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Improving Nursing Faculty Comprehension of Evaluation Methods

Karen M. Roberson

Submitted as partial fulfillment for the Doctor of Nursing Practice Degree

Regis University

April 14, 2018

Abstract

In nursing education, faculty do not have best practice guidelines or consistent methods for assessing learning outcomes. Specific variances include; test construction, delivery, and evaluation methods. DNP project, titled Improving Nursing Faculty Comprehension of Evaluation Methods, addressed the lack of consistent faculty evaluation methods, and based on research increased integration of evidenced based concepts into practice. The following PICO was used for the project statement: “In nursing faculty at a Midwestern associate degree program, what is the effect of an educational in-service regarding evaluation methods, compared to no intervention on outcomes of comprehension and confidence in the use of best practice guidelines for evaluation methods based on self-report?”

In the literature review, the following nine themes emerged: faculty impact on student success, assessment strategies, test construction, administering exams, use of evidence, clinical evaluation, math evaluation, English as a second language student, and reflection to build critical thinking. Faculty at a Midwestern associate degree program attended an educational offering regarding the researched themes that serve as the independent variable. A quasi experimental pre/post-test design, was implemented to evaluate confidence, comprehension, and perceived ability to overcome barriers with evaluation methods. Cronbach’s Alpha determined internal consistency, therefore reliability with the survey tool. Wilcoxon Signed Ranks test was used to determine decreased confidence, increased comprehension and perceived ability to overcome barriers with evaluation methods. Finally, Spearman’s Rho concluded correlation between the independent variable, comprehension, and overcoming barriers for evaluation methods. Future studies should consider a larger sample size to validate findings. Key words: DNP Capstone project, learning assessment, and test construction.

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Executive Summary

DNP project titled, Improving Nursing Faculty's Awareness of Evaluation Methods, addresses nursing education lacking best practice guidelines and consistent faculty evaluation methods. The goal of this project is to increase awareness and comprehension of evaluation methods, thereby increasing confidence to overcome barriers for implementation. This DNP project will address this with the following PICO statement: In nursing faculty at a Midwestern associate degree program, what is the effect of an educational in-service regarding evaluation methods, compared to no intervention on outcomes of comprehension and confidence in the use of best practice guidelines for evaluation methods based on self-report?

Objectives include; increased confidence, increased comprehension, and identifying barriers for implementing evaluation methods. From the many descriptive articles reviewed, themes emerged for consideration of best practices including: faculty impact on student success, learning assessment strategies, best practices with test construction, administering exams, use of evidence with evaluation methods, evaluating students clinically, evaluation of math skills, English as a second language students, and reflection to build critical thinking skills.

A quasi-experimental, pre-test/ post-test design revealed the first outcome was not statistically significant. Therefore, no noted improvement of increased confidence. The next two outcomes of increased comprehension and identifying barriers for implementing best practice guidelines for evaluation methods was statistically significant. With improved comprehension, faculty can better understand how to evaluate students and ensure proper achievement of learning outcomes. Accomplishment of perceived ability to overcome barriers also demonstrates an ability to bring increased comprehension into practice.

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Improving Nursing Faculty Comprehension of Evaluation Methods

Successful education in nursing allows new graduates to coordinate care and practice alongside the healthcare team. Achievement of outcomes in nursing education is ensured with proper evaluation methods. This DNP scholarly project provides a collaborative approach to integrate proper evaluation methods into practice. Furthermore, within this paper the complete detail of the problem, evidence, project plan, findings, and recommendations are detailed for the completed Capstone project.

Problem Recognition and Definition

In nursing education, faculty do not have best practice guidelines or consistent methods for assessing learning outcomes. Specific variances include test construction, delivery, and evaluation methods. Without best practice guidelines and formal standards, we are risking the ability to meet objectives and course outcomes. Without proper ability to realize objectives and outcomes we are risking gaps in care at the bedside. As stated by Killingsworth, Kimble, and Sudia (2015), "Evaluation of a nursing student serves as a predictor of success on licensure examinations, and evidence of the ability to provide safe nursing care" (p. 220). Understanding clearly what our inconsistencies impact will have a greater significance to curriculum development and accreditation preparation. Some substantial insight may be gained to nursing faculty, administration, and the curricular design committee with examination of this problem. Identification of what issues exist with evaluation methods and how to examine what needs to improve, will greatly impact nursing education, therefore improving nursing practice.

Problem Statement and PICO Statement

According to Zaccagnini and White, the research and scholarship completed with a doctorate education will "Improve the reliability of health care practice and outcomes" (2017,

p.70). This DNP project addresses the lack of best practice guidelines and based on research, integrates these concepts into practice with faculty. Reflection was used to highlight relevance and improve motivation to use best practice guidelines. As stated by Bulman, Lathlean, and Gobbi (2014) “Reflection has the potential to critically develop professionals, assist learning from practice, and actively make a difference to practice” (p.1220). Several outcome measures were evaluated using efficacy scales and self-reporting. The first outcome measure was increased confidence of using best practice guidelines from faculty. Next, the outcome was increased comprehension of best practices with evaluation methods. Finally, the third outcome was identifying barriers for implementing best practice guidelines for evaluation methods. This practice change was consistent with the guidelines from the Essentials of Doctoral Education for Advanced Nursing Practice by bringing evidence to practice, developing practice guidelines, and finally improving healthcare outcomes. Outcomes for this project will change the learned outcomes of students impacting the organization by use of practice guidelines, the ability of the student to function as a nurse, and therefore improving care at the bedside. The problem statement for this project was lack of best practice guidelines and consistent faculty evaluation methods. Addressing the problem was the following PICO statement: In nursing faculty at a Midwestern associate degree program, what is the effect of an educational in-service regarding evaluation methods, compared to no intervention on outcomes of comprehension and confidence in the use of best practice guidelines for evaluation methods based on self-report?

Project Scope and Significance

The scope of this project included a formal review of practices and standards; therefore, integration of this evidence to review for a practice change. Implementation was at a midwestern community college. Proper evaluation methods have allowed educators to understand gaps in

education. With increasing knowledge, care at the bedside improves and has great significance for nursing. Finally, this allows for consistent approaches to evaluation methods.

Theoretical Foundations

Kurt Lewin's Theory of Change was reviewed using the synthesized method for theory evaluation. The purpose of this theory was to focus on the group and understand steps to a successful change. Lewin's approach to change includes four areas of field theory, group dynamics, action research, and the three-step model (Burnes, 2004, p.311). As stated by Lewin (1943) "It is best to characterize this theory as a method to evaluate causal relations and the nature of change" (p.294). The origin of this theory came from social science from over fifty years ago and still is in use today. Major concepts include two forces known as driving and restraining forces that may hinder or push people in a direction (Kritsonis, 2004-2005). The theory of change will help to guide the project development with the three-step theory.

The next theory reviewed under the synthesized method for theory evaluation is the Theory of the ARCS Model of Motivational Design by John Keller. The purpose of this theory was to engage and motivate the adult learner (Gatti-Petito, Lakatos, Bradley, Cook, Haight, & Karl, 2013). More specifically, stated by Keller (1987), this was started to understand influences on motivation to learn and solve motivation problems.

The final theory reviewed was Bandura's Social Learning Theory. This theory states the environment, cognitive factors, and behavior interact and impact influence. Furthermore, the concept of self-efficacy, one's belief in their ability to succeed, impacts one's approach to tasks. Therefore, people learn and achieve by observation and imitation of others (Bandura, Adams, & Beyer, 1977).

Themes Identified

Each theme generates a different segment to evaluation methods and therefore cumulatively demonstrates a conceptual generation of best practice guidelines for evaluation methods. One of the first considerations was the faculty members' role in evaluation methods. According to Poorman, (2011), the students' struggle is greater when the faculty member is not effective with evaluations. In fact, the lack of proper time to effectively evaluate was determined to immobilize students rather than to empower them (Poorman, 2011). Perception checking with students and educators can assist with self-assessment and determining the improvement needed with evaluations. Balancing of faculty time will make improvements towards high quality evaluation methods (Poorman, 2011).

The next consideration was learning assessment strategies for evaluation methods. Faculty should consider the use of multiple assessment strategies such as: papers, group work, case studies, care plans, presentations, and concept maps (Oermann, Saewert, Charaskika, & Yarbrough (2009). Furthermore, to expand on this idea, flexibility of assessment formats can be achieved by allowing students to choose their format. As stated by Irwin and Hepplestone (2012) students are empowered by having increased flexibility in assessments. This idea can be developed with increased use of technology and will engage students.

Best practices with test construction have multiple issues and provide the largest detail for guidelines. These subjects include objectives, major content topics, test blueprint, NCLEX RN test plan, peer review of test items, higher cognitive levels according to Bloom taxonomy, item writing guidelines, clinical context for test items, plausible distractors in multiple choice, even distribution of correct answer options, difficulty level, determining the type of questions,

determining the number of questions according to importance, and technology considerations with testing. While considering the many topics it became evident that practice guidelines are available as cited in some articles such as the NLN best practice guidelines (Halstead, 2013).

Administering the exams also includes issues to consider such as creating a culture to support effective examinations (Carr, 2015). Faculty should determine what specific considerations are important in their own program providing a fair policy formation. An example of this consideration is the ability of students to speak and ask questions during an exam (Stillwell & Krautscheid, 2016). Developing policy and culture of high expectations and of a consistent and fair testing environment are important concerns with best practice guidelines.

The next theme was the use of evidence with evaluation methods. Evidence is an important part of moving nursing forward with best practices (Patterson & Klein, 2012). Faculty need to understand what it means to use evidence based practices and how they obtain new evidence in their methodologies (Patterson & Klein, 2012). According to Kalb, O'Conner-Von, Brockway, Rierison, and Sendelbach (2015), most faculty know the importance of evidence based practice but are unaware of the need to bring it into teaching and evaluation. Bringing the evidence-based guidelines to faculty only answers issues in the present moment. Assisting faculty to bring the use of evidence into their teaching practice will bring the nursing practice forward.

Clinical evaluation is another component to consider with evaluation methods. Objectivity is an issue with clinical evaluations that commonly demonstrate subjectivity and inconsistency (Oermann, Yarbrough, Saewert, & Charaskika, 2009). Having multiple evaluation methods will help to insure the student is meeting the needed outcome (Oermann, et al., 2009). Portfolios are

an alternative method to evaluate students clinically and provide documentation for employers at transition into practice (Rhodes, 2011).

Math skills were another theme with consideration to evaluation methods. Evidence does exist that math can be measured via multiple choice; however, it will not measure higher learning of math knowledge (Torres, Lopes, Babo, & Azevedo, 2011). Evidence shows that virtual methods or simulation can measure math skills as effective as paper and pencil (Macdonald, Weeks, & Moseley, 2013). Furthermore, we need to move education to highlight student abilities providing alternative methods for measuring math outcomes that will help students to achieve success (Macdonald, Weeks, & Moseley, 2013).

English as a second language (ESL) students require unique support to achieve success. According to Olson (2012), ESL students are on the rise, and meeting language needs, along with increasing faculty cultural competence, will help to aid this population. Specific aid should be given to test taking skills, vocabulary building, grammar, and abbreviations; therefore, should be considered with policy development (Olson, 2012).

When continuing research, a new theme emerged regarding faculty development, change, and the use of reflection. The connection of a possible method to deliver content of testing methods to faculty became evident when the benefits of reflection included change to individual practice, initiation of policy changes, and a source to use in teacher training programs in nursing education (Edwards, 2014 & Dekker-Groen, Van Der Schaaf, & Stokking, 2011). When using reflection, a faculty member can link the specific practice guidelines to individual practice and begin to understand the barriers to improving evaluation methods.

Review of Evidence

Review of evidence was determined by using keywords such as the following: nursing faculty best practices, evaluation methods, test construction, practice guidelines, item statistics, evidence-based education, reliability, validity, interpreting test results, exam best practices, assessment of learning outcomes, item writing guidelines, selecting the appropriate assessment form, validity with test construction and nursing, test data analysis nursing exams and school and policies, identifying objective and outcomes in nursing, nursing test development and NCLEX, reflection for learning and nursing and change (see table 1 and 2). A wide variety of keywords were used to generate twenty-five articles all with a different lens to view evaluation methods. According to Polit and Beck (2012, p.37), “The first appraisal issue is the extent to which the findings are valid.” All evidence was evaluated using the Seven-Tiered levels of Evidence (see table 3) (Houser & Oman, 2011). The 29 final articles indicate a gap in research available and identify a need in practice. Of the many descriptive articles, themes emerged for consideration of best practices. These themes include: faculty impact on student success, learning assessment strategies, best practices with test construction, administering exams, use of evidence with evaluation methods, evaluating students clinically, evaluation of math skills, English as a second language student, and reflection to build critical thinking skills.

Table 1. Literature Search Terms

Database	Keywords	Inclusion Criteria	Total Articles
CINAHL	Nursing, evaluating methods, test construction, practice guidelines, and item statistics (truncate with construction, guidelines, and methods)	2010-2016, full text, English language, and peer review	28,767
Medline	Same as above	Same as above	5681

Table 2. Literature Narrowed Search

Database	Narrowed Search	Narrowed Search	Narrowed Search	Narrowed Search
CINAHL	Removing truncation limited to last five years= 11 articles	Item statistics instead of test construction with “or” instead of “and” = 28,398	Removed “or” and used “and” = 1021	Changed key terms to include Nursing education evaluation methods
Medline	Limited with full text= 406	Teaching, thinking, education measurement, and survey questions= 30		Total articles reviewed= 180

Table 3. Literature Levels of Evidence

Seven-Tiered Level of Evidence: Levels of Research	Research Design	Number of Articles
II	Randomized Control Trial	1
IV	Case Control	1
IV	Longitudinal Study Cohort	1
IV	Case Cohort	2
V	Systematic Review of Literature	3
VI	Correlational Research	2
VI	Descriptive	19

Project Plan and Evaluation

Market Risk Analysis, SWOT, Driving and Restraining Forces

The market risk analysis revealed many internal strengths. First, faculty were motivated for improvement of evaluation methods. Faculty at the midwestern college were available to attend and identify best practices during the educational in-service. Next, faculty were able to reflect and provide methods for change to produce outcomes. The internal weaknesses include lack of time as an expressed barrier for using evaluation methods and attending seminar. In addition, a

lack of testing computer statistics to provide all data is stated as a weakness. Finally, the present culture with evaluation methods did not include evidenced based practices.

The external opportunities include momentum to provide evidence for meeting student learning outcomes. State organizations have expressed need to improve practice with evaluation methods. The external threat includes research not showing specific best practices for evaluation methods as an absolute. Driving the need was the expressed concern throughout the state by faculty. Restraining the need was the lack of time with faculty schedules. When conducting the project space for the in-service, paper tools, and computers for survey distribution was needed. Resources needed were available space, supplies, and motivated faculty. Sustainability of this project was met by formation of an evaluation methods committee.

Unintended Consequences

The educational in-service or independent variable was designed with the concepts of theoretical frameworks. In the design, faculty were placed into groups of four to discuss the theme and work through reflective questions. Within the random groups, each table had various levels of experience; this allowed the concepts of Arc's Models of Motivational Design attention, relevance, confidence, and satisfaction to be met as part of the group discussion (Keller, 1987). When faculty lacked the experience to relate to an item, the more experienced faculty member could bring relevance. This also allowed for increased discussion on how to create a change to overcome barriers. In addition, this allowed for the unlearning, relearning, and refreezing in Lewin's change theory (Lewin, 1943). Further, this improved the ability for faculty to believe they could succeed. Finally, faculty expressed positively to the design format were talking freely and engaged during the educational in-service.

An additional unintended consequence was noted positive correlation when comprehension increased confidence decreased. Participants realized how much more there is to know, therefore decreasing their confidence.

Stakeholders and Project Team

Joliet Junior College is a midwestern community college known as the nation's first community college. The stakeholders are the faculty, as they attended and increased knowledge with evaluation methods. The students may gain a greater knowledge with the increased understanding of faculty. Finally, the healthcare population of patients are also stakeholders, as they may receive a higher quality of care as students demonstrate proper achievement of learning outcomes.

The team included: K. Roberson, DNP Student; Dr. Fitzgerald, DNP Student Mentor; and Dr. Claywell, DNP Project Chair. Additional service as a content expert for content validity was completed by Dr. Luna, Dr. Fitzgerald, Professor M. Nash, Professor C. Kestel- Branchaw, and Professor M. Magruder.

Cost- Benefit Analysis

For completion of the project, room rental for education in-service was needed. This fee was waived for a faculty member. Each in-service manual was created for 25 units at a cost of \$98. Finally, the use of a survey tool was needed for both the pre and post-test.

The cost of the program included room rental \$85, survey tool \$35, and printing at \$117 dollars. Total program costs are 237 dollars. See appendix H for cost analysis. The benefits for this program included improved knowledge and self- efficacy. Post survey topics for policy

formation regarding evaluation methods may be easily identified. Furthermore, understanding barriers with using best practice guidelines was realized. Finally, the curriculum was developed with improvement of evaluation methods in student knowledge and the ability to identify weaknesses in student knowledge. Current programs used to evaluate achievement of student objectives cost \$353. This project removes testing programs as a needed cost to nursing programs saving \$353. This knowledge may also add to the current body of knowledge for nursing, therefore, improving nursing care at the bedside.

Mission, Vision, & Objectives

The vision was to improve nursing practice by bridging gaps in nursing knowledge at the bedside and increasing understanding of best practices with evaluation methods. The mission was to increase knowledge of best practices and content topics regarding evaluation methods and improve integration of concepts into practice with nursing faculty. One objective was to increase confidence of identified best practices with evaluation methods after one month of education in-service. The next objective was to increase comprehension of best practices with evaluation methods after one month of education in-service. The final objective was to identify barriers for implementing best practice guidelines for evaluation methods within one month of education in-service.

Logic Model

The problem statement for the focus of this model is lack of best practice guidelines and consistent faculty evaluation methods. In effort to provide a clear visual flow the use of simple colors and shapes with directional value add to the understanding for the reader in the logic

model (see appendix A). The four inputs identified start with the theoretical concepts setting the tone for movement for the project.

To address the stated problem, an activity consisted of an education in-service. Within the in-service, each faculty member worked through a tool. This tool presented evidence-based guidelines and provided a deep reflective question. This allowed the learner to find personal relevance and with guided questions be moved to action; therefore, building confidence. Because each member finds personal meaning and value, the mixing of faculty can be random to provide comfort and ease within groups. Using this activity addressed a multifaceted issue and allowed a formal team approach leading to a process change.

There are some identified constraints on the activity as limited availability impacted attendance. Also, the consideration of existing culture may impact the buy in from stakeholders. Although these challenges have been identified the model addressed the influence of theoretical approaches as a plan from the start. In addition, there are not benchmark data targets available; however, outcome measures speak to the PICO statement. After the activity, the output included the number of attendees, and the development of a long term functional tool for each faculty member. The outcomes provided understanding of specific best practices with evaluation methods for each faculty member, and therefore increased use. Identification of topical data points allowed for conversation within the department to develop policy. Finally, barriers for implementing best practice guidelines was expressed and identified. The impacts were the creation of a JJC specific testing policy and potential for a peer testing team within JJC that worked to solve identified concerns. Lastly, in the model is an arrow leading back to the problem statement showing efforts completed with evaluation of the initial problem. The development of this model allowed a conceptual view of the multidimensional practice problem.

Population & Methodology

Faculty at a Midwestern associate degree program attended an educational offering that serves as the independent variable for the project. Comprehension and self-efficacy of best practice guidelines for evaluation methods by faculty at a Midwestern associate degree program is the dependent variable. The extraneous variables were attendance of faculty the existing knowledge of evaluation methods, and finally existing culture within the faculty regarding use of evaluation methods.

Several outcome measures were evaluated with the use of efficacy scales and self-reporting. The first outcome was increased confidence of identified best practices with evaluation methods after one month of educational in-service. The next outcome was increased comprehension of best practices with evaluation methods. Finally, the last outcome was identifying barriers for implementing best practice guidelines for evaluation methods.

In this quantitative study, information was collected in a numeric form with the purpose of describing the data and assessing the magnitude of relationships (Polit & Beck, 2017). A convenience sample was volunteers from a Midwestern associate degree program faculty. This specific population is the focus of outcomes measured as the problem stated is specific to this population. At the time of the DNP project the number of full time faculty was twenty. As stated by Polit and Beck (2017), with a power analysis of alpha equal to 0.05 (risk of type one error) and beta (risk of type two error) of 0.80 and the power at 0.80, would leave a 20% chance of a type two error. The sample size for this power analysis would be 25. The entire population of faculty at JJC is 20, which would equal a power of .70, leaving a thirty percent chance of a type two error. All faculty members were invited and given a pre and post survey. The data

from the faculty member's pre-survey were compared to the faculty member's post-survey. The type of design is a Quasi Experimental with descriptive statistics and Wilcoxon Signed- Rank test for dependent groups (Polit & Beck, 2017). Therefore, use of this statistical design provides evidence if the outcomes were met due to independent variable. Furthermore, the Wilcoxon Signed- Rank test compared the paired data based on relative ranking of values between the pairs (Polit & Beck, 2017). In addition, Spearman's Rho was used to test for correlation between variables (Polit & Beck, 2017).

Precision with study design allows for avoiding threats to study validity. However, with each decision comes other possible threats and the researcher must focus validity on study goals (Polit & Beck, 2017). In this study, the sample size creates a greater risk of a type two error. However, by adding to the sample with faculty members from another college, other variables may influence why a faculty member may meet the outcome; therefore, creating bias. For example, faculty at another college or university may have experienced greater training or education, resulting in meeting the study outcomes. The goal of this study is to focus on the specific population at a Midwestern associate degree program. Another standard employed was using a reliable tool to discriminate and measure differences among the group (Polit & Beck, 2017). Careful consideration to use a tool that demonstrates the ability to be a reliable source will allow accuracy in the research. Cronbach's Alpha was used to measure internal consistency and reliability of the survey tool (Polit & Beck, 2017). Results of this measure are listed under validity and reliability.

Protection of Human Rights

The researcher must protect potential participants and be sure their desire to participate is with free will (Terry, 2015). Furthermore, the research should be without harm to the participant and collection of these participants should be from a fair and just manner (Terry, 2015).

This DNP project was collected from a convenience sample of all willing faculty at Joliet Junior College. This is not considered a vulnerable population, but certainly the principles of confidentiality and privacy do apply. A pre and post survey collected the information and assisted with findings. Obligation included the need to maintain the data collection via anonymous information. This was accomplished from the use of an online survey tool. The tool asked for a code to pair results in a confidential manner. Because the information collected was not be identified, the Code of Federal Regulations did not require written consent (Terry, 2015). In addition, this project was approved from an IRB review earning an exempt status as it does not include a vulnerable population. However, see IRB approval in Appendix B and C from Regis University and Joliet Junior College.

When reviewing the data, each pre and post-test was matched using the unique code provided by the participant. Seventeen original surveys were completed; however, only seven matched with the code upon completion of the post- test. Each participant was given a unique two number code from the order their pre-test was submitted, and their post-test was submitted. For example, if the participant was the first one to submit the pre -test and the second one for the post- test their id number would be 12. This allows for protection of the data and confidentiality.

According to Johnston (2015), in qualitative research, a small sample size puts confidentiality at risk as even a few demographic features can be telling. If age is something to be disclosed,

ranges should be used to prevent disclosure of information (Johnston, 2015). In this research, age is not required to evaluate the objectives and data was reported in aggregate form.

Furthermore, no personal identifiers were included. Johnston (2015) states how if the trust of the researcher is lost with the participant, the public will lose value to the research. The purpose of this project is to bring together faculty for the improvement of evaluation methods. If the research creates a question of integrity, the purpose of the research will be lost. Additional measures to ensure confidentiality included the use of a password protected computer and a locked drawer for all printed findings. Only the DNP student had access to the data.

Survey Tool & Statistical Tests

The survey tool used was with a pre- test/ post- test design. This survey included the use of a Likert scale to allow the participant to rank their perceptions of self-efficacy. Furthermore, descriptive statistics revealed how many years of experience the participant had. The remaining questions ranked the participant's perception of confidence, comprehension, and ability to overcome barriers for implementing best practices with evaluation methods. See appendix D for a copy of the survey tool. This tool collected ordinal level of data. The ranking was completed by the relative perception of the participant. Each participant ranked according to their own perceptions, and while this provided a rank, there is not an ability to score perceptions and feelings. For this reason, the Wilcoxon Signed Ranks test was completed. Spearman's Rho was also completed as stated by Polit and Beck (2017) "To indicate the magnitude of a relationship between variables measured on the ordinal scale" (p.745).

Validity & Reliability

When considering the validity of the data one must design the project to show true relationships guarding against false conclusions (Polit & Beck, 2012). The survey tool was developed establishing content validity (see Appendix D). This was completed by a panel of five experts for content validity by an expert panel. This determined the tool had relevant items to reflect the constructs measured. Threats to validity of the data could result from not understanding susceptible threats with each research design. Therefore, it is important to implement a strong research design that either includes control or analysis to understand bias (Polit & Beck, 2017, p.226). The ability of the researcher to infer or draw conclusions successfully will depend on the ability to detect a relationship between the independent (education) and dependent variable (Polit & Beck, 2012). Careful consideration is needed to prevent threats to reliability of a tool.

Reliability: Cronbach's Alpha

Cronbach's alpha is used for measuring internal consistency and reliability. A score higher than 80% demonstrates internal consistency. For the survey tool used 88% are true individual differences of the underlying construct and 12% reflect random extraneous fluctuations (see table 4).

Table 4.

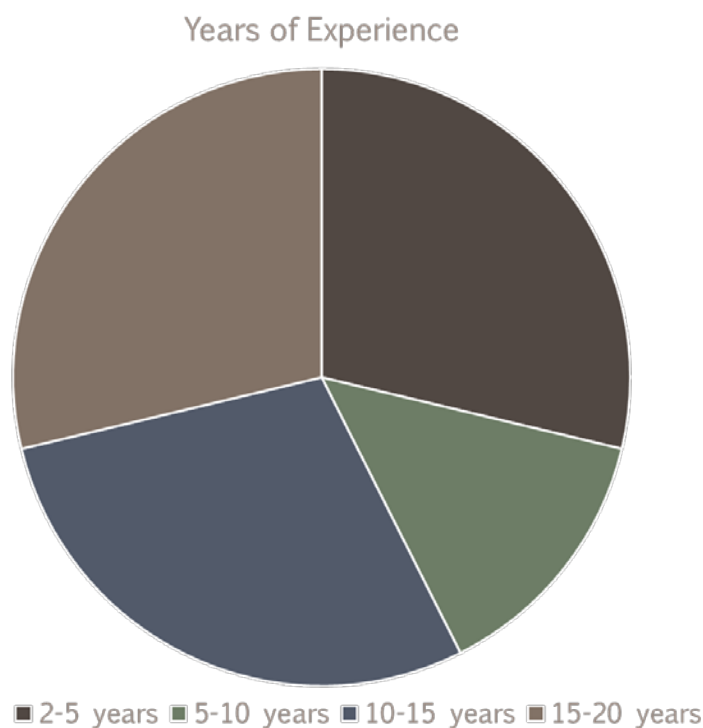
Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.873	.880	6

Project Findings and Results

Descriptive Statistics

Descriptive statistics was collected from the participants regarding their years of experience (see table 5). The participants were asked to select a range for their years of experience. Two participants or 29%, listed 2-5 years of experience; one, or 14%, listed 5-10 years of experience; two, or 29%, listed 10-15 years of experience; and two, or 29%, listed 15-20 years of experience.

Table 5.

**Outcome 1: Increased Confidence with Implementing Evaluation Methods.**

The Wilcoxon Signed Ranks test was used to measure the variables. Outcome 1 was defined as the degree of confidence in using best practices for evaluation methods. Variable 1 measure of confidence in using best practices for evaluation methods, did not display statistical significance based on $p > .05$ (see table 6). Although the participants did not have an improvement of confidence, the results may be indication participants realized how much more there is to know after the education; therefore, decreasing their confidence. Three of the participants ranked the pre and post confidence the same. Three of the participants ranked the pre and post to improve confidence by one, and one participant had a rank that decreased by one.

Table 6.

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between var1pre and var1post equals 0.	Related-Samples Wilcoxon Signed Rank Test	.317	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				

Outcome 2: Increased Comprehension of Best Practices

Wilcoxon Signed Ranks test was used to measure outcome 2 defined as the degree of comprehension in using best practices for evaluation methods. Variable 2 was statistically significant based on a p value <.05 (see table 7). This indicates perceived comprehension of best practice guidelines regarding evaluation methods. One of the participants ranked the variable to decrease by one, one the participants ranked the variables the same, and four participants ranked an increase of one.

Table 7.

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between var2pre and var2post equals 0.	Related-Samples Wilcoxon Signed Rank Test	.020	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				

Outcome 3: Identifying Barriers for Implementing Evaluation Methods

Wilcoxon Signed Ranks test was used to measure outcome 3; defined as the degree of ability to identify barriers for implementing evaluation methods. Variable 3 was also statistically significant based on a p value $<.05$ indicating an increase in the degree participants felt they were able to overcome barriers for implementing best practices with evaluation methods (see table 8). After the education in-service, the perceived ability to overcome barriers with evaluation methods improved. One participant reported the same for pre and post, three reported an increase by one, and three reported an increase by two.

Table 8.

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between var3pre and var3post equals 0.	Related-Samples Wilcoxon Signed Rank Test	.024	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				

Spearman's Rho Correlation

The final test Spearman's Rho, was tested for correlation with ordinal data for less than 30 cases (Polit, 2010). Using Spearman's Rho, correlation of statistical significance was found between variable 2 ($r_s=.900$, $p .006$) and variable 3 ($r_s=.837$, $p .019$) (see table 9). With this data we can conclude there is correlation between the increasing comprehension of best practice guidelines and identifying barriers regarding evaluation methods.

Table 9.

Nonparametric Correlations

			Correlations					
			var1pre	var1post	var2pre	var2post	var3pre	var3post
Spearman's rho	var1pre	Correlation Coefficient	1.000	.535	.900**	.636	.837*	.769*
		Sig. (2-tailed)	.	.216	.006	.124	.019	.043
		N	7	7	7	7	7	7
	var1post	Correlation Coefficient	.535	1.000	.382	.540	.312	.242
		Sig. (2-tailed)	.216	.	.398	.211	.496	.602
		N	7	7	7	7	7	7
	var2pre	Correlation Coefficient	.900**	.382	1.000	.707	.612	.580
		Sig. (2-tailed)	.006	.398	.	.076	.144	.172
		N	7	7	7	7	7	7
	var2post	Correlation Coefficient	.636	.540	.707	1.000	.433	.373
		Sig. (2-tailed)	.124	.211	.076	.	.332	.410
		N	7	7	7	7	7	7
	var3pre	Correlation Coefficient	.837*	.312	.612	.433	1.000	.732
		Sig. (2-tailed)	.019	.496	.144	.332	.	.062
		N	7	7	7	7	7	7
	var3post	Correlation Coefficient	.769*	.242	.580	.373	.732	1.000
		Sig. (2-tailed)	.043	.602	.172	.410	.062	.
		N	7	7	7	7	7	7

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Limitations, Recommendations, Implications for Change

Noted in this study were limitations with a small sample size and small return rate of surveys. The sample size of this population was twenty faculty members and included the entire population of faculty. The responses submitted was only seven paired responses. The results determined statistical significance, however repeating with a larger sample size is recommended to decrease the risk of error. This could be accomplished with participation of multiple universities. Additional emails to prompt return of surveys may also help to improve response rates.

Additional recommendations include further development of the educational in-service. Information regarding confidence should be added to the educational session, to assist with improvement of participant confidence. Furthermore, use of application within the educational session may improve the participants confidence. Consideration should be given to additional educational sessions for repeated studies in effort to improve confidence of participants.

Based on the results of the study the educational in-service may increase the ability for faculty to improve methods with evaluation. Noted improvement with comprehension and perceived ability to overcome barriers should drive future studies to further validate these findings. Effort to repeat project findings will guide nursing education with integration of a culture to include evaluation methods that meet the needs of students improving practice. By properly evaluating students, evidence-based practice outcomes can be validated enabling students to safely meet the needs of patients.

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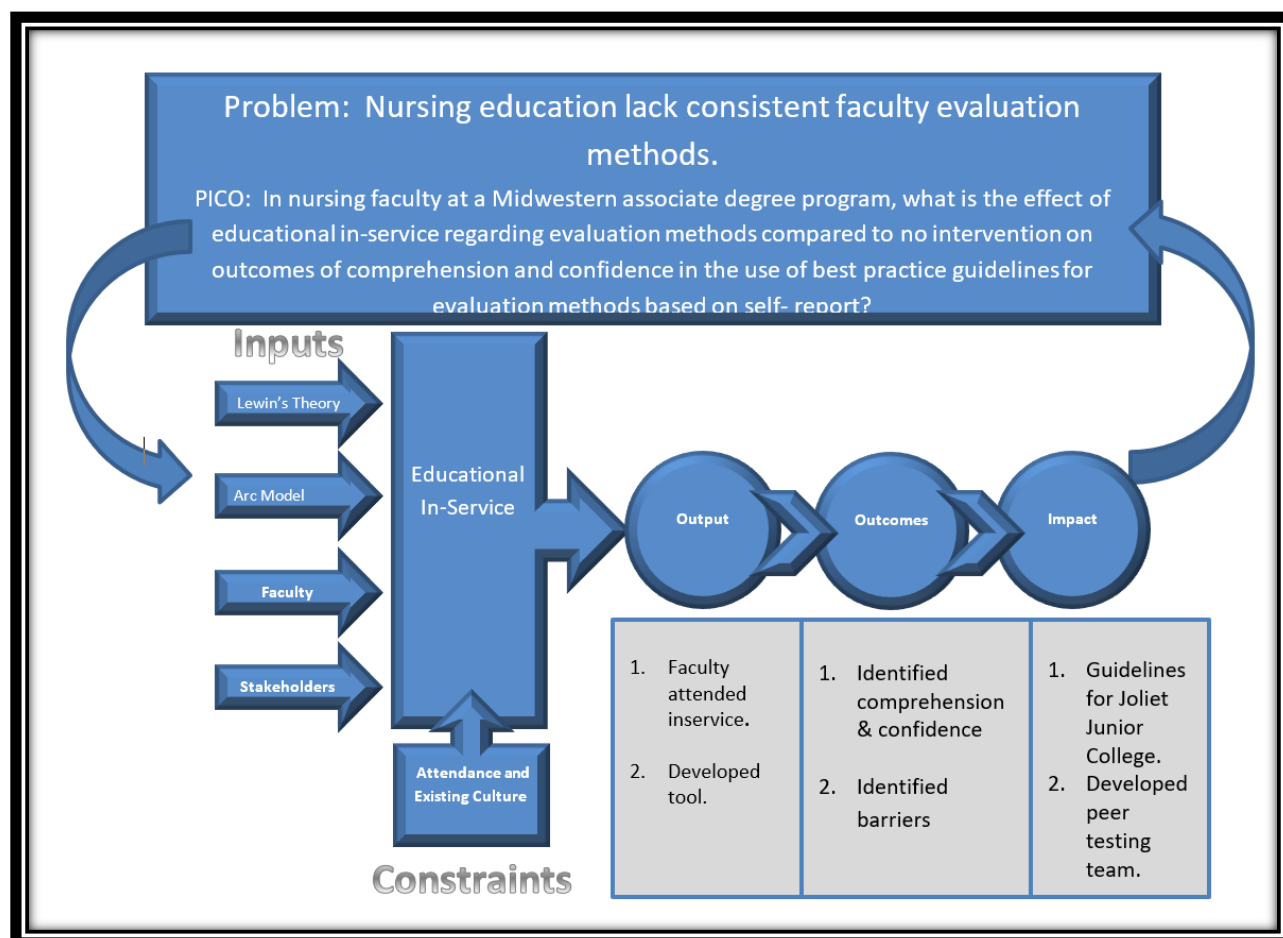
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Appendix A



Appendix B



REGIS.EDU

Institutional Review Board

DATE: September 21, 2017

TO: Karen Roberson, MSN
FROM: Regis University Human Subjects IRB

PROJECT TITLE: [1120160-1] Improving Nursing Faculty's Awareness of Evaluation Methods
SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE: September 21, 2017
REVIEW CATEGORY: Exemption category # (1,2)

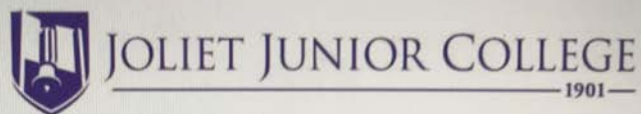
Thank you for your submission of New Project materials for this project. The Regis University Human Subjects IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations 45.CFR46.101(b).

We will retain a copy of this correspondence within our records.

If you have any questions, please contact the Institutional Review Board at irb@regis.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Regis University Human Subjects IRB's records.

Appendix C



RE: Population-Intervention-Comparative-Outcome (PICO) for educational in-service regarding evaluation methods

Monday, July 31, 2017

Dear Karen:

We welcome opportunities for individuals to conduct research at Joliet Junior College and appreciate the opportunity to contribute to the scholarship of the Nursing program at JJC.

Consider this letter as consent to conduct the proposed research at JJC upon completion of Regis University's IRB approval.

If you have any questions or need any further information please feel free to contact me.

Sincerely,

Joseph Offermann
Director of Institutional Research & Effectiveness
Joliet Junior College
Joliet, IL 60431
(815) 280-2211
jofferma@jjc.edu

CC: Dr. Randy Fletcher – Vice President, Academic Affairs
Dr. Mary Beth Luna - Dean of Nursing, Health & Public Services
Mary Magruder - Professor & Department Chair Nursing

Appendix D

Survey Tool:

Instructions:

Please complete the following questions to reflect your opinions as accurately as possible and to answer factual questions to the best of your knowledge. The Likert scale provided implies 0= no value and 5= highest value. Best practice guidelines for evaluation methods can be defined as actions or methods in place to evaluate student attainment of learned objectives.

Your information will be kept strictly confidential. In effort to provide anonymity please select a code and use this code on both the pre-test and the post-test. All surveys without a code will not be used for data collection.

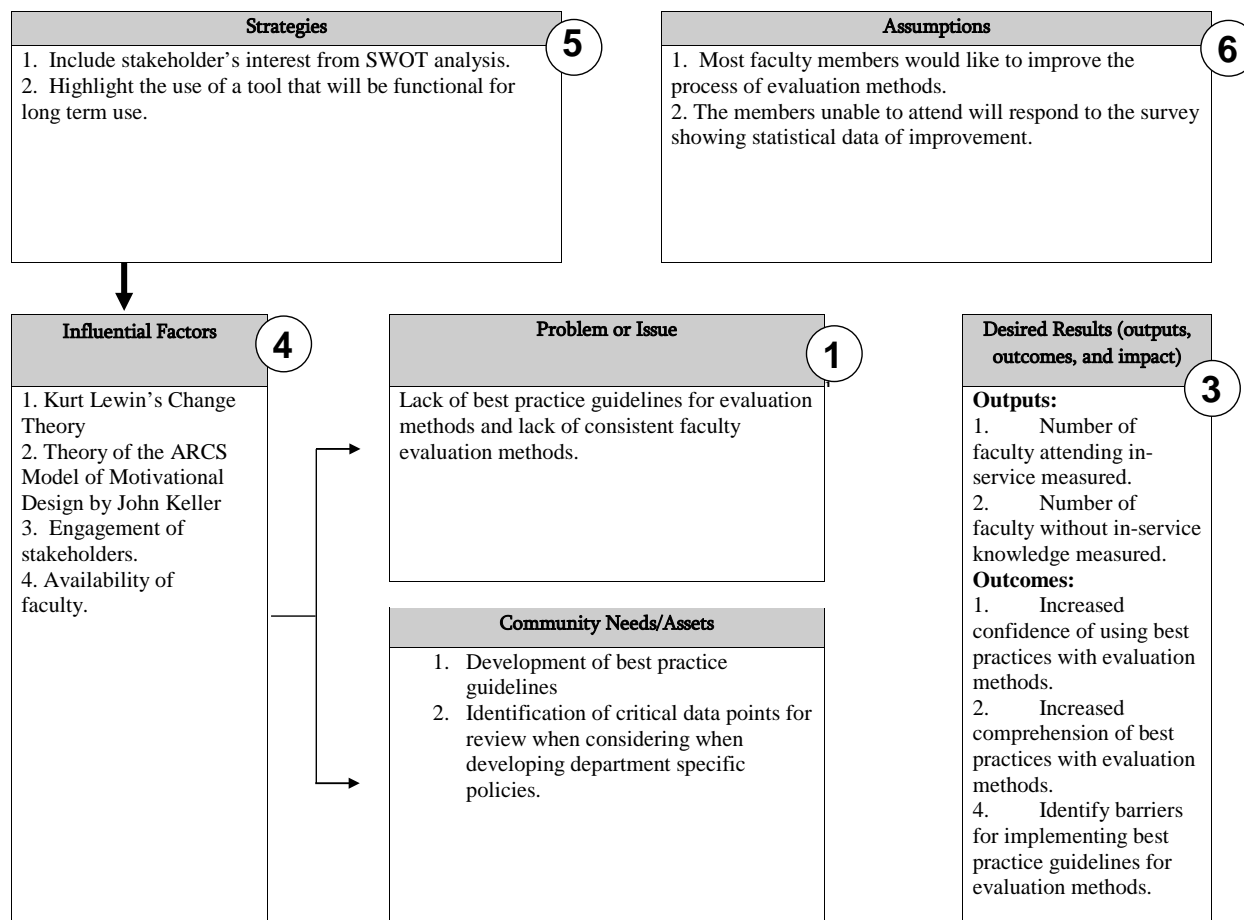
Thanks for your participation and effort!

Pre-test:

1. What is your code for pairing pre-test to post-test?
2. How many years of teaching experience do you have? Select from the following 0-4, 5-9, 10-14, 15-20, >20
3. To what degree do you feel confident in using best practices for evaluation methods?
4. To what degree do you perceive you comprehend best practice guidelines regarding evaluation methods?
5. To what degree do you feel you are able to overcome barriers for implementing best practices with evaluation methods?

Appendix E

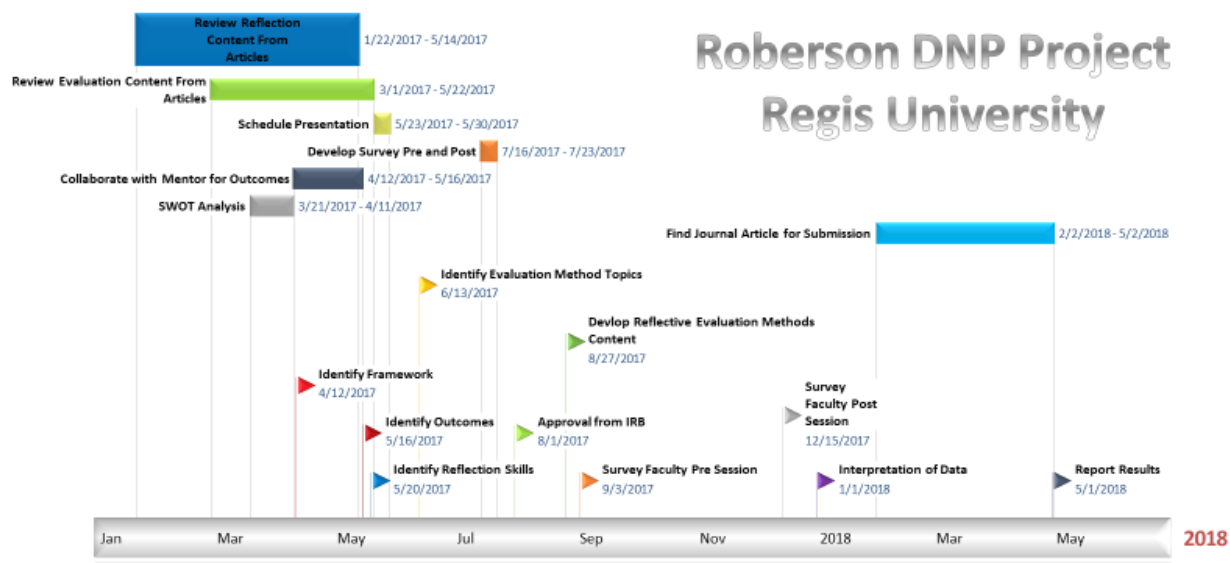
Logic Model



Appendix F



Appendix G



Appendix H

Cost	Per Item	Total for 30
Perfect binding	\$0.20	\$6.00
Color Copies Single Sided	\$3.20 (20 pages)	\$96.00
Cover Double Sided	\$0.50	\$15.00
Room		\$85.00
Survey Money		\$35 a month