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TO THE POINT: HOW MANAGEMENT FACULTY USE POWERPOINT SLIDES AND QUIZZES

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This exploratory study examines U.S. management faculty usage of two types of supplements: PowerPoint (PPT) slides and quizzes. Results suggest the majority (67%) of experienced management faculty frequently employ PowerPoint in their classes. However, they do not see PPT basic slides provided by the publisher as very central to getting their message across. In using PPT they tend to personalize publisher slides to cover issues discussed in class and to embellish slides with visuals and videos for interest. Primarily they encourage their students to use PowerPoint slides provided on the instructor's website to review lectures and chapter material to prepare for exams. Half of our study's management professors used quizzes sparingly or not at all. When quizzes were used, professors developed their questions more often based on material presented in class as well as from the text. Further research investigating the reasoning behind faculty's choices is warranted.

Keywords: PowerPoint slides, management faculty, management education, quizzes

Largely gone are the days when most college professors and instructors come to class with a chalk chuck in hand to deliver lecture notes on slate boards. This is the age of the smart classrooms linked to the Internet and wired for "clickers" (Craig & Amernic, 2006; Debevec, Shih, & Kashyap, 2006). A mainstay in the move away from chalk talks has been the use of PowerPoint (PPT) in presentations. PPT usage is ubiquitous. Tens of millions of PowerPoint presentations are given world-wide every day (Simons, 2005).

Whether PPT is a truly beneficial aid in the classroom is a question still being debated. It has been dubbed anything from "a wonder pill for flabby lectures" (Jole, 2000) to an important help in gaining students' attention beyond lecture alone (Szabo & Hastings, 2000). PPT has been recognized (and criticized) for its entertainment value (Szabo & Hastings, 2000), while being preferred by students as valuable in helping them understand material (Nowaczyk, Santos, & Patton, 1998). While the arguments pro and con for PPT's effectiveness rage on, it seems undeniable that PowerPoint remains virtually universal in its use.

Yet systematic study of PPT's actual usefulness in helping students learn is in its infancy, especially in colleges of business (James, Burke, & Hutchins, 2006). Since it is the instructor who decides which pedagogical aids such as PowerPoint and quizzes to employ in the classroom, it would be worthwhile to gain a greater understanding of their perspectives on the utility of these tools. Our study focuses on the views of management professors in colleges of business across the nation with regard to PowerPoint and quizzes with an eye toward improving instructional outcomes.

LITERATURE REVIEW

A number of studies have been conducted focusing on student perspectives on various textbook supplements. For example, Clarke, Flaherty, and Mottner (2001) studied the relationship between marketing students' perceived

importance of fourteen educational technology tools and perceived outcomes, such as perceptions of overall learning, ability to get a job, and expected performance on the job. One of the educational technology tools related to this study was online lecture outlines, including PowerPoint lecture outlines. The authors concluded that PowerPoint lecture outlines positively influenced students' perceived outcomes. Atkins-Sayre, Hopkins, and Mohundro (1998) found that students believed PPT slides maintained their interest and improved their understanding and recall of information. Another study examined instructional technologies and found that PowerPoint presentations were significantly related to pedagogical effect, but not to perceived learning performance or grade outcomes among marketing students (Young, Klemz, & Murphy, 2003).

In comparing the effectiveness of PowerPoint to overheads, a study by Bartsch and Cobern (2003) indicated students believed they took away more from lectures when they were accompanied by PowerPoint. The same study also found that students scored better on exams with the use of the basic PPT rather than the enhanced version of PPT with additional visual and video materials embedded. In contrast, Rankin and Hoas (2001) looked at PPT presentations' effects on students in multiple sections of an introductory economics course. They compared the results of students in one section in which PPT was employed with another section using PowerPoint. No significant differences in learning outcomes were identified.

The studies noted above demonstrate that the evidence on the impact of using PowerPoint is mixed. While some studies have found that it is a positive influence and enhances learning, other studies have found the tool to be a deterrent to educational success (Cyphert, 2004; Harris, 2004; James, Burke, & Hutchins, 2006; Jones, & Bowen, 2004; Wineberg, 2003). In terms of student perceptions of PowerPoint, because of programs like Moodle, Blackboard, and Web CT, many professors place their PowerPoint slides online (Frey & Birnbaum, 2002). This practice has raised the fear that such postings result in students perceiving less of a need to attend class. Research dealing with this concern has produced mixed results as well. Frey and Birnbaum (2002) concluded that attendance in courses where PPT slides were posted was down by 15%. Szabo and Hastings (2000), however, found just that such postings improved student involvement. Specifically, using and posting the PowerPoint increased attendance, and students overwhelmingly believed that the slides were important aides in noted-taking and study.

One of the few PPT studies looking at students and professors across disciplines in colleges of business was conducted by James, Burke, and Hutchins (2006). The findings of their research are also a good summary of previous studies. They concluded:

- Instructors are more favorable in their impressions of the learning benefits of PowerPoint than are students;
- Instructors do not believe that PPT Internet postings have a negative effect on class attendance, while students do feel that posting slides on the Internet will decrease attendance;
- Both instructors and students perceive that PowerPoint slides have a positive impact on taking of notes and studying for exams and quizzes.

As far as PPT studies specifically involving the management discipline, Peluchette and Rust (2005) studied factors affecting management faculty's classroom technology preferences. Here the popularity of PPT and black/white boards was second to the "other" category, wherein respondents most often identified the use of overheads. One other investigation identifying the management discipline specifically was a report by Burke, James, and Ahmadi (2009) on business faculty from three colleges regarding their use of PowerPoint. They found that almost one-third did not use PowerPoint, while over 40 percent were labeled heavy users of the technology. The students in their study reported that they saw PPT as more effective in theory-heavy courses, particularly management, and less useful in quantitatively oriented courses such as accounting.

Taken together, these studies seem to indicate the possibility that management faculty's use of PPT may not be as widespread as by college faculty in general. There also appears to be a possible divergence in the views of management faculty from those of their students regarding the usefulness of PowerPoint, with students believing PPT would be useful in presenting management concepts.



In contrast to the mixed results regarding the learning efficacy of PPT, research on the use of chapter quizzes over textbook material was more consistent. Most studies identified involved psychology students (e.g., Brothen & Wambach, 2001; Gurung, 2003). While certain studies found some enhanced results from quizzes, a sampling of others indicates taking chapter quizzes does not improve exam performance. In a study by Gurung (2003), students felt practice test questions and online quizzes were most helpful in learning textbook material and in preparing for exams. Nevertheless, systematic review of the test scores revealed no significant increase in test performance. Another study by Brothen and Wambach (2001) confirmed this finding. Completing quizzes and looking up quiz answers did not improve exam scores for psychology students. The authors concluded that the students were using computerized quizzes to learn the material in lieu of reading and studying the textbook. The net effect was lower exam performance. In another study involving psychology students, Ryan (2006) examined the effect of giving chapter quizzes at the beginning of class. While attendance and punctuality improved, grades on the exams did not.

The lone management faculty study regarding perspectives on quizzes we identified was by Bacdayan (2004). He found that 53% of faculty respondents had used quizzes within the latest three-year time span. Most (64%) used only announced quizzes. Respondents who did not use quizzes expressed some concern that the practice failed to treat learners as adults. Management faculty, quizzers and non-quizzers alike, saw quizzes as less effective in motivating learning than other techniques such as graded homework, interesting topics, and making class fun.

In review, since both PowerPoint slides and quizzes are now provided by textbook publishers on a routine basis, many professors find it convenient to use them and post them online. The number of studies exploring business instructors' views on their usefulness is scant, however. Fewer still are studies looking at management faculty use of these aides. Thus there are substantial gaps in the current knowledge base regarding the efficacy of these well-known pedagogical tools with regard to their use by business management faculty. Filling these gaps could assist new faculty in making decisions regarding their employment of these aides. Additional knowledge could also inform existing faculty about current practice, moving them beyond mere assumptions as to efficacy and commonality of use. To this end, this study surveyed business management faculty's perspectives and practices regarding employing PowerPoint and quizzes in their courses.

STUDY

Data were collected through an e-mail survey process. E-mail addresses were collected from U.S. university websites of management faculty. A total of 3,708 e-mails were sent; 758 were returned for various reasons such as incorrect e-mail address or SPAM filter rejection, resulting in 2,950 delivered e-mails. Usable responses totaled 120 for a response rate of 4.1%.

Respondents were asked a series of questions about their use of PowerPoint slides and quizzes for their courses. Faculty were first surveyed about whether PPT slides were used in class or made available in the course. Respondents indicating yes to making the slides available were then queried regarding the methods used to provide student access to the slides. Participants were next asked to rate the importance of PowerPoint slides and, then, how they would prefer the slides from the publisher to be designed. The last question on slide-usage asked faculty what use they encouraged their students to make of the slides.

To explore the use of chapter quizzes, respondents were queried about whether quizzes on the chapters in the textbook were assigned, and if so, to what degree quizzes were used in the course. Respondents were then asked for the source of quiz materials.

Table 1 provides the demographic profile of the faculty sample. Slightly more than two-thirds of the respondents were male (67.8%). The sample was composed primarily of professors with seniority. More were full professors (30.5%), while associate and assistant professors made up the largest share of the remaining categories, 28.8% and 24.6%, respectively. Correspondingly, the sample was dominated by experienced teachers. Cumulatively, over two-thirds of the respondents (67.2%) had more than 10 years of teaching experience. Thirty-seven percent had more than 20 years of teaching. One quarter (24.8%) of the respondents represented schools with enrollments of fewer than 5,000

students. Participants from universities with 5,000 to 9,999 and from larger institutions with more than 20,000 were equally represented in the sample (23.1% each).

Table 1
Sample Characteristics

Demographic Variable	Classification	Percentage
Gender	Female	32.2%
	Male	67.8%
Current Rank	Lecturer or Instructor	16.1%
	Assistant Professor	24.6%
	Associate Professor	28.8%
	Full Professor	30.5%
Years Teaching	5 years or less	8.4%
	6-10 years	24.4%
	11-15 years	17.6%
	16-20 years	12.6%
	More than 20 years	37.0%
Institution Enrollment	Less than 5,000	24.8%
	5,000-9,999	23.1%
	10,000-14,999	14.5%
	15,000-19,999	14.5%
	20,000+	23.1%

Table 2 offers detail on the level of courses taught by respondents. The majority of courses were taught at the junior level, 53.7%. Senior level courses accounted for 28.4% of the sample, sophomore level courses 15.8%, and freshman level courses only 2.2%. This appears to reflect the practice of structuring management major curriculums where few business courses are taught at the freshman level and only basic core business courses are taught at the sophomore level.

Two-thirds (66.9%) of management faculty sampled indicated they used or made available PowerPoint slides. Table 3 displays the methods provided to students to access the slides for those respondents employing them. (Note the percentages do not add up to 100% because some instructors make the slides available in more than one way.) The overwhelming majority of management faculty (87.6%) used their website to provide student access. Slightly more than half (51.7%) of the management professors post the slides on Blackboard or Web CT. Class handouts or the publisher's website were next in popularity, though used much less frequently than categories just noted (13.3% each). Using PPT slides solely with class lecture amounted to about 10 percent (10.8) of the respondents.



Table 2
Level of Course

Level	Frequency	Percentage
Freshman	4	3.3%
Sophomore	10	8.3%
Junior	51	42.5%
Senior	36	30.0%
Graduate	19	15.8%

Table 3
Access to PowerPoint Slides

Access	Frequency	Percentages
Blackboard/WebCT	62	51.7%
Instructors website	104	86.7%
E-mailed to students	3	2.5%
Class lecture only	13	10.8%
Provided as handouts	16	13.3%
From another student	2	1.7%
Publisher's website	16	13.3%

Just how important are PowerPoint slides to management professors? Slightly more than one-third (35%) claimed PPT was very important to them, while more than 20 percent (21.2%) indicated PowerPoint was not important at all. Cumulatively, a minority (44.5%) stated they saw the slides as important to some degree to them. (See Table 4)

Table 4
Importance of PPT Slides

Level of Importance	Frequency	Percentages
Not important	25	21.2%
Unimportant	13	11.0%
Neutral	15	12.7%
Important	23	19.5%
Very important	42	35.0%

For faculty using publisher’s PPT slides, the vast majority of management faculty (75.0%) preferred slides that instructors could modify to their own purposes. Nearly half (47.5%) favored having the capability of including videos such as television advertisements or interviews with professionals. A good many (37.5%) wanted slides with material from the publisher not already included in the textbook. A similar number (36.7%) wanted a straight-forward outline of text material. Least popular (24.2%) were photos, advertisements, and other visuals. Table 5 outlines these preferences in greater detail.

Table 5
Design of PPT Slides

Design	Frequency	Percentages
Modified by instructor to fit material professor presents	90	75.0%
Present an outline of material from textbook	44	36.7%
Photos, advertisements, visuals	29	24.2%
Videos, such as television ads or interviews with professionals	57	47.5%
Material added by publisher not included in textbook	45	37.5%

For faculty employing PPT slides in their courses, Table 6 displays ratings of various uses faculty encouraged students to make of the slides. A five-point scale of “not at all” (1) to “all of the time” (5) was used to measure respondents actions. The highest rated use (mean of 3.77) was to aid the student in reviewing lecture material. This was followed closely by helping the student grasp a particular chapter (mean of 3.73). Using PPT slides to review for exams received a mean rating of 3.56, followed by assisting the student to prepare for an upcoming lecture with a mean of 3.22. Lowest rated use was to help prepare for quizzes (mean of 3.01).

Table 6
Faculty Encouraged Use of PPT Slides

Use	N	Mean+
Study for exams	93	3.56
Study for quizzes	91	3.01
Review chapter material	94	3.73
Review a lecture	93	3.77
Prepare for a lecture	94	3.22

Note. *5-point scale: 1 = not at all; 5 = all the time



The survey then turned to issues involving the use of quizzes by management faculty. Table 7 presents survey findings for faculty using textbooks with their courses. A plurality (30.8%) indicated they did not use quizzes over text material. The next highest practice by respondents (23.1%) went in the opposite direction: they gave quizzes on all assigned chapters. Roughly equal were the practices of giving only a few quizzes (19.7%) or giving quizzes on a majority of assigned text readings (17.9%). A small minority (8.5%) indicated they gave quizzes over about half of chapters assigned.

Table 7
Faculty Preferences on Assigning Quizzes over Textbook Chapters

Quizzes	Frequency	Percentages
There are no quizzes on textbook material	36	30.8%
Quizzes are given on all the chapters	27	23.1%
Only a few quizzes are given on textbook material	23	19.7%
Quizzes are given on most of the chapters	21	17.9%
Quizzes are given over about half of the chapters	10	8.5%

Table 8 identifies management faculty's preferences for source material for those respondents using quizzes in their courses. A strong plurality (39.5%) of participants preferred to base quiz questions on material both from the textbook and in-class content. Second in popularity (25.6%) was the use of publisher test banks to prepare quizzes. A sizeable number (18.6%) chose to develop their own quizzes from the textbook. Substantially less popular were approaches mixing questions from test banks with instructor-created items (8.1%), using test bank questions modified by the instructor (5.8%), and questions developed solely from in-class content (2.3%).

Table 8
Faculty Source Material for Quizzes

Source	Frequency	Percentages
Test bank supplied by publisher	22	25.6%
Textbook material	16	18.6%
Material not in textbook but presented in class	2	2.3%
Material from text and material presented in class	34	39.5%
Modifying questions in test bank supplied by publisher	5	5.8%
Questions from textbook and ones created by professor	7	8.1%

DISCUSSION

This study surveyed management professors in the U.S. on their preferences and practices regarding the use of PowerPoint and quizzes in the conduct of their classes. At 4.1 percent, the response rate, though modest in absolute numbers for a nation-wide sample, was not unusual for survey research. Nevertheless, colleges of different sizes were balanced in their representation within the sample. Participation was higher from more senior faculty. Perhaps younger, less senior faculty take more for granted the use of technologies such as PowerPoint in the classroom and felt less inclined to respond to practices they may view as commonplace. On the other hand, the sample makeup was dominated by professors with many years of experience in the classroom. Their willingness to spend time completing the survey may reflect a continuing interest in sharing what works and what doesn't in pedagogy.

It is claimed that more than 400 million iterations of PowerPoint have been loaded onto computers around the globe (Simons, 2005). Management professors' application of PPT is apparently no exception to the popularity of this tool. In our study a strong majority employ it in the classroom (66.9%). This is an identical level of usage (67%) to that found by James, Burke, & Hutchins (2006) in their study of three business schools. The ubiquity of the Internet was also displayed in the survey, with it being the widely preferred medium for providing student access to PPT. It appears that the widespread availability and familiarity of the Internet to students and faculty alike, as well as the convenience as these communication tools have become more universal may be contributing to the frequency of PPT use. It is simply more convenient now for professors, otherwise pressed for time, to make such pedagogical aids available with the confidence that every student can access them.

Wide-spread application and convenience of access, however, does not necessarily indicate how valuable PPT is to effective pedagogy in the eyes of the professor. For management faculty, the actual usefulness of PowerPoint in delivering higher education appears somewhat limited. One in five say PPT is not important in any way for their courses. Further, a majority of management professors in our study did not consider PowerPoint particularly important. Only 35 percent claimed the tool was very important in what they do. The reasons behind their opinions were outside the purview of our survey, but this is consistent with Peluchette and Rust's (2005) finding that management faculty were not particularly enamored with PowerPoint as a primary pedagogical vehicle. Nevertheless, one might wonder if some professors may be missing a bet with this tool, properly employed, since at least one recent study concluded that, from the students' view, PPT may actually be more useful in theory-laden courses in business disciplines, in particular, management (Burke, James, & Ahmadi, 2009).

On the other hand, management faculty's views of PPT's relative pedagogical unimportance when compared to faculty from all business disciplines, do seem to be more in alignment with some research on students' perceptions of the usefulness of PPT in learning outcomes across courses (James, Burke, & Hutchins, 2006). Students saw PPT as not particularly powerful in helping them learn material, but did find it most effective in management courses. James, Burke, and Hutchins (2006) concluded that business faculty across all disciplines tended to be more optimistic about PPT as an instructional tool than their students.

How to resolve this seeming disparity? Perhaps relative to other business disciplines, PPT is more useful in management courses to convey theoretical concepts. But in absolute terms, PPT may not be particularly effective as a pedagogical tool, particularly where more quantitative content is involved. This give and take, once again, harkens back to the ongoing general debate about PowerPoint's effectiveness noted in our discussion of other research. In the end, we suspect it gets down to how well the tool is used by the presenter and that it will not compensate for poorly executed instructor performance in the classroom.

Our survey indicates, perhaps unsurprisingly, that management professors, when they do use PPT, strongly prefer the capability to customize the publisher slides' content, bending it to what they wish to emphasize in the course. Slightly less than half (47.5%), like to use PPT enhanced with videos, TV ads, or interviews with professionals. Roughly one in four still want the capability for visuals for their slides in addition to hard content. On a cautionary note, faculty in these latter categories might want to note Bartsch and Cobern's (2003) conclusions that such add-ons may actually be distractions that diminish information transfer.



Apparently there is a balance to be struck on slide design between novelty to capture and maintain attention and keeping it simple enough that the primary content is still conveyed. Going forward, the idea of incorporating enhancements to PowerPoint presentations in an attempt to provide novelty to today's student may be reduced to more of a goal of achieving some sort of minimum cognitive stimulus as generations of students increasingly become inured to even the most cutting edge communication tools.

As to the purposes to which management faculty wish their students to put PPT, our survey indicated faculty primarily wanted the students to review slides as an adjunct to their lectures and readings, as well as an aid in getting ready for exams. Less popular were asking students to use PPT slides to prepare for an upcoming lecture or to study for quizzes. Clearly management faculty see PowerPoint not as the main event in their pedagogical endeavors, but more peripheral, especially when it comes to using PPT for quiz preparation.

The lack of popularity for using PPT as preparation for quizzes may be due, in part, to the lack of popularity among management faculty in our study of using quizzes, themselves, as a pedagogical tool. Consistent with Bacdayan (2004), almost one-half (50.5%) of our sample of management faculty either did not use quizzes at all or used them rarely. Coupling this finding with a preferred use of PPT slides involving videos, TV ads, or interviews with professionals to add color to their class-content, there seems to be a strong emphasis on trying to make class interesting. Nevertheless, where quizzes are used, respondents generally preferred to base questions on both textbook and in-class topics. This indicates that quiz use was not purely a matter of convenience—using the publisher's text bank—but involved instructor effort to design questions covering class content as well.

Other research questions beyond the scope of our survey remain for future research. Comparing faculty's views on the relative merit of PowerPoint versus other pedagogical techniques would be useful. For quiz use, the purposes instructors pursue in using them need further attention. For both, comparisons of management faculty practices with those of other business discipline could be instructive as well.

Overall, some caution should be maintained in drawing conclusions from our nation-wide survey of management faculty. While different size schools were relatively well represented, the overall sample size is restricted, reflecting only an average response rate for surveys of this sort. Generalizability may be further impacted by the fact that our study only targeted management faculty. In addition, the survey design did not specifically investigate the increasing use of hybrid and on-line courses. Given the increasing popularity of these course delivery methods, the accompanying complications of testing on-line could impact the frequency of using chapter quizzes.

Because practically all publishers provide PPT slides and test banks with their textbooks, it is much easier for instructors today to employ these pedagogical tools. This study sought to shed some light on management faculty practices with regard to these teaching tactics. As with other faculty, experienced management faculty often employ PowerPoint in their classes. However, they do not see basic slides provided by the publisher as central to getting their message across. They do, however, want to make the most of PPT if they are going to use it.

Management professors prefer to expand PPT content to cover issues discussed in class and to embellish slides with visuals and videos for interest. Primarily they encourage their students to use PowerPoint to review lecture and chapter material to prepare for exams. Much less popular with management professors are quizzes. Where used, they develop their questions more often from material presented in class as well as from the text. Further research investigating the reasoning behind faculty's choices is warranted. Neither PPT nor quizzes, however, can fully compensate for ill-prepared faculty. PPT and quizzes aside, the premium placed on skills wielded by instructors in delivering an effective learning experience may well escalate as student preparation for learning declines with more taking part-time employment (Dutton, & Gokcekus, 2002) in the face of smaller budgets and less financial aid.

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