depends on a faculty's acceptance and experience in informatics. In a 2006 study conducted by the Educational Technology and Information Management Council (ETIMAC), the most disturbing finding was the inability to distinguish between educational and practice technology by faculty. Educational technology refers to the technology in use by

schools of nursing to prepare nursing graduates to prepare safe, effective care. Practice technology refers to the healthcare systems in use within organizations.

Background of the Problem

This study focused on the use of personal use and professional use of technology by faculty and the relationship this has with the adoption of informatics in nursing education, using faculty in pre-licensure nursing programs at the baccalaureate level. The faculty is charged with laying the foundation of nursing skills and informatics being a component of that. Understanding Bachelor of Science in Nursing (BSN) faculty member's personal and professional behaviors and use of technology will assist in understanding the adoption of technology in nursing education. The Technology Informatics Guiding Education Reform (TIGER) initiative established recommendations for all levels of nursing include adopting informatics competencies [1]. This study's aim was to address an existing gap in the literature. First, research studies of informatics on professional practice were more prevalent than studies of pre-licensure nursing education [5]. Second, Thomas & Skiba described nursing faculty as inadequately informed about informatics [6]. Third, Weiner & Trangenstein found that research studies have traditionally been performed in the hospital setting not the educational setting [5]. Lastly, many nursing program faculty are not trained to teach informatics [7].

Problem Statement

Many recent nursing graduates are learning informatics while on the job, and this takes away from direct patient care [8]. According to Skiba (2011), nursing education needs to adopt informatics throughout the curricula not simply embed it with one single course and a separate course will not foster the concept of informatics as a vital and fundamental component of the health care system. Teaching an integral component in isolation rarely provides the depth necessary for mastery and crystallization [9]. Nursing educators need to ensure that graduating nurses are proficient with cutting-edge technology to provide increased patient safety [10]. Kowitlawakul, Chan, Wang, and Wang stated faculty member's attitudes and acceptance toward technology is critical in curricular integration of informatics. If faculty members do not use or accept technology, there will be a failure to produce nursing graduates with a minimum level of technological knowledge to provide safe and effective care [11].

Nursing leaders perceive faculty as a barrier to curriculum integration with informatics [12]. The 2015 study by Hern, Key, Goss, and Owens concluded that nursing faculty members have an obligation to incorporate informatics into nursing curriculum [13]. This conclusion was exemplified by the 2011 survey by Hwang and Park, which demonstrated that faculty perceived their own informatics competency to be below average [14]. Morris and Hancock found that regarding the utilization of informatics (the fifth Institute of Medicine competency), nursing education lags behind practice primarily due to faculty training not current with practice [3]. The authors also concluded that due to lack of perceived competence by nursing faculty, the addition of informatics to nursing curricula has largely focused on isolated competencies. Morris and Hancock also suggested appointing informatics advocates to lead the integration of informatics into curricula. The specific problem this correlational quantitative study attempted to clarify is if there is a relationship between the integration of informatics into baccalaureate nursing education with faculty personal and professional use of technology, which could help patient safety and lead to better quality outcomes.

The purpose of this quantitative correlational research study was to establish whether there is a relationship between nursing faculty members' personal and professional use of technology and the adoption of informatics in baccalaureate nursing education. This study looked at the relationship between (a) performance expectancy, (b) effort expectancy, (c) social influence, (d) facilitating conditions, (e) hedonic motivation, (f) price value, (g) habit, and (h) behavioral intention influences personal use, and also whether professional technology use is related to informatics in nursing education. Variables include the outcome variable (informatics integration), predictor variable (user acceptance of technology), and extraneous variables (faculty age and experience).

Research Question

This study used UTAUT2 to see whether there is a relationship between user acceptance and intent to use technology, and the adoption of informatics in nursing education. Based on the existing literature, the following research questions were examined using a quantitative correlational design method:

RQ 1. What is the relationship between nursing faculty member's user acceptance and behavioral intent to use technology and the adoption of informatics in nursing education?

RQ 2. What is the relationship between the constructs of UTAUT2 (performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit) and the behavioral intent of the nursing faculty member to use technology?

RQ 3. What is the relationship between age, gender, and experience of nurse faculty member's moderators that influence performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit on personal behavior intent to use technology?

Significance of the Study

The significance of this study was to add to the research of how informatics education is incorporated into nursing programs. By evaluating the relationship of faculty user acceptance of technology and the adoption of nursing informatics into the existing curricula, a better starting point for curriculum development at the undergraduate level will be determined. The National League of Nursing (NLN) Board of Governors published a position statement on an informatics agenda in 2008 [15]. The Board stated that there was a need for reform, and the objective of the position paper was to encourage the reform of nursing education to integrate informatics into curricula so that tomorrow's nurses are capable of practicing both effectively and efficiently.

Review of Literature

Nursing informatics is complex, multidimensional, and necessary for patient care [16]. Nursing informatics consists of several elements including intervention, communication, form, and value and despite the improvement of care through HIT, nursing, as a field is the slowest to accept it [16]. The adoption of technology into nursing education is achieved by forming collaborations

between those who have the knowledge and those who can deliver it. Nursing educators need to determine how technology is used in institutions and then disseminate those skills into nursing curricula. Informatics integrates the science of nursing, computer technology, and information science to improve nursing practice through enhanced communication, documentation, and efficiency.

The 1970s saw computer applications pertaining to nursing appear in professional journals. El Camino Hospital in Mountain View, California, was the first hospital to participate in the development of a system to manage the scheduling of patient activities and that pushed them to recommend a system for nursing documentation, care planning, and feedback [17]. New Medicare and Medicaid legislation required intricate reporting requirements that were problematic for community health agencies to meet using a paper-based system. The requirements initiated the needed financial support for increased computerized management systems to be developed [17]. The late 1970s saw an increase in the identification of types of computer applications that are useful in patient care by nursing.

Momentum gained in the 1980s with the invention of the personal computer. In 1982, the International Medical Informatics Association sponsored the first conference in nursing informatics. In the 1990s when the Internet was introduced, communication across distances flourished and Web-based applications eased the transfer of data that was once impossible [17]. Despite the advancements in nursing history, there was no organizational involvement in determining the needed training for nurses or nursing students to be proficient in informatics.

In 2009, the TIGER Initiative formed the Competency Collaborative to develop informatics competencies. The TIGER Nursing Informatics Competency Model was developed after an extensive literature review including a survey informatics education, practice groups, and research. The model consists of three parts: basic computer competencies, information literacy, and information management [1].

Schools need to renew their efforts to keep pace with healthcare facilities as they prepare for a digital future. This not only means that schools' endeavors need to reflect the needs of healthcare providers, but nursing graduates need to have computer literacy. Nursing faculty need to prepare students technologically for the future. Faculty need to be proficient in technology and there is little to no research on faculty intent to use technology to obtain a baseline on their behavioral intent to use technology has influenced the integration into the curriculum. This study is designed to collect that missing data.

Flood, Gasiewicz and Delpier stated nurses must be information integrators at the patient level in order to optimize patient health [18]. State Boards of Nursing have no immediate plans to require informatics in nursing education [1]. However, information technology is currently being included in the NCLEX-RN® Examination test plan [18]. In 2008, the American Association of Colleges of Nursing (AACN) stated a central component of undergraduate nursing education is informatics, but curriculums are deficient in adequate preparation for actual practice with various nursing programs not providing informatics education to their students [2]. This study provides a starting point for determining if the deficiency is due to the relationship between faculty member's personal and professional use of technology and the integration of informatics in curricula.

The study by De Gagne, Bisanar, Makowski, and Neumann explored incorporation of informatics into BSN curricula and their primary objective was threefold: 1) to examine previous and current research on informatics in the nursing curriculum; 2) to amalgamate the findings adopted into the curriculum; and 3) to recommend future guidelines for nurse educators to consider while developing informatics content into BSN education. De Gagne et al. (2012) found 19 original reports and after analyzing these 19 studies four themes emerged: 1) lack of accord on informatics education, 2) bearing on patient outcomes, 3) faculty education through administrative cooperation, and 4) global inequalities in informatics education [7]. The authors recommended nurse educators integrate informatics subject matter throughout the program yet there is no further research on faculty member's user acceptance of technology and how that relates to integration into the nursing curricula. This study is designed to address that gap.

Hunter, McGonigle, and Hebda conducted a study to gain a clearer understanding of the integration of informatics content into BSN and graduate nursing education by accessing a published list of nursing schools in 2012 throughout the United States and identified as the top online schools by the U.S. News & World Report[19]. Twenty-four schools were identified and reviewed. Six of the schools had no informatics content in any level. Of the 18 remaining schools, only 10 listed informatics content at the BSN level. Gonen, Sharon, Offir, and Lev-Ari stated the profession of nursing is increasingly based on knowledge and technology, and nurses need to be able to coordinate and organize the large amount of information available [20]. Integration of informatics into the entire nursing program curriculum will educate future nurses on doing just that. This study is designed to determine if faculty member's acceptance of technology affects the integration, which will form a starting point for the methodology needed for integration.

Theoretical Framework

The theoretical framework used to guide this study is the Unified Theory of Acceptance and Use of Technology2 (UTAUT2). UTAUT2 collapses and synthesizes eight intention-based theories that predict behavioral intention and use of HIT [21]. The UTAUT2 model provides a succinct framework for understanding the adoption of HIT within a professional setting.

The UTAUT2 consists of seven key predictors of intention to use and use behavior: performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit. "Performance expectancy" is defined as the degree a person believes that a technology will assist them in performing their job. "Effort expectancy" is the degree a person perceives the technology to be easy to use. "Social influence" is the degree a person feels pressure from society to use a particular technology. "Facilitating condition" is the degree a person believes her organization supports and provides the necessary resources for the implementation of technology [21]. "Hedonic motivation" refers to the pleasure of fun obtained from using technology, "price value" is the cognitive benefits of the application and its' cost, and "habit" refers to either prior behavior or the extent a behavior is

believed to be automatic [22].

UTAUT2 allows for a direct relationship from facilitating conditions to behavioral intention by adding gender, age, and experience into the framework. The study is aligned with the UTAUT2s model of personal computer utilization to address user acceptance. By applying this theory, faculty members' intent to utilize technology will be critically analyzed, determining if there is a relationship between the variables.

Research Method and Design Appropriateness

The design of a study should enable the variables to be measured or manipulated and a clear explanation of how the observation and measurement will take place (Burns & Grove, 2009). The research methodology is appropriate for this study due to its ability to indicate whether a relationship exists between the predictive variable and outcome variable: user acceptance of technology by nursing faculty.

The Target Population

The population is baccalaureate-nursing faculty in the state of Indiana's baccalaureate schools of nursing. The Indiana State Board of Nursing-approved list of baccalaureate nursing programs was used to compile the population for this study. Nursing faculty employed in any of the 26 state approved nursing programs were identified by the NLN Indiana email registry. Additional identification and cross-referencing of nursing faculty was performed by accessing each state-approved program and searching for email addresses. An estimated target population of 500 was used. Key characteristics of the target population were faculty members with full-time, part-time, or adjunct teaching experiences. Faculty will be masters-prepared minimally; some faculty will be doctoral- prepared. Faculty may be tenured or non-tenured. The population will range in age from 25 years old to 70 years old. Demographics included any BSN program within the state of Indiana with faculty living in Indiana or its surrounding states.

Sample and Power Analysis

A power analysis is performed when a study is being planned to predict the likelihood that the study will generate a significant effect. Based on a power analysis, the sample size was estimated for the power of 0.80 and alpha of 0.05 with six predictors. To detect an effect size between small and medium ($f^2 = 0.15$), a minimum of 177 participants was required. There were 189 valid participants based on completed surveys. Males accounted for 3.2% of the population; females accounted for 96.85% of the population.

Non probability convenience sampling is a sampling technique whereby participants are selected because of their convenient accessibility and proximity to the researcher. The actual sample size was 189 participants which surpassed the 177 minimum identified by the power analysis.

Ethics and Confidentiality

Complete confidentiality and privacy regarding the identity and data were assured to all participants that agreed to be in the study. Any information shared or disclosed would be kept private. The researcher does not behave as an informant or disclose personal information to management at the participant's place of employment or any other place. The decision to leave the study at any time was at the will of each participant, without any implications or consequences. Each participant electronically signed a Consent Form agreement.

Study Instruments

The research instruments included a survey via SurveyMonkey® and the use of the computer software IBM SPSS® Statistics for data analysis. The survey instrument consisted of four categories: demographic information (8 items), employment information (5 items), the UTAUT2 model (52 items), and the personal/professional use of technology (14 items). The demographic section obtained information about the variables of gender, age, highest degree earned, employment status, years teaching, and clinical experience. The employment section examined teaching strategies used, resources available in the IT department, and topics taught. All six constructs question the perceived usefulness, ease, or attitude or the degree to which a person believes that using a particular system or form of technology enhances their performance. Modification for this study was done by questioning faculty member's personal and professional use of technology. The personal/professional section examined individual use of technology. Each participant was asked to evaluate his/her acceptance and use of technology by utilizing UTAUT2's seven key predictors of intention to use and use behavior.

Venkatesh et al. tested the psychometrics of the UTAUT2 in order to support its use as a model that examines technology acceptance [22]. Six mobile Internet applications in Hong Kong were tested by administering a two-stage online survey (n = 1,512). The survey consisted of the four original UTAUT constructs and the addition of the three new constructs. Internal consistency reliabilities were equal to above 0.75 for all seven constructs. Discriminate validity was thus established with the average variance greater than 0.70. The three new constructs, hedonic motivation, price value, and habit, increased in both behavioral intention (74%) and actual use (52%). This is significant when compared to the variance of both behavioral intention (56%) and actual use (40%) of the original UTAUT [22].

Data Collection

The data collection process consisted of two components: 1) the request for Indiana faculty email registry from NLN and the search of approved programs websites, and 2) the distribution of surveys via SurveyMonkey®. Invitation emails were sent to faculty after approval of the study proposal and IRB authorization was obtained. A second reminder email was sent one week to those who did not respond to the terms of the survey. If needed, a third email was sent. The invitation included the purpose of the study and a link to the survey. As participants accessed the survey link, they were prompted to agree or disagree to the terms of the consent form. If participants accepted the terms, they were prompted to the survey. The participants will remain anonymous, as responses were not linked to any participant. SSL encryption was enabled to protect the data as they moved from the participant's computer to the SurveyMonkey® server. IP addresses were disabled to ensure the survey remains anonymous. The data were collected using a Likert-type scale as part of the survey, which was used to assess the four key predictors. Likert scales are used to measure attitudes or behaviors and use answer choices that range from extreme to another. Liker scales uncover degrees of opinion, which help

identify areas of improvement.

The survey opened with a confidentiality disclosure. SurveyMonkey® allows for the use of a consent form on the first page of the survey and records the respondent's time stamp. At the end of the survey, an option to withdraw from the survey is provided. Participants were recruited by non probability convenience sampling because sampling occurs conveniently when it suits the purpose of the study [23].

Data Analysis

Data analysis was performed using IBM SPSS and imported into SurveyMonkey® using an Excel spreadsheet. The data was categorized in groups based on the outcome variables and statistical analysis was done.

Categorization of the quantitative data was supported using IBM SPSS Statistics. Quantitative data was collected using UTAUT2. The predictive variables for UTAUT2 are the seven constructs to use technology. The outcome variable is the degree of adoption of informatics in the nursing curriculum. Multiple regression analysis is a statistical tool that allows for the examination of how multiple predictable variables relate to the outcome variable. Once the multiple variables relationship to the outcome variable is identified, that information about the predictive variables is used for a more accurate prediction about why things are the way they are. The latter process is known as multiple regression. The purpose of the study is to measure the factor(s) that have had the most influence on the integration of informatics by baccalaureate nursing faculty in curriculum, allowing for the grouping of ages of faculty (20-29 years old, 30-39 years old, 40-49 years old, 50-59 years old and older than 60 years old).

Descriptive statistics were used to examine participant demographics (mean, standard deviation, and range) for age, gender, highest degree earned, years teaching, employment status, and clinical rank. The research questions guided data analysis by the determination of if there is a relationship between nurse faculty member's user acceptance of technology and the adoption of technology in education.

Instrumentation and Reliability

After completion of the 12 demographic questions, participants were asked to answer an eight-question survey. The survey responses ranged from 1 = strongly disagree to 4 = strongly agree. Scores for the survey dimensions were determined by adding responses of appropriate questions on each dimension for a dimension score. The dimensions were performance expectancy (PE), effort expectance (EE), social influence (SI), facilitating conditions (FC), hedonic motivation (HM), price value (PV), and habit. Table 2 lists the variables, the minimum, maximum, mean, and standard deviation (SD). The central tendency of the data for each variable is measured for a distribution of values.

Reliability analysis using Cronbach Alpha indicated results of this research study were consistent with previous research by Venkatesh et al. [22]. Cronbach Alpha was conducted for each construct in order to determine internal consistency (measures reliability). All constructs demonstrated a Cronbach Alpha of greater than 0.70, which was deemed the minimum threshold.

Credibility and Validity

Credibility and validity are important components in the research process. Cronbach's Coefficient Alpha tests how good questionnaire items correlate with each other [24]. UTAUT2 was independently tested with Cronbach's Coefficient Alpha and obtained a reliability score of 0.803 (on a scale of 0-1.0).

Ravid stated that reliability scores of 0.5 – 0.6 are considered acceptable for exploratory research, although higher scores are better [24]. Reliability can be considered as the proportion of truth in the measure. The value of a reliability estimate is the proportion of variability in the measure attributable to the true score. For example, if the reliability is 0.8, then the variability is about 80% truth ability and 20% error. The higher the reliability scores, the greater the truth ability.

Results, Findings and Analysis

The finding of this study provide nurse educators with a deeper understanding of the behavioral intentions for using informatics in nursing education. The purpose of this quantitative correlational research study was to establish whether (a) performance expectancy, (b) effort expectancy, (c) social influence, (d) facilitating conditions, (e) hedonic motivation, (f) price value, (g) habit, and (h) behavioral intention influences personal use and professional technology use and whether these factors are related to informatics in nursing education.

Hypothesis 1

Table 1 displays the results of the Kendall *tau-b* and Spearman correlation analysis used to test hypotheses 1 and 2. The first hypothesis related the relationship between nursing faculty member's user acceptance and behavioral intent to use technology and the adoption of informatics in nursing education. The hypothesis was stated as:

H_o1. There is no relationship between nursing faculty member's user acceptance/behavioral intent to use technology and the adoption of informatics in nursing education.

H_a1. There is a relationship between nursing faculty member's user acceptance/behavioral intent to use technology and the adoption of informatics in nursing education.

The correlation for user acceptance and behavioral intent to use technology and the adoption of informatics in nursing education, as reported in Table 1, the Spearman rank order correlation stated ($N = 189$, $rs = 0.055$, $p < 0.000$). Because $p < 0.05$, there is a significant evidence to support the claim there is a relationship between nursing faculty member's user acceptance/behavioral intent to use technology and the adoption of informatics in nursing education.

Hypothesis 2

The second hypothesis evaluated the relationship between performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, and nursing faculty member's behavioral intent to use technology. The second hypothesis was stated as follows:

H_o2. There is no relationship between performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic

motivation, price value, habit, and nursing faculty member's behavioral intent to use technology.

H_a2. There is a relationship between performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, and nursing faculty member's behavioral intent to use technology.

The correlation for the UTAUT2 constructs and behavioral intention, as reported in Table 1, the Spearman rank correlation stated for PE (n = 189, rs = 0.604, p = 0.010); EE (n = 189, rs = 0.457, p = 0.000); SI (n = 189, rs = 0.512, p =0.000); FC (n = 189, rs = 0.492, p = 0.000); HM (n = 189, rs = 0.550, p = 0.000); PV (n = 189, rs = 0.406, p = 0.000); and Habit (n = 189, rs = 0.640, p = 0.000).

Because $p < 0.05$, there is a positive, significant relationship between the UTAUT2 constructs and behavioral intention. Because $p < 0.05$, the result could not have occurred by chance. Further tests, Kendall *tau-b*, as reported in Table 1, supported the Spearman correlation.

Table 1: Relationship between the Predictive and Outcome Variables

Predictive Variable	Kendall *tau-b*	Spearman
PE	0.509**	0.604**
EE	0.370**	0.457**
SI	0.417**	0.512**
FC	0.396**	0.492**
HM	0.443**	0.550**
PV	0.323**	0.406**
Habit	0.525**	0.640**
Informatics in Nursing Education	**0.050**	**0.055**

*** Correlation is significant at the 0.01 level*

Table 2: Variables and the Central Tendency

	Mean	Std.	Minimum	Maximum
PE	21.3862	3.72085	6.00	24.00
EE	24.5269	5.24964	8.00	32.00
SI	19.1170	3.93899	6.00	24.00
FC	19.7937	3.06746	6.00	24.00
HM	18.1596	3.97802	6.00	24.00
PV	17.7097	3.46123	6.00	24.00
Habit	24.6066	4.47930	8.00	32.00
BI	20.7914	3.26176	6.00	24.00

**(n = 189)*

Hypothesis 3

H_o3. There is no relationship between the age, gender, experience, and personal behavior intent to use technology.

H_a3. There is a relationship between the age, gender, experience, and personal behavior intent to use technology.

Multiple regression was performed to determine whether there is a relationship between the age, gender, experience, and behavioral intent to use technology. The ANOVA showed (N = 173, p = 0.337). Because $p > 0.05$, there is not significant evidence to support the claim that there is a relationship between behavioral intent to use technology and the age, gender, or experience of baccalaureate nursing faculty. The alternative hypothesis is not accepted. Baccalaureate nursing faculty member's age, gender, experience, and personal behavior does not affect their intent to use technology.

Demographics and Descriptive Data

Descriptive data summarized the demographic data (gender and age group found in Table 3). The descriptive data regarding the personal and professional use of technology were collected and analyzed. Demographic and descriptive statistics were used to test the third hypothesis. The demographic information also provides descriptive information to characterize the sample on how the data were distributed, varied, and shaped.

Table 3: What is your age group?

	Frequency	Percent	Valid Percent	Cumulative Percent
21-29 years old	1	.5	.5	.5
30-39 years old	28	14.7	14.8	15.3
40-49 years old	87	45.5	46.0	61.4
50-59 years old	53	27.7	28.0	89.4
> 60 years old	20	10.5	10.6	100.0
Total	**189**	**99.0**	**100.0**	

**(n = 189)*

Significant Findings

The data were checked for normality using the Shapiro-Wilk test. To test for normality using Shapiro-Wilk test, the null hypothesis functioned on the basis that the data were normally distributed. Histograms were printed for each variable, and a visual representation indicated the data were non normally distributed. In the absence of normally distributed data, nonparametric statistical test represented the best option for statistical analysis.

Spearman *R* correlation and Kendall *taub-b* were used as bivariate measures to test the association between the variables and validate the results. For all tests, the confidence level was 95% and alpha was established at 0.05. Spearman correlation was a nonparametric alternative to the Pearson correlation coefficient, The Spearmen correlation differs from the Pearson correlation because data values were replaced with ranks.

Assumptions

The following assumptions need to be taken into consideration by the reader regarding the purpose of this study and permeate all aspects of the data collection. The first assumption lies within the relationship between the researcher and data collection. Quantitative data is inferential numeric analysis and the data will be used to create credibility.

A second assumption is data reporting. Quantitative provides a numeric description of trends and the researcher makes assertions about the population being studied. The analysis of quantitative data can yield outlier cases that can be investigated further during a qualitative inquiry. In survey research, an assumption

is individuals taking the survey will answer truthfully. Another assumption is that all faculty use some form to technology and have a basic understanding of what technology refers too.

Scope and Limitations

The scope of this study falls within the domain of faculty use of technology and the effect it has on adoption into nursing education. This study is limited to BSN nursing programs with faculty being the participants. Faculty can be of any age, race/ethnicity, and gender. Faculty are Masters-prepared, some Doctoral-prepared. Limitations include the location of the study. The study is not national but only focused on one Midwestern state. Two limitations are related to the UTAUT2. First, it lacks the measure of end-user capabilities that will make it difficult to measure nursing faculty's ability to use informatics. Second, it fails to describe factors influencing the use of a particular application, which makes it impossible to determine the applications that must be used versus those that augment faculty teaching. A possible limitation was response rate.

Delimitations

Delimitations of this study include the use of only BSN programs and not including associate and diploma programs. The determination of using BSN only programs is due to the Institute of Medicine (IOM) 80/20 initiative. The initiative stated by the year 2020, 80% of the nursing workforce will be BSN-prepared while only 20% will be Associate degree (AD) prepared. Keeping that goal in mind, more BSN faculty members will need to be proficient in informatics to prepare future nursing graduates.

The possibility exists that informatics incorporated into curricula of these two nursing degree programs would increase due to an increase in faculty acceptance in associate degree programs.

Conclusions

Florence Nightingale, the mother of nursing, has been labelled as the first informaticist. Her drive for documentation standards and consistency is still striving to be achieved. President Bush (2004) declared information technology be accelerated and change is essential in nursing education to prepare future nurses with the technology they will be using. There is no consensus on what should be included in nursing curricula regarding informatics. This study aimed at identifying a significant relationship between faculty member's acceptance and intent to use informatics and how that effects integration of informatics into the curricula.

Recommendations

Recommendations for practice. Nursing education is as complex and multidimensional as nursing informatics. Nursing as a field is slow to accept informatics into curricula. Collaborations need to be formed between those that have the knowledge and those that can deliver it. Nursing educators need to uniformly present informatics in curricula and that has yet to be ascertained how. The study described here presents an initial look at the behavioral intent of baccalaureate nursing faculty members use of technology and its' integration into curricula. The study also researched relationships between age, gender, and experience as it relates to intent to use technology be faculty and its' integration.

The study was conducted using faculty members from one Midwestern state and despite hypotheses 3 failing to be rejected further research should be done to evaluate a larger population. It could have been by chance and chance alone that the hypotheses failed to be rejected and by surveying a larger population, a wider view of faculty will be addressed.

Recommendations for future research. Future research needs to be done with a larger population across the United States including diploma, associate, and baccalaureate nursing programs. Studying a larger population adds to the validity of faculty members behavioral intent to use technology. The study only assessed baccalaureate faculty in one state, Indiana, and by assessing a larger population, generalizability can occur. By adding a qualitative component, faculty members previous work experience in informatics would be assessed which will assist in determining previous exposure to technology. This would aide in filing the gap of previous informatics experience in this study. Interviewing participants would help determine where their informatics experience came from. Conducting a second interview with the nursing program administrators to obtain their input on faculty member's competency.

Another study done by Nguyen et al. studied faculty member's use, knowledge of, and training of new technology [25]. The study respondents reported being frequent users of distance learning, which utilizes informatics tools. Faculty member's rating of their perceived knowledge and skills paralleled the degree of use in their teaching. Future studies should incorporate questions regarding which forms of technology is used including software, hardware, and web-based programs, which was not included in this study. Information on technology used would have assisted in understanding faculty use and perceived ability to incorporate technology into the curriculum. Hebda and Czar published a list of material to assist in training and education preparation for faculty members [26]. Future studies should incorporate this list to help guide questions regarding informatics training, and how that training influences faculty integration of informatics in curricula, which was not addressed in this study. This study did not look at faculty member's previous informatics experience or technology used, as it fell outside of the scope of the UTAUT2 constructs [27-34].

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