Evaluating the Effectiveness of Instructional Methodologies Among Nurses: Lectures, e-Learning and Self Study Strategies

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Introduction

• Nurses are a highly educated audience requiring an effective teaching-learning delivery

• Instructional methodologies provide the guidance for information delivery

• Registered nurses employed in the acute-care setting, a hospital, are required by the Joint Commission to be exposed to and demonstrate competency involving coronary artery disease
Introduction

• Hospital educators are delegated the responsibility to administer effective curriculum, course content and teaching methodology

• An instructional methodology encasing minimal resources, return on investment, resulting with increased knowledge retention and acquisition is a staff developer’s goal
Problem Statement

• There is no known instructional teaching method for registered nurses that optimized knowledge acquisition

• The goal of this quantitative experimental research was to determine if there was a difference in knowledge acquisition of registered nurses enrolled in a short-term professional development learning experience using three different instructional methodologies
Purpose of the Study

The purpose of this quantitative experimental study was to examine which of three instructional methodologies was best for knowledge acquisition of registered nurses involving a required short-term continuing educational coronary heart disease course as required by the Joint Commission to acquire or maintain hospital chest pain certification.
Research Question

Which teaching methodology, lecture, teacher guided electronic learning or take-home packets, resulted in the most knowledge acquisition by registered nurses in a short-term professional developmental class required for the organizational continued certification?
Hypothesis

• H (o): There was no difference in knowledge acquisition by registered nurses regardless to which of three learning instructional method they are assigned (lecture, teacher guided e-learning or self-study take-home packet)

• H (a): There was a difference in knowledge acquisition by registered nurses regardless to which of three learning instructional method they are assigned (lecture, teacher guided e-learning or self-study take-home packet)
Review of Literature

• The use of educational methods and classrooms teaching has increased across a variety of discipline

• Educational methods, sometimes called techniques, are ways and means adopted by teacher to direct the learners' activities toward an objective (Uhuruavbi & Mamudu, 2009)
Review of Literature

- Students have different classroom experiences because they approach learning differently and technology tends to treat them differently (Uhuruavbi & Mamudu, 2009)

- E-learning, for instance, is beneficial to learners because they are able to share their learning perspectives online without the need to meet face-to-face
Review of Literature

With the new approach to teaching, blended learning is the combination of online delivery of educational content with the best features of classroom interaction and live instruction to personalize learning, allow thoughtful reflection and differentiate instruction from student-to-student across a diverse group of learners (Lloyd-Smith, 2010)
Methodology

The study used a true-experimental design to contrast the knowledge acquisition of 87 registered nurses, of which 29 registered nurses were randomly assigned to each of three instructional methodologies that offer the same content.
Variables

- The independent variables: lecture, teacher guided e-learning and self-study take-home packets

- The dependent variable was knowledge acquisition, which was measured by the ACS quiz, a test developed for the course and was comprised of 40 true/false questions
Population

The population for the study was registered nurses employed in a chest pain accredited acute-care hospital in a southern state (200 nurses)
Sample

The study sample included 87 registered nurses, who were randomly selected from the list of approximately 200 registered nurse caregivers currently working in the hospital.
Data Analysis

• Knowledge acquisition achieved through each of the three instructional methods was determined by the post exam

• A one-way analysis of variance (ANOVA) with appropriate post-hoc analyses was performed to contrast the three instructional methods by post exam scoring in testing the hypothesis of the study
Results

• Kolmogorov-Smirnov test was conducted to test whether dependent variable follows a normal distribution. An alpha value of .05 was used for this analysis.

• The results show: teacher guided e-learning method (K-S = 1.029, $p$-value = .240), lecture method (K-S = .786, $p$-value = .567), and self-study method (K-S = .832, $p$-value = .493). None of the tests reached significance indicating that the data for each group were normally distributed.
Results

• One-way ANOVA test result shows that there was no significant difference in the scores between the three instructional methods
  – \((F(2,86) = .772, p\text{-value} = .465)\)

• Thus, there is insufficient evidence to reject the null hypothesis which states that there is no difference in knowledge acquisition by registered nurses regardless to which of three learning instructional method they are assigned (lecture, teacher guided e-learning or self-study take-home packet)
ANOVA Test to Compare ACS Quiz Scores according to Instructional Methods

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<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>Sig.</th>
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<td>.772</td>
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<td>42.614</td>
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<tr>
<td>Total</td>
<td>3645.402</td>
<td>86</td>
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</table>
Results

The three instructional methodologies (lecture, teacher-guided electronic learning and self-study take-home packets) were equally effective for knowledge acquisition of nurses required to take a short-term professional learning experience.
Implications

• The non-significant findings in this study contribute to the literature regarding instructional development of medical professions by adding evidences regarding efficacy of these three instructional methods for a short term, high-stakes course.

• When cost savings are being considered, teacher guided e-learning can be economically beneficial for nurses.
Implications

• E-learning and self-study take-home packets as well are beneficial to not interrupt the nurses’ schedules.

• With the needs of being in a traditional lecture method, time of the registered nurses is more consumed. Nurses enrolled in e-learning provided with opportunity to interact with other nursing without leaving their workplaces for classroom discussions.
Limitations of the Study

• First, the present study failed to conduct a pre-test that measured the knowledge level of learners prior to being introduced to the course materials.

• Thus, it cannot be assumed that the result of the nurses’ examination was acquired solely through lecture, e-learning and home-study packets.
Limitations of the Study

Second, this study revolved around only three types of instructional methodologies (lecture, electronic and self-study take-home packets). It should not be assumed that additional instructional methodologies would have resulted in the same knowledge acquisition.
Limitations of the Study

Third, ACS course given to the registered nurses in the three instructional modalities was a 4-hour course. The findings of this study may not be applicable to lessons learned over a longer period.
Recommendation

• A study contrasting other instructional methods, analyzing finding with learning gain computed by giving a pre-test as well as a post-test to nurses and/or contrasting these instructional methods in longer term courses

• Inclusion of optimal instructional method for learning acquisition in short term certification courses in future studies
Recommendation

• Future studies examine not only immediate knowledge gain but retention of knowledge over a more extended period of time

• Future studies should also include age demographics and test for generational differences
References


Thank You!

Questions