USING AND SHARING ANIMATED POWERPOINT PRESENTATIONS FOR TEACHING OPERATIONS MANAGEMENT

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ABSTRACT

This paper examines the use of PowerPoint animations in teaching operations management techniques and concepts and describes the creation of an international electronic exchange for these teaching tools. The benefits of using the animations are discussed from the perspectives of students and faculty. While not available at the time of this submission, data indicating the value of using PowerPoint animations will be presented at the conference. The benefits to faculty of utilizing the exchange are also discussed.

INTRODUCTION/LITERATURE REVIEW

This paper examines the use of PowerPoint animations in teaching operations management techniques and concepts and describes the creation of an international exchange for these teaching tools. The benefits of using the animations are evaluated from the perspectives of students and faculty, while the benefits to faculty of utilizing the exchange are discussed.

The Baby Boomer Generation has witnessed tremendous evolution and innovation in presentation technology. Additionally, unlike today's PC-driven presentation technologies, in the earlier years the technology was mainframe-based and required special printers and plotters. The cost of the technology required to produce high quality presentation materials at that time was on the order of $50,000 (Bird, 1986). The cost and complexity of using this technology has declined precipitously over the years. Many faculty have witnessed this entire spectrum of technologies and adapted their teaching to them over their careers.

The contribution of PowerPoint presentations to the learning environment has received some attention in the literature over the past decade or so. James et al (2006) examined student and faculty perceptions of the effectiveness of using PowerPoint presentations in business courses. They found that well prepared, targeted PowerPoints were perceived by both faculty and students to improve learning in a variety of ways. Interestingly the faculty's perceptions of the benefits were consistently greater than those of the students. Ruffinì (2009) focused specifically on PowerPoint animations. His results are similar to James et al (2006) in that properly designed PowerPoint animations that are tied to learning objectives were found to be effective teaching tools. Likewise, he warns that poorly conceived and constructed PowerPoint animations can be distracting. Mahar et al (2009) studied the effect of animating text and diagrams into presentations versus static presentation materials. They found that students had better recall of the information when static slides were used. This was attributed to the longer exposure to all
the material on a slide when static presentations are used versus only seeing a portion of it at a time when animation is used.

Cournoyer (2012) provides useful "best practices" to follow when constructing PowerPoint animations. Cournoyer most important tip is to remember the KISS (Keep It Simple, Stupid) philosophy when developing presentations. Just because you have the capability to animate something, doesn't mean you should. He recommends sticking primarily to the following four animation techniques: appear, fade, wipe, and zoom. On the flip side, it is also important to avoid negative aspects of PowerPoint presentations. Paradi (2011) surveyed learners to determine the most annoying aspects of poor PowerPoint presentations and found the five most common complaints (with % of respondents citing) to be: presenters reading the slides (74%); full sentences instead of bullet points (52%); text too small to read (48%); hard to see due to poor color choices (34%); and overly complex diagrams or charts (26%). Numerous other articles and websites provide useful tips on how to do specific things with PowerPoint animation.

While the studies' methodologies and some of their specific results have varied, the general conclusions reached are very similar. PowerPoint presentations and, in some studies, PowerPoint animations have been found to be capable of contributing positively to student learning. However, in order to actually make a positive contribution to student learning the PowerPoint presentations must be targeted, well prepared, and should not use animation excessively. These studies found that poorly prepared PowerPoint presentations can be distracting and actually detract from learning. It would seem the same could be said of presentations that don't employ PowerPoint.

While the capabilities of the presentation technologies available to faculty have changed tremendously over the decades, the extent to which faculty share their personally prepared teaching materials has changed little. Typically, faculty don't share teaching materials they have prepared themselves, unless they are receiving compensation for sharing them (such as through publication of textbooks and supporting materials). Possible reasons for this include:

- their teaching materials are intellectual property and, similar to their research, they have been trained to protect their intellectual property;
- baby boomers tend to be competitive and sharing the fruits of their labor with others would be akin to aiding and abetting the competition;
- earlier media used for teaching were dominated by rigid/hardcopy formats and, as such, difficult to convey across the country/world; and
- different faculty members have different teaching styles and what works well for one doesn't necessarily work well for others.

The authors have developed a plan for an international exchange to foster sharing of PowerPoint animations.

**THE PLAN**

The authors have decided to embark on a journey to change the course of history by reaching out to colleagues across the country and world to share teaching materials. In particular, PowerPoint animations can be time consuming to create and it simply doesn't make sense for each individual
faculty member to create all of their own animations, often duplicating a great deal of effort. Thus, we are asking for faculty to break the mold and contribute their best PowerPoint animations to an Operations Management PowerPoint Animation Exchange. These animations are not those that merely animate text into a presentation. They are targeted presentations that primary incorporate animations of involved examples of quantitative techniques, images, and graphs.

This exchange was launched at the 2011 meeting of the Midwest Decision Sciences Institute (MWDSI) and the 2011 meeting of the Decision Sciences Institute (DSI). It will continue as long as there is interest (when the authors retire, the "franchise" will be passed on to others). The best contributions (as selected by the authors) will be presented annually at the DSI meetings by their creators and all contributed animations will be made available to all exchange participants.

THE BENEFITS

The primary objective of this effort is to help colleagues across the world improve their teaching through the use of PowerPoint animations made available to them through this exchange. Some of these animations help to explain concepts that would be difficult to explain without the use of animation while others error proof the coverage of complicated quantitative technique examples. In many cases these animations will be capable of being used "as is" and in other cases the individual user may choose to tailor them to their particular teaching style. Secondary objectives include: (1) low cost; (2) efficiency; and (3) facilitation of on-line/distance learning.

This approach to sharing PowerPoint animations will enable faculty to have access to high quality PowerPoint animations without having to purchase a particular textbook and its supplements. Thus, faculty will have the flexibility to pick and choose what PowerPoint animations work best for their particular situation independent of their textbook adoption. Additionally, the opportunity cost associated with switching texts will be lowered as faculty will no longer be as tethered to a particular set of supplemental materials as they were before this plan was implemented.

The overall efficiency of the process of creating these animations will be greatly improved through sharing instead of every individual having to create all of their own material. While, presumably, individual faculty members will still want to spend some time tailoring these PowerPoint animations to their particular style, the investment in time will be substantially reduced while the quality of the resultant product will be improved.

These animations also serve as 24/7 "tutors" for the students. As they study, for example, how to determine the probability of completing a project by its due date, they can refer to a PowerPoint animation of the computation at any time of day or night. And, every step in the process and every computation is always correct.

As more and more courses are being transitioned to on-line/distance learning, many of these PowerPoint animations can be used "as is" or with voice-over instructions in an on-line/distance learning environment. This should help to lower individual faculty members' cost of entry into this rapidly growing segment of higher education.
All sharing of these animations will acknowledge their creators. Each creator will retain the intellectual property rights to their creations (to the extent permitted by law). This will enable them to have their material withdrawn at any time, for any reason. Also, if a book publisher should be interested in their creation, any compensation for their use in a textbook's supplementary materials would go directly to their (earthbound) creator(s).

As Operations Management faculty, we are supposed to be efficiency experts. As such, this approach is simply a matter of practicing what we preach and is long overdue.

**THE RESULTS**

Evidence of the value of using these animated presentations comes from two sources: the faculty teaching with them and the students learning from them. Several dozen faculty attended the first DSI or MWDSI PowerPoint-animation-sharing sessions, indicating an interest in this approach to teaching. Additionally, two faculty actually joined the animation "team" during the first year, bringing the team membership to five.

In an unscientific experiment, one group of students were taught operations management quantitative techniques without the aid of animated PowerPoints and another group was taught using a large number of PowerPoint animations of quantitative technique examples. Both groups were given exams with virtually identical quantitative problems (the problem structures were identical, only the numbers were changed from exam to exam). While varying depending on the type of quantitative techniques covered, preliminary results indicate that the group that had the benefit of the animated PowerPoint presentations consistently outperformed those that did not use that technology.

*(The data collection was just completed at the time of submission. The results of an analysis of this data will be provided at the conference.)*

In addition to the anticipated benefits described in the previous section, one of the authors reports that use of these animated presentations provided the unforeseen benefit of allowing the professor to focus on describing how a quantitative technique works without having to simultaneously concentrate on doing all the math correctly. This enables the professor to provide a better explanation of the technique and have every computation correct every time.

**CONCLUSION & CALL FOR ADDITIONAL PARTICIPANTS**

This exchange of animated PowerPoint presentations will provide faculty across the world with a low-cost, efficient, and high quality means of entering into this mode of classroom presentation. Many faculty the authors' ages have long established patterns of using static "slides". PowerPoint animation is often not in their "tool kit". By sharing PowerPoint animations prepared by colleagues, faculty will be able to take advantage of this technology with minimal effort and their students will be the beneficiaries.
Anyone interested in participating in this effort should e-mail their PowerPoint file(s) to Mark Treleven (treleven@jcu.edu). As stated earlier, the best animations submitted in a given year will be selected for presentation at MWDSI and/or DSI. Authors will be so notified and, if submitted in sufficient time, will be listed in the official program for the meeting.

Anyone interested in setting up a similar exchange for another discipline is encouraged to do so.
REFERENCES


