Evaluating PowerPoint Presentations: A Retrospective Study Examining Educational Barriers and Strategies

Marian K. Nowak, Elizabeth Speakman, and Patricia Sayers

Abstract

AIM To assess faculty adherence to best practices for PowerPoint presentations in nursing school curricula.

BACKGROUND It is important to examine current educational methods and identify best educational practices that contribute to a high quality nursing curriculum.

METHOD A retrospective study approach was used. Data were collected from 1,735 slide presentations from five universities. PowerPoint® presentations were compared to a nine-point standardized scoring criterion for quality.

RESULTS Findings provide evidence that indicated classroom presentations often fall short of providing best educational practices.

CONCLUSION These findings can lead to greater faculty understanding of best practices and provide strategies to reinvent educational methods that engage students.

KEY WORDS PowerPoint – Interactive Nursing Education – Student Engagement

Nurse educators in academic settings find themselves competing with the many technological innovations available to millennium learners. With access to a plethora of social media, a static PowerPoint® presentation may leave today's university students unmotivated and disinterested (Berk, 2011). Although nurse faculty often rely on lectures guided by PowerPoint presentations, the quality of these presentations is rarely evaluated. A PowerPoint presentation is an easy-to-use educational tool, but as with any educational method it is only as effective as the presenter who has designed the slides.

The American Association of Colleges of Nursing (2014), the National Council of State Boards of Nursing (2008), and the National League for Nursing (2012) have challenged nurse educators to evaluate educational practices in schools of nursing. The time has come to examine current educational methods and identify best educational practices that contribute to a high quality nursing curriculum. The call for the intentional use of active, collaborative, and multifaceted learning strategies supports the need for applying new teaching and learning techniques that are grounded in evidence.

BACKGROUND

Developing high quality curricula requires the integration of many factors, one being the application of proven teaching strategies. Nurse

About the Authors *Marian K. Nowak, DNP, MPH, RN, CSN, FCN, is an assistant professor, Rutgers University School of Nursing-Camden, Stratford, New Jersey. Elizabeth Speakman, EdD, RN, CDE, ANEF, is associate professor and co-director, Jefferson Interprofessional Education Center, Thomas Jefferson University Jefferson School of Nursing, Philadelphia, Pennsylvania. Patricia Sayers, DNP, RN, is an assistant professor, Rutgers University-Camden School of Nursing. For more information, contact Dr. Nowak at m.k.nowak@rutgers.edu.*

educators support evidence-based practices in nursing care, yet they sometimes fall short in their ability to recognize best educational practices when constructing classroom PowerPoint presentations.

A 2011 survey by the IBOPE Zogby International research group found that PowerPoint presentations rank among the most dreaded presentation platforms. Adult respondents claimed they would rather forego "sex tonight" (24 percent), do their taxes (21 percent), go to the dentist (20 percent), or work on Saturday (18 percent) than have a close encounter with a PowerPoint presentation (Allen, 2011). College students have also been found to have negative reactions toward traditional PowerPoint presentations in their classes (Mann & Robinson, 2009).

Schools of nursing are in an ideal position to encourage, foster, and support transformative educational strategies by applying best educational practices to meet positive student learning outcomes and create a rich, engaging learning environment for students. However, nurse faculty often have the task of conveying complex ideas in a short amount of time and struggle to fit sufficient detail into each class. The result can be the production of PowerPoint presentations with too much information and extensive, detailed explanations, graphs, and charts. It is important to note that reading verbatim decreases learning retention and violates principles of cognitive load theory (Mayer & Johnson, 2008), and that text overload has been identified as a common problem in PowerPoint construction (Kalyuga, 2011; Kirschner, Kester, & Corbalan, 2011; Mayer, 2009).

The NLN Excellence in Nursing Education framework postulates that interactive teaching strategies, as part of a student-centered learning environment, promote effective learning outcomes (Speakman, 2009). We propose that well-constructed PowerPoint-guided lectures, combined with active learning strategies, can foster a spirit of inquiry and reinforce concepts essential to nursing such as critical thinking, professionalism, and communication. Our contention is that if simple guidelines are followed, the result can be a visually appealing slide show that engages students and helps them explore complex nursing concepts.

The focus of this research was to evaluate PowerPoint presentations currently in use at leading schools of nursing in accordance with best educational practices. This research offers insight into common errors and how to provide evidence-based interactive, professional presentations to enhance learning outcomes. Applying best practices to PowerPoint construction has the potential to transform common educational barriers into a rich, interactive educational experience.

We propose that well-constructed PowerPoint-guided lectures, combined with active learning strategies, can foster a spirit of inquiry and reinforce concepts essential to nursing such as critical thinking, professionalism, and communication. If simple guidelines are followed, the result can be a visually appealing slide show that engages students and helps them explore complex nursing concepts.

METHOD
Design

The research design was a retrospective study to examine best practices for PowerPoint construction. This study employed a retrospective review of data collected from presentations offered at five medium-sized urban universities. Data were extracted from 1,723 PowerPoint slides chosen from 106 PowerPoint presentations. Thirty-seven slide shows were randomly selected from the 106 presentations.

Randomization was achieved by a computerized random number selection process. Frequency data were calculated and analyzed by comparing the quality of PowerPoint presentations to the A+ PowerPoint evaluation instrument created by Vandervelde in 2006 (as cited in Basturk, 2008) and modified for application in this study. Scoring criteria were established by leading media experts (Halligan, 2007). Face validity was verified by a team of educational experts.

Assumed normality of distribution was satisfied since the data were extracted from university nursing schools in urban settings with similar student populations. The scale evaluated the PowerPoint presentations (PPPs) using nine criteria: correct cover slide labeling, evaluation of educational objectives, use of color template, use of animation or affective methodologies (e.g., movement, YouTube video, animation, sound, or pictures), number of slides, written text analysis, formatting for tables, evaluation of visual clutter, and APA references. (See Table 1.)

Data Collection

Data were retrieved from PPPs designed by nurse educators within the past four years. Content included cross-sectional representations of course work from undergraduate baccalaureate nursing programs, junior and senior level. All data were collected from open-source slide shows void of copyrighted material. Slides under review were retrieved from the following sources: nursing education web locations, nursing

presentations, and student PPP files. They were evaluated by comparing content to a standardized assessment instrument with proven validity.

RESULTS

Frequency data were analyzed by comparing the slides to the nine scoring criteria. The number of slides for professional presentations ranged from 15 to 75 for each continuous two-hour presentation. The median PowerPoint presentations contained approximately 40 slides for a one-hour presentation; 30 slides are considered a best practice (Scott, 2014).

Cover slides were evaluated for the inclusion of author, title, and date; 5.4 percent of the PPPs had incomplete information. The criterion for content analysis included a review of a maximum of eight words per bullet and six bullets per slide; 10 of the 1,723 slides met this criterion.

When evaluated for inclusion of educational objectives, 35.1 percent ($n = 37$) of the PPPs in this study included educational objectives; however, only 2.8 percent of the written objectives included correct objective formation according to Bloom's theory (Forehand, 2005). When comparing presentations offered by master's level nurses, a slightly higher compliance with the correct educational objective rate was noted. MSN presentations revealed a compliance of 61.2 percent ($n = 13$) compared to the doctorate level of 37.5 percent ($n = 24$). Overall, 35.1 percent ($n = 37$) presented correct objectives.

The other overall findings are as follows: 98 percent ($n = 1,723$) included a consistent color template; 28.1 percent ($n = 37$) included affective methodologies (e.g., animation, pictures, graphics or YouTube video); and 27 percent ($n = 37$) correctly cited references according to the APA standard.

LIMITATIONS OF THE STUDY

The results of this study reflect slides provided voluntarily by student respondents. Although the slides were randomly selected from the overall pull of submissions, the initial selection by students could not be addressed, which could possibly confound results.

Students in this study may have altered slides submitted for the research. Referencing the open source slides served as a quality check for alteration; however, two slide presentations ($n = 37$ slides) were not able to be verified by this methodology.

Further expansion of this study to wider geographic bounds could provide meaningful information. Confounding the study findings may include: generalizability (external validity), inclusion of slides from five universities, and student bias in selecting slides. In addition, frequency data were evaluated without correlations to the presenter's educational level; therefore, no data cleaning was applied.

While the results reported here are meaningful, replication and extension of the research with broader and more diverse samples are needed. Further expansion of this study to wider geographic bounds could provide additional meaningful information.

CONCLUSION

This study was intended to explore whether PowerPoint presentations offered in nursing curricula reflect current trends in best

Table 1: PowerPoint Planning and Best Practice Criteria

Planning	Consider addressing this in the planning: • Who is the target audience? • What do they already know about the material? • What do you want students to learn? • How will the classroom be set up? • What educational conditions exist (e.g., presentations prior to exam or semester break)? • Where will the presentation take place and under what conditions?
Criteria 1, **Cover Slide Labeling**	The first slide should contain: • Topic or title. • Name of the author. • Credentials of the author. • Date.
Criteria 2, **Educational Objectives**	Educational objectives should be: • Clearly stated in few words. • Placed toward the beginning of the presentation. • Use SMART or Bloom's format. (Note: Although there are many ways to construct educational objectives, Bloom's taxonomy or SMART educational objectives are commonly used.)
Criteria 3, **Color Template**	Incorporate questions within the slide show. The color used in the slides should be consistent. High-contrast colors with cool backgrounds (blue or green) are pleasing to the eye (Gabrielle, 2010).
Criteria 4, **Animation and Interaction**	Incorporate animation by developing: • Movable pictures. • YouTube videos. • Prezi program. • Movie-maker programs. • Music (interactive activities can be incorporated by placing show on construct mode to enable movement of pieces). • Use of audience response systems. • Interactive activity breaks.

Continued

Table 1: PowerPoint Planning and Best Practice Criteria, Continued

***Criteria 5,* Number of Slides**	• Include 20-30 slides in a half-hour time period (Scott, 2014).
	• Use consistent 30-point font
	• Use readable font styles (most readable include Arial, Verdana, Lucida Console).
***Criteria 6,* Written Text**	Consider incorporating:
	• The main concepts placed in bullet points.
	• 8 words/bullet.
	• 6 bullets per slide.
	• Instructors should provide ample time to review text.
	• White space should be provided (allowing for student writing).
***Criteria 7,* Table Formats**	The formatting of tables and graphs should follow APA guidelines to prevent violation of copyright laws.
***Criteria 8,* Visual Clutter**	Presenting information in "chunks" rather than incorporating many pictures, graphs, and text on each slide will provide better understanding of the material.
***Criteria 9,* APA**	APA referencing should be included on the last slide; this allows for furthering of the information source as well as crediting the authors (Bennett College, 2013).

practices for PowerPoint construction. The study suggests there is a significant deficit in faculty practices in select urban university nursing school programs when compared to best educational practice criteria. It supports the notion that current university programs often fall short of constructing educationally sound PowerPoint presentations. These findings are consistent with other research findings on this topic. More than 80 research studies (Berk, 2011) have identified an inconsistency in best practices and what is being offered in educational settings.

Applying nine criteria when developing classroom presentations will result in successful, high quality, interactive classrooms. An excellent learning curriculum warrants equally well-developed presentations based on evidence. This study successfully illustrates the need for faculty to rethink their presentations and consider applying best educational practices in order to engage students.

REFERENCES
Allen, M. (2011, June 21). *Death by PowerPoint? SlideRocket saves presentations!* [Web log post]. Retrieved from http://www.sliderocket.com/blog/2011/06/death-by-powerpoint/
American Association of Colleges of Nursing. (2014). *CCNE accreditation.* Retrieved from http://www.aacn.nche.edu/ccne-accreditation
Basturk, R. (2008). *Applying the many-facet Rasch model to evaluate PowerPoint presentation performance in higher education. Assessment & Evaluation in Higher Education, 33*(4), 431-444. doi:10.1080/02602930701562775
Bennett College, B. (2013). *APA style PowerPoint presentations.* Retrieved from http://libraryguides.bennett.edu/home/library-tutorials/apa-style-presentations
Berk, R. A. (2011). Research on PowerPoint: From basic features to multimedia. *International Journal of Technology in Teaching and Learning, 7*(1), 24-35.

Forehand, M. (2005). Bloom's taxonomy: Original and revised. In M. Orey (Ed.), *Emerging perspectives on learning, teaching, and technology.* Retrieved from http://epltt.coe.uga.edu/
Gabrielle, B. R. (2010). *Speaking PowerPoint: The new language of businesses.* Kirkland, WA: Insights Publishing.
Halligan, B. (2007, January 18). *Steve Jobs & Guy Kawasaki: Powerpoint best practices* [Web log post]. Retrieved from http://blog.hubspot.com/blog/tabid/6307/bid/1056/Steve-Jobs-Guy-Kawasaki-Powerpoint-Best-Practices.aspx
Kalyuga, S. (2011). Cognitive load theory: How many types of load does it really need? *Educational Psychology Review, 23*(1), 1-19. doi:10.1007/s10648-010-9150-7
Kirschner, F., Kester, L., & Corbalan, G. (2011). Cognitive load theory and multimedia learning, task characteristics and learning engagement: The current state of the art. *Computers in Human Behavior, 27*(1), 1-4. doi:10.1016/j.chb.2010.05.003
Mann, S., & Robinson, A. (2009). Boredom in the lecture theatre: An investigation into the contributors, moderators and outcomes of boredom amongst university students. *British Educational Research Journal, 35*(2), 243-258. doi:10.1080/01411920802042911
Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). New York, NY: Cambridge University Press.
Mayer, R. E., & Johnson, C. I. (2008). Revising the redundancy principle in multimedia learning. *Journal of Educational Psychology, 100*(2), 380-386.
National Council of State Boards of Nursing. (2008). *Nursing faculty qualifications and roles.* Retrieved from www.ncsbn.org/Final_08_Faculty_Qual_Report.pdf
National League for Nursing. (2012). *NLN Vision: Transforming research in nursing education* [NLN Vision Series]. Retrieved from www.nln.org/about/position-statements/nln-living-documents
Scott, S. (2014). *Welcome to best practices in PowerPoint.* Retrieved from http://www.slideserve.com/sera/welcome-to-best-practices-in-powerpoint
Speakman, E. (2009). *Student-centered interactive, innovative programs and curricula: Needed to achieve excellence in nursing education.* In Adams, M., & Valiga, T. (Eds.), *Achieving excellence in nursing education* (pp. 43-65). New York, NY: National League for Nursing.