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Using Gagne's 9 Events of Instruction to Enhance Student Performance and Course Evaluations in Undergraduate Nursing Course

Ms. Amy Miner, MSN, RN [Senior Lecturer], **Dr. Jennifer Mallow, PhD, FNP-BC [Assistant Professor]**, **Dr. Laurie Theeke, PhD, FNP-BC [Assistant Professor]**, and **Dr. Emily Barnes, DNP, FNP-C [Clinical Associate Professor]**

Abstract

Teaching large numbers of students can be a challenge for both teachers and students. Implementing new teaching strategies may be 1 way to address the problem. This paper presents the impact of using Gagne's 9 events of instruction on student learning and course evaluations over a 3-semester period. Student evaluation ratings indicated enhanced teacher mastery, effectiveness, and enthusiasm. Overall student final grades increased.

Keywords

Classroom teaching; Gagne's Learning Theory; Nursing education; Student evaluations of teaching; Teaching strategy

Teaching in the large classroom setting can be challenging for faculty who seek to keep students engaged and active in the learning process. Conveying required course content using methods that truly engage students is a common concern for both beginning and experienced nursing faculty.[1] Traditional lecture-type approaches to delivering content have been reported by students as inadequate, boring, and described as “death by PowerPoint.”[2] Therefore, it is important for teachers to explore new approaches by evaluating pedagogies that have the potential to enhance student learning and teaching effectiveness. One potential solution is to integrate Gagne's 9 events of instruction [3,4] into the classroom setting.

Background

Schools of nursing have increased enrollment to address the global nursing shortage,[5] which has resulted in higher numbers of students in classrooms. During lectures held in large groups, students can get distracted and engage in day-dreaming, searching the internet, or private discussions, making them less likely to engage in their learning.[6] Faculty members are reporting that with increased class sizes, students are less prepared for class, not completing assigned readings beforehand, and generally expecting that pertinent information will be delivered during class.[7,8] Teaching with long slides presentations for several hours

Corresponding Author: Jennifer Mallow, PhD, FNP-BC, Morgantown Department, PO Box 9620, HSC South, School of Nursing, West Virginia University, Morgantown, WV 26506-9620 304 293 1402 jamallow@hsc.wvu.edu.

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may not be effective, and this method of teaching has been associated with students being less apt to ask questions and participate in discussion.[9]

The study presented in this article stemmed from course faculty in an undergraduate medical-surgical nursing course recognizing that students had declining attendance, were talking excessively among themselves, and by mid-term lacked attention compared to the early weeks of the semester. Faculty concern led to seeking mentorship in teaching and an exploration of alternative approaches that would have the potential to enhance student engagement and overall course success. A potential solution was to use Gagne's theory of instructional design. An experienced colleague had some knowledge of Gagne's theory through completion of the West Virginia University Teaching Scholars Program[10] and suggested integrating it into teaching methods. All authors had attended a continuing education event about Gagne's 9 events of instruction[11] prior to implementation of the project. The purpose of this paper is to present the impact of using Gagne's 9 events of instruction on final course grades and Student Evaluation of Instruction (SEI) scores.

Theoretical Framework

The theoretical framework guiding this project was Gagne's Conditions of Learning Theory.[12] Gagne developed a systematic way to approach the design of instruction. The Gagne model is based on knowledge of how human beings process information (Table). In studying the psychological events that occur with a stimulus and learning, Gagne determined certain conditions that are integral to human learning. Gagne's principles refer to actions of both the teacher and learners during the teaching.[13] Gagne suggested 9 events of instruction that may enhance student learning: gain attention, inform leaners of objectives, stimulate recall of prior learning, present stimulus, provide learner guidance, elicit performance, provide feedback, assess performance, and enhance retention and transfer. These events were used to guide the structure of the medical-surgical nursing course. The authors hypothesized that use of these 9 events would facilitate student engagement and thereby enhance student learning, thus improving overall understanding of course concepts.

Evaluating Outcomes

Methods

The evaluation project was implemented during a 3-credit hour didactic course that enrolled junior level undergraduate students in a traditional prelicensure nursing program. Previously, content for the course was delivered in a large classroom, face-to-face, using an all lecture format. Gagne's 9 events of instruction were incorporated into the structure of each course lecture. The Table provides examples of how the event was integrated into the classroom setting. A retrospective design allowed for the comparisons of the outcome data, which included overall final course percentage grades and SEI reports over 3 semesters. This evaluation project received a letter of exemption for the institutional review board at the authors' University.

SEI data were collected from all students who completed the evaluations in the 3 student groups. The first student group received usual instruction (fall 2010, N = 31) and 2

subsequent student groups received the altered course using Gagne's events (spring 2011, N = 33; fall 2011, N = 37). Overall course grade data were collected from each class roster for 3 sequential semesters (fall 2010, N = 80; spring 2011, N = 81; fall 2011, N = 84).

Measures

The SEI is an 18-item tool that serves as the standard method of evaluation of instruction used by our university. Students are asked to complete the SEI voluntarily, and it is done electronically and anonymously. The SEI tool has been reported as a reliable and valid measure of student evaluation.[14]

Six questions were chosen from the SEI for this project because they represented overall student impression of faculty and self-evaluation of student thinking and learning. The first 4 questions included student evaluations of instructor preparedness, instructor mastery, instructor enthusiasm, and role of the course in developing critical thinking. Those 4 questions had response options of NA, rarely, seldom, usually, frequently, or always. The remaining 2 questions reflected student evaluations of instructor effectiveness and overall learning with response options of NA, poor, fair, satisfactory, good or excellent. Not all students completed the SEIs. For this study, we averaged a 41% response rate based on the total number of students enrolled. Cronbach's alpha was 0.97, which represents high reliability for the 6 SEI items. Data for final course grades included all passing and failing students each semester. Students were required to earn 77% to pass the course.

Data Analysis

SPSS version 21 (IBM corporation, Almonk, NY) was used to perform Chi-Square results, comparing categorical ordinal student evaluation data for 3 groups determined by semester of attendance. Mean comparisons of overall course percentage grades by semester of attendance were performed. A p value of 0.05 was used to determine significance for all statistical tests.

Results

Student Evaluations

Chi-Square tests indicated that student evaluations of the course improved significantly (Supplemental Digital Content, Table). Ratings of instructor preparedness, instructor mastery, instructor enthusiasm, and instructor effectiveness improved significantly ($p < .001$). Students also rated the course higher in their evaluation of how the course helped them to develop critical thinking skills ($p < .05$). Qualitative comments from students indicated an appreciation for the “real life examples” and “stories”; that the instructor “was enthusiastic about helping students” and “all teachers in the course demonstrated true mastery of the content.”

Mean Course Grades

The overall mean course grades did not change significantly from semester 1 to semesters 2 and 3. However, the range of final grades did trend up so that the minimum overall mean lowest course grade increased from 66% to 70%.

Discussion

The integration of Gagne's 9 events of instruction resulted in a positive change in student evaluations, indicating enhancement of the student learning experience. The SEI items that were chosen indicate that faculty may be better able to demonstrate expertise by using this pedagogical method. The findings of this study are consistent with what has been reported about the use of Gagne's events of instruction in clinical teaching.[13,15] Other disciplines, such as psychology, have used Gagne's events routinely to enhance instruction.[16]

As schools of nursing continue to face challenges with the nursing faculty shortage and high numbers of students, it is important to seek innovative pedagogies that engage students and enhance learning. Schools of nursing have reported that faculty development and enhanced resources for teaching are ways they are addressing the faculty shortage.[17] Including information about innovative strategies such as Gagne's 9 events of instruction may be helpful to those teaching large numbers of students. Gagne's theory and instructional events could be evaluated for effectiveness in other educational settings in nursing such as clinical courses, online teaching environments, and non-traditional programs. One recent article reports the use of Gagne's theory to keep students engaged using mobile technology.[18]

The 9 events of instruction provided a structure to the face-to-face classroom setting, affording faculty the opportunity to gain expertise with a pedagogical method while staying student-centered. The events provided a framework to build on each week, creating an improved classroom milieu for both students and faculty. Through the use of this method, students had enhanced opportunities to interact with each other and the teacher, and for feedback, which facilitated a positive experience.

Conclusions

This study included the integration of Gagne's 9 events of instruction into a prelicensure medical-surgical nursing course over 3 semesters. The faculty members integrated each of the 9 events in each didactic lecture session and used student evaluations and final course grades as outcome measures. Student evaluations improved significantly over the course of the 3 semesters, and mean student grades improved enough to be meaningful to educators, though not statistically significant.

Prospective longitudinal studies are needed to evaluate the impact of using Gagne's theory in nursing education. In future studies, it may be useful to examine student demographic data and effect on learning, and to explore the impact of this type of instruction on study habits, licensing examination scores, and clinical practice. Little is known about the impact of Gagne's 9 events of instruction in the online environment in nursing courses. The 9 events of instruction could be operationalized in both synchronous and asynchronous online nursing courses.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table

Gagne's 9 Events of Instruction and Examples of Implementation in Course

Gagne's Event of Instruction	Activity to Produce Event	Examples used in Class
Gain attention	Present introductory activity that engages learners	Tapping on the microphone queued students that lecture was to begin. Class then began with presentation of media such as comic strip or YouTube video that related to the lecture topic
Inform learners of objectives	Give learner objectives for the class	Students presented with the objectives and how they are relevant to overall course objectives, followed by example of real-world application of the knowledge to be gained
Stimulate recall of prior learning	Present an experience that stimulates memory of prior learning	Questions and images were incorporated that reviewed related material and facilitated connection to prerequisite learning
Present stimulus	Deliver content	New content was delivered every 10-15 minutes. Stories, images, videos, mnemonic devices, and examples used to teach complex concepts
Provide learner guidance	Give learner examples	Students played word games, received lecture recordings, used handouts and reviewed sample questions as examples of expected learning
Elicit performance Provide feedback	Give practice activities Feedback should be immediate, specific and corrective	Case studies, simulations, and pictures used in group activities In-class question and answer sessions used audience response systems or simple raise of hands to provide feedback to entire group. Students received both instructor and peer feedback through group discussions
Assess performance	Present learners with post-assessment items	Minimal point quizzes occurred after lecture sessions, which allowed students and faculty to assess learning during course. Tests used to assess overall learning
Enhance Retention and Transfer	Give resources that enhance retention and facilitate transfer of knowledge	Group retests were given after individual student examinations. Students randomly assigned to groups of 4 or 5, and each group discussed the test questions with one another, using peers as resource and providing their own rationales for answers. This was intended to enhance retention and transfer of knowledge; students could discuss rationale, reinforcing new learning