

The Quality of Medical Resident PowerPoint® Presentations

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ABSTRACT

Objective: PowerPoint® software is the most common method of presenting information among physicians. As such it offers an opportunity to evaluate the technical quality of medical resident presentations and assess for change in quality over residency training. To date there is no literature on objective evaluation of the technical quality of PowerPoint® presentations by residents. This study sought to create a metric to evaluate the technical quality of medical resident PowerPoint® presentations, and measure changes in that quality during training.

Materials and Methods: A grading scheme for evaluating the technical quality of PowerPoint® presentations was generated after a literature review. In the spring of 2016 military family medicine residency program directors and chief residents were invited to participate. Participant programs submitted PowerPoint® presentations for evaluation. Presentations were de-identified and graded.

Results: A total of fifteen residency programs were contacted and two presentations solicited, with a total possible response rate of thirty PowerPoint® presentations. Five programs responded, with a total of nine presentations out of a potential thirty, giving us a 30% response rate. Of these PowerPoint® presentations the mean score out of 100 was 86% with a range of 78-92%.

Conclusion: Our grading scheme provides an objective method to evaluate the technical quality of PowerPoint® presentations. Resident PowerPoint® presentations are above an expected average level of technical quality. Our preliminary data suggest that training programs do not improve technical PowerPoint® presentation skills, and may not be interested in evaluation the technical quality of their resident presentations.

Keywords: Presentation, resident, quality

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INTRODUCTION

The ability to present information is a critical function for physicians. The content of these presentations is important, but so too is the technical quality [1,2,3,4]. Excellent content is wasted if it is not presented to the learner in an accessible way, and there is limited literature on objective evaluation of the technical quality of presentations by medical providers [2,3,4,5]. Since PowerPoint® software (Microsoft, Bothell, Washington) was introduced in 1984 it has become the most common method of

presenting medical presentations to groups of physicians, and as such offers an opportunity for objectively evaluating the technical quality of medical presentations [2,3]. While the American Academy of Family Physicians has a PowerPoint® Style Guide available free online which contains practical advice, like virtually all literature on the subject of technique it lacks specific parameters amenable to objective testing [1]. In light of this a literature review of technical specifics for PowerPoint® presentations.

Table 1. Literature basis for technical specifics for medical PowerPoint® presentations

Measure	Collins 2004 ¹	Tarpley 2008 ²	Hughes 2012 ³	Castillo 2011 ⁴	Literature Boundaries
Density	6 lines per slide, 6 words per line	7-10 lines of text per slide	4 bullets per slide, 4 words per bullet	4-5 bullets per slide or 7 lines of text	Minimum: None Maximum: 10 lines per slide
Spelling	Use Spell Check®	Use Spell Check®	silent	Use Spell Check®	Use Spell Check®
Color	A) Contrast text and background B) Avoid red and green	A) Contrast text and background B) Avoid red on blue or blue on red	silent	A) Contrast text and background	A) Contrast text and background B) No red or green, red on blue/blue on red
Font	Sans serif	Sans serif	Silent	Simple – includes examples of serif and sans serif	Sans Serif
Font Size	Minimum: 24 point Maximum: 36 point (Based on audience size)	Minimum: 20 point No Maximum	Minimum: 24 point No Maximum	Silent	Minimum: 20 point

was completed and is summarized in Table 1. The final column is the collation across these articles of boundaries from which we might draw specific, measurable parameters with which to grade the technical quality of PowerPoint® presentations

MATERIALS and METHODS

This is a cross-sectional analysis of resident PowerPoint® presentations carried out in the spring of 2016. Our research objective was to determine the technical quality of PowerPoint® presentations given by family medicine residents, assess for a measurable difference between post graduate year one residents' (PGY1) and post graduate year three residents' (PGY3) presentations, and assess the prevalence of non-academic references. We emailed every military family medicine residency program director and chief resident an invitation to participate. Two reminder emails were sent in an effort to increase response rate. We asked for a de-identified version of their program's next intern and next third

year resident PowerPoint® presentation. "The next" was solicited in an effort to randomize and to avoid cherry-picking presentations. Presentations that were returned with identifying information were de-identified and assigned a random label prior to assessment.

A low resolution scale was used to evaluate reference quality: poor = no references, subpar = references included inappropriate sourcing (like Wikipedia), good = proper references. The purpose of tracking this was to quantify the use of non-academic sources. Reference quality also acts as a quick surrogate for content quality.

The technical quality of the PowerPoint® presentations was graded using a novel low-resolution internally validated scale (Table 2.) This scale was based on the literature review summarized in Table 1 and internally validated by family medicine faculty who had no other involvement with the study. Scores were collected and evaluated in aggregate, as well as between intern and third year presentations.

Table 2. Point deduction matrix

SPELLING: Spell-check® slides. -10 points for a spelling error caught with Spell-check®	
Information Density:	
Too busy = > 60 words:	
On one or two slides:	-2 points
On many slides:	-4 points
On most slides:	-6 points
Illegible = > 80 words:	
On one or two slides:	-4 points
On many slides:	-6 points
On most slides:	-8 points
Color Scheme: Red or Green used	
On one or two slides:	-2 points
On many slides:	-4 points
On most slides:	-6 points
Subjective sense of poor contrast on more than half of slides: -5 points	
Font:	
Type: Font other than Sans Serif:	
On one or two slides:	-2 points
On many slides:	-4 points
On most slides:	-6 points
Size: Font less than 20 point used:	
On one or two slides:	-2 points
On many slides:	-4 points
On most slides:	-6 points

RESULTS

The Results are presented in Table 3. A total of fifteen residency programs were contacted, with a total possible response rate of thirty PowerPoint® presentations. Of these possible fifteen programs, five responded, with a total of nine presentations out of a potential thirty, giving us a 30% response rate. We received five PGY1 presentations and four PGY3 presentations. Because of the low response rate we used descriptive statistics to evaluate our data. The

PowerPoint® presentations were evaluated from the five programs that participated; the median score was 86% with a range of 78-92%. There was no significant difference between PGY1 and PGY3 scores. Overall quality was higher than anticipated and only one of nine presentations used inappropriate references (Wikipedia in this case). The three most common point deductions across all presentations were for increased word density, font size, and text color.

Table 3. PowerPoint® Scores based on point deduction matrix

	PGY1	PGY3	Average
Median	86%	86%	86%
Range	82-92%	78-91%	78-92%

A total of five PGY1 presentations and four PGY3 presentations were received.

DISCUSSION

The strength of our study is that it is the first evaluation of physician PowerPoint® presentation technical quality, and provides both an objective grading scheme for evaluating PowerPoint® presentation technical quality and a benchmark against which other presentations may be compared.

Interestingly the average scores were significantly higher than predicted. This may be the consequence of the study population: medical residents have seen hundreds, if not thousands of PowerPoint® presentations throughout the course of their education. This exposure has given them firsthand experience in which technical presentation styles are effective and which are not. However our preliminary data also suggest that the technical quality does not improve over the course of training, which could be evidence that residency programs do not focus on teaching residents how to present information to colleagues in this format.

The obvious limitation of our study is our low response rate. However, our low response rate is in itself a remarkable and valuable result. Presentations such as PowerPoint® are a nearly daily event in the life of residents and faculty. It is quite remarkable that educational programs were not more interested in a metric for evaluating the technical quality of their residents' presentations. While we do not claim that technical quality is equal to the educational value of content or presentation style, we do believe educational content is without value if it is presented in an illegible format. Technical quality is required to unlock the value of content, and is therefore worthy of formal evaluation. Our preliminary results clearly require more data, and our response rate suggests that exploration into the perception of why and how presentations such as PowerPoint®

are used and evaluated in graduate medical education is warranted.

Our grading scheme provides an objective method to evaluate the technical quality of PowerPoint® presentations. Resident PowerPoint® presentations are currently at an above-average level of technical quality, and our preliminary data suggest that graduate medical education does not improve the technical quality of PowerPoint® presentations over the course of training. Program directors and chief residents may not perceive the value of technical evaluations of their residents' PowerPoint® presentations.

CONFLICT of INTEREST STATEMENT

The authors declare no conflict(s) of interest. No funding was sought or received for this research.

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Exempt Status was approved through the Nellis Air Force Base Institutional Review Board. IRBNet ID: 390763-1

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