Passive and Interactive Instruction: A Critique of the Literature of Technology Integration in the Classroom

PowerPoint and WebQuest: Good? or Bad?

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Introduction

Technology in the classroom has been evolving for hundreds of years. Educational technology has evolved from chalkboards and dust, to "dustless" virtual reality. However, it has only been since the end of the 20th century, the 1980s to the present, that modern computer technology has become so pervasive in all that is done in education. The term "jump-on-the-bandwagon" of technology reflects some of the thoughts and opinions of those in the business and education world.

Many believe that if you are not using the sparkling, bedazzling electronic gadgets and gizmos, you have fallen behind or are uneducated. Robert Cialdini, a professor of psychology at Arizona State University recounted how, until recently, he preferred to use slides when he spoke to business groups. After one business meeting, the high-tech company gently hinted that his teaching authority suffered as a result of his not using PowerPoint for his presentation. Cialdini said, "It's frightening. They said, 'You know what, Bob? You've got to get into PowerPoint, otherwise people aren't going to respond.' So I made the transfer [to PowerPoint] (as cited in Parker, 2001)." PowerPoint has become an almost mandated technology tool in the business world, and

Julia Keller fears that both PowerPoint and WebQuest have become the mandated standard for any really good teacher (Keller, 2003).

Keeping this mandate in mind, it is interesting to note here that throughout history, those who have been innovative, creative, problem-solvers – those who do things differently than anyone else – those who stand out among the thousands, have been the people who have been very successful in business and education. Billionaire businessman, and teachers who make a real difference, are not the people who do "it" like everyone else. This being said, with over 300 million users worldwide (Keller), using PowerPoint software found on 250 million computers around the world (Parker, 2001), an estimated 30 million PowerPoint presentations are presented in darkened board rooms and classrooms around the world (Norvig, no date), Technology or not, It is the teachers who stand out that are remembered. Parker claims, "PowerPoint lowers the ceiling. What you miss is the process. The classes I remember most, the professors I remember most, were the ones where you could watch how they thought. You don't remember what they said, the details (Parker, 2001). So what really makes you stand out? To be a really great teacher or an up and coming businessman, should you use PowerPoint, WebQuest, and other nearly mandated educational technologies?

To answer this question, it is important to discover how such pervasive technologies as PowerPoint and WebQuest affect business and education. According to Phelan (as cited in Keller, 2003) this technology has an affect on our brains. It affects the way we think, communicate, learn, teach, and create.

Effects on Thinking

Some scholars make a good argument that PowerPoint and WebQuest have over-simplified our thinking process. Think of the many varied, complex ideas that make up our society, and history. Now try to imagine putting those ideas into the bulleted framework of a prefabricated PowerPoint or WebQuest template, "chopping up complex ideas into bite-sized nuggets of a few words, and then further pureeing those nuggets into bullet items of even fewer words (Keller, 2003)." A simple lesson that is taught in all history classes are the concepts of perspective and bias. The ultimate, definitive history book has yet to be authored. Alternative and minority histories are filled with different perspectives and biases that create a huge continual debate and quest for the truth. This debate will never end. One student in a recent history class demonstrated this concept to me. The young African American student had a very different take on Malcom X. I had taught, as many history books do, that Malcolm X was the radical adversary to Martin Luther King Jr., who eventually changed his opinions and ideas to fall more in line with King's goal. Through the Vision Paper Project that each student participates in, the student convincingly taught me his perspective on Malcolm X as someone who helped give pride to the African American community. I could not say he was wrong. He had a very convincing argument for a very complex and multi-layered subject. The difference in perspective is what makes the history interesting and the debate exciting.

Templates from PowerPoint and WebQuest presentations seem to loose some of that discussion and debate. Norvig argues, "PowerPoint "lowers the ceiling"; it makes it harder to have an open exchange between presenter and audience, to convey ideas that do not neatly fit into outline format, or to have a truly inspiring presentation (Norvig, no

date)." Parker demonstrates how the thinking stops, or is truncated, by the power of the PowerPoint template. He says, "PowerPoint allows the content-originator to control the presentation (Parker, 2001)." He continues, saying, "PowerPoint is strangely adept at disguising the fragile foundation s of a proposal, the emptiness of a business plan; usually, the audience is respectfully still (only venture capitalists dare to dictate the pace of someone else's slide show), and, with the visual distraction of a dancing pie chart, a speaker can quickly move4 past the laughable flaw in his argument. If anyone notices, it's too late—the narrative presses on (Parker)." Any discussion or disagreement in a classroom or business setting is quickly stifled because there is an order to the slide show that must be followed. This preconceived format (Keller, 2003) "squeezes ideas, organizing and condensing not only your material but – inevitably, it seems – your way of thinking about and looking at that material. A complicated, nuanced issue invariably is reduced to headings and bullets, and if that doesn't stupefy your thinking about the subject, it may have that effect on your audience – which is at the mercy of your presentation (Keller, 2003)." Included in Parker's definition of PowerPoint is the idea that this is software that, "impose[s] [itself] on other people Parker, 2001).", leaving the thinking up to the presenter, creating a very passive audience.

Ultimately, Sherry Turkle (as cited in Keller, 2003) believes that PowerPoint is fine for businessman, and really has limited adverse affect on the business world. However she does claim that it is not the best way to teach our young students how to think.

> What's fine for a businessman might not be so fine for a child just learning how to think, how to connect ideas. . .These technologies are changing the way we think. They change how our kids grow up, and how they process information. They're not passive. . .We have a technology that is encouraging us to see in black and white—but is this a time when we need to see things in black and white? Good and bad? This kind of 'three bullets up and down' isn't helping us come up with the right kinds of arguments. It's not particularly what third graders need.. (Keller, 2003)

Many skills may be affected by the use of this technology. Our communications skills are judged by those to whom we present or teach.

Effects on Communication

Norvig's PowerPoint presentation of Lincoln's *Gettysburg Address* (Norvig, no date), is a sad commentary on how this technology has over-simplified our communication skills. He laments the loss of the complexity in our speech, saying, "I used PowerPoint's AutoContnet Wizard [to recreate Lincoln's speech], adding only the slide "Not on the Agenda!" to the standard format (Norvig)." He continues, saying, "Nobody should be surprised that PowerPoint does not measure up to the great speeches of history. . . And it is certainly a shame when a potentially interesting presentation is dumbed down by another formulaic over-application of PowerPoint (Norvig).".

Steven Pinker (as cited in Parker, 2001) argues that PowerPoint gives a "visual shape to an argument". It is true that the outline form of the PowerPoint presentation can easily communicate a list of ideas. Pinker further argues, "Language is a linear medium:

one. . .word after another, but ideas are multidimensional. . .When properly employed, PowerPoint makes the logical structure of an argument more transparent. Two channels sending the same information are better than one (as cited in Parker)." Pinker almost seems to be arguing in favor, and opposing the use of PowerPoint in the same sentence. He says that ideas gain structure, which is good, but I don't think having a "transparent" argument is a criticism you would want to hear. Furthermore, it is true that two channels sending the same information may communicate better than one, but if everyone always communicated the same ideas, no matter how clearly, it would create a very sad and boring state of affairs. Ideas are multidimensional, and are difficult to display in two dimensional format. Keller claims 80% of business presentations rely on PowerPoint, creating a loss of the old-fashioned, inspiring narrative.

Although it is true that PowerPoint alleviates some of the anxiety of public speaking, and can facilitate quick creation of a presentation, it is sad that the art of true awe inspiring communication is becoming a lost art. Keller describes how a typical PowerPoint presentation comes across to an audience. "At best, you could embellish upon the bullet point, confident that nerves wouldn't cause you to lose our place as your talk proceeded. At worst, you could stand up there and just recite the bullets as your entire speech, reading them aloud off the screen as if your audience were a tribe of illiterate backwoodsmen who had somehow wandered into a presentation. . .(Keller, 2003)."

PowerPoint presentations minimize the important human connection, the narrative, the conversation, discussion, and debate. "This is the most common complaint about PowerPoint. Instead of human contact, we are given human display, 'I think that

we as a people have become unaccustomed to having real conversations with each other, where actually give and take to arrive at a new answer [constructionism]. We present to each other, instead of discussing," says Cathy Belleville (as cited in Keller, 2003). Maybe from time-to-time we need to reconnect as human beings and really communicate. Tad Simons' heart, "sings when somebody presses the "B" button and the screen goes black and you can actually talk to the person (as cited in Keller)."

Communication and creativity often suffer as a result of the improper use of PowerPoint and WebQeust. "Slideware often reduces the analytical quality of presentations. In particular, the popular PowerPoint templates (ready-made designs) usually weaken verbal and spatial reasoning, and almost always correlate in a statistical analysis (Tufte, no date)."

Effects on Creating

As the PowerPoint era progressed, people became fearful of creativity. Parker recounts how Microsoft added AutoContent in response to the consumers' fear of a blank PowerPoint page, "it was hard to get started (Parker, 2001)." From that point on, teachers, businessman, and any presenter could easily create their presentation. "Punch the button and you'll have a presentation (Parker)." Both Microsoft PowerPoint, and WebQuest have templates that are available to easily copy and paste, then customize to your needs. PowerPoint's Autocontent Wizard supplies templates such as "Managing Organizational Change', "Communicating Bad News", "Motivating a Team", "Project Overview", "Selling Your Ideas", or "Managing HR's Changing Role". Punch up a template, and the software, "burps out some 10 to 12 slides with prompts and even some

virtual text (Keller, 2003)." "You barely need to do more than add your company logo (Parker, 2001)."

When visiting the WebQuest Page (http://WebQuest.sdsu.edu/) you can quickly arrive at the conclusion that WebQuest is becoming a little overused and prepackaged. The site claims that around 1800 accesses per day were occurring per day, and that was in February of 2000. Imagine how many people are accessing the site today. You can go to the web site (http://WebQuest.sdsu.edu/designpatterns/AB/WebQuest.htm) and download the prefabricated template for both a teacher and student page. Some would simply argue that these templates are time-savers. Time-savers they definitely are, but it seems that new ideas and creative strategies may be overlooked because of the ease in creating PowerPoint and WebQuest activities.

With the AutoContent and prefabricated templates, a presenter, teacher, or student is given what Robert Cialdini, calls "power" (as cited in Parker, 2001)." The Wall Street Journal (as cited in Keller, 2003) raised, "a few mild concerns among educators that the software's bells and whistles, its dazzling doodads, could transform mediocre student work into triumphs – at least on a superficial level (Keller, 2003)." It is this superficiality, and lack of true creativity and ingenuity that gives a mediocre teacher, student, argument, or presentation the "PowerPoint power". This superficial "power" may have an ill-affect on the way students learn, and how well a teacher teaches. .

Effects on Learning

There are two types of learning, active and passive. Many students want to follow the path of least resistance, the easiest path. Teachers often hear comments like, "Which one is easier?", or "What will take the least amount of time to complete?" Some students

want information feed to them with little to no effort on their part. This is called passive learning. There is little involvement on the part of the student. Jay Phelan, biologist who teaches at the University of California at Los Angeles, admits, "I hate PowerPoint (as cited in Keller, 2003)." Many of his colleagues use PowerPoint in their lectures, and his students often request such presentations from him (Keller). I have personally experienced students asking me to discontinue my project-based curriculum, because, "It makes me think too much, and is way to much work for the credit we are earning." They know that they can go to many other classes and sit through, or sleep through a lovely PowerPoint lecture, and get credit with a simple regurgitation of meaningless, disconnected facts.

Active learning involves the student as the center of the learning, not the instructor. It is even often student directed. It requires the teacher to give up some of his power, to allow students more freedom to learn, explore, make mistakes, and construct their knowledge by doing, not by listening and rote memorization. PowerPoint and WebQuest can be used in conjunction with either an active or a passive model of learning.

When used properly, PowerPoint and WebQuest can be used as an active learning tool. They are called "content-empty tools" "It's an open-ended tool. All the ideas, all the creativity, come from the kids. PowerPoint is a tool they can use to express their creative ideas (Keller, 2003)." Lloyd Rieber, referring to his *Homemade PowerPoint Games,* said, "This project is different in that it contends that a better use of class time for learning is to turn over the act of game design to the children themselves (Rieber, 2004)." Blumenfield et al has said, "A growing body of literature has supported the contention

that children can learn in powerful ways when they are involved in the act of building projects (as cited in Rieber, 2004)." Allowing students to learn and study content, and really make the information their own – a real part of themselves, is what constitutes real learning. Student created PowerPoint games, or even presentations can engage a student in active, meaningful learning. To reiterate a note of caution however, it is important to make sure that students are not creating superficial presentations that look nice with all of the sparkles, but really took only five minutes to copy and paste together, and lack any real content and depth.

Active constructive learning is possible when tools like PowerPoint and WebQuest are employed in the proper way. Passive learning is detrimental to students, but some teachers even promote this type of learning with their continual over-reliance on the direct instruction style of teaching. As teachers strive to include technology, it is important to remember to include technology in a meaningful way.

Effects on Teaching

Many teachers entering the initial phases of adopting educational technology into their curriculum find technology to be useful, but may not have the skills, or the knowledge to make technology a real value. The five phases of technology adoption are: familiarization, utilization, integration, reorientation, and evolution. Familiarization is that stage where a teacher may have had some exposure to technology, but never implements it into his teaching. Utilization is when a teacher attempts to incorporate some form of technology into her classroom, but abandons the use when any obstacle present themselves. Most technology integration never makes it past this phase. Integration is the breakthrough phase where the teacher really begins to commit to the

technology, and the technology becomes a necessary part of the instruction and learning. Reorientation is when the teacher realizes that the class must be reconstituted with the students becoming the center of the learning, and the teacher becoming a resource and guide. Finally, the last phase is evolution. In this phase, the teacher realizes that technology is always improving and changing, and the evolution of the classroom must be mirrored by the evolution of technology (Hooper and Rieber, 1995).

Most teachers never make it past the utilization phase of educational technology adoption. Bitner and Bitner (2002) found that many instructors fail to benefit from using technology in the constructivist model for eight reasons: fear of change, lack of training, lack of personal use, lack of effective teaching models, lack of learning based impetus, an unforgiving climate for experimentation, lack of motivation, and support.

Besides these obstacles, there is one other thing that discourages many from teaching with technology. Often technology is used to "shine and polish" the same old ineffective teaching strategies.

Many history classes have come to be recognized for their dry and boring lectures and information that is disconnected and irrelevant to the present day. Staley (2000) agrees,

> Yes, I cannot help but feel this is what history education as it has been traditionally practiced must seem like to most students. They are asked to listen to a recitation on "facts" that seem to be as empty and meaningless. . .Like a computer that mimics human intelligence, many students mimic our tasks to our satisfaction, with little "understanding" of what they are being asked to do. In

> effect, we ask students to memorize abstract entities such as dates, events, and geographical locations, then to repeat these codes on a multiple choice test. Answering all of the questions correctly suggests "mastery of the material," . . When all is said and done, history education produces students who, if we are lucky know the dates of the Thirty Year's War, and might even remember a list of "causes" for the conflict, but who are at a loss to explain why understanding history is of any significance (Staley, 2000).

Staley (2000) notes, in addition, that many teachers incorporate technology, but use it as medium to continue direct instruction. Therefore, when the same old direct instruction fails, instructors incorrectly believe they have failed at practicing the constructivist model. Staley argues, "In theory, a teacher could deploy nifty electronic gadgets to make acquiring this material more "interesting." Rather than teachers lecturing to a class or students silently mining information from textbooks, the classroom could be given over to electronic tools that would "deliver the material" in a dazzling, attention-grabbing fashion. However, such a technological palliative does nothing to change the fact that rote memorization of decontextualized facts about the past – whether delivered by human teacher or electronic screen – is not history (Staley, 2000)." These reasons explain why many instructors fall back into the old direct teaching habits, which many believe are less productive.

Many teachers use PowerPoint Presentations as a way to project the "notes" for students to copy, or to add the frilly accents to a lecture. This is not always a bad strategy, but should be used in accordance with Gagne's nine events of instruction

(Gagne, 1992). An exciting PowerPoint or WebQuest presentation could be used as an interesting attention getter for students. It could also be useful in establishing a context for the learning – a review of background and prerequisite knowledge. However, in agreement with Gagne's nine events of instruction, the students should then be engaged in performance and practice, with added guidance and feedback from the instructor (Gagne, 1992).

It is a discouraging to think that a teacher from 50 years ago would feel perfectly at home in most modern-day classrooms (Rieber, 2004). It is necessary to not only use technology in the classroom, but use it correctly. PowerPoint presentations and WebQuests can be used as very innovative tools for students to create their own knowledge, or when used incorrectly by teachers, can seem all too familiar, and hearken back to the old relocks of boring and disconnected, irrelevant educational instruction.

Conclusion

Those who are innovators, creative, unusual, problem-solvers - those who do things differently than anyone else – those who stand out among the thousands, have been the people who have been very successful in business and education. Many are under the impression that using technology is what makes a teacher or a businessman shine out from among the rest. That is not true. There are millions of people using technology. A teacher or businessmen will really shine-like-a-diamond-in-the-rough when he uses technology well. A teacher cannot expect to shine when they use powerful tools like PowerPoint and WebQuest with the same old teacher-centered strategies. Real change must happen. The Cognition and Technology Group at Vanderbilt, believes, "We envision technology as a teacher's liberator to help reestablish the role and value of the

individual classroom teacher. To do so, two things must happen. First, the perspective of the classroom must change to become learner centered. Second, students and teachers must enter into a collaboration or partnership with technology in order to create a "community" that nurtures, encourages, and supports the learning process (as cited in Hooper and Rieber)." Technology can be used to dramatically increase or hinder thinking, creativity, communication, learning, and teaching. In Keller (2003), Elizabeth Cochran concluded that, "Technology is not inherently good or bad. Only its usage can be labeled that way." She further believes, "I think that it's less important what I teach my students than how I challenge them morally and intellectually (Keller)." Staley (2000) concludes, "Students need a teacher. We educators need not worry about replacement by some new technology; education is all about the human connection." It is technology inseparably bound to the human connection that makes it an effective education tool. The only thing that makes technology ineffective is when we remove ourselves and our students from the instructional and practical process by incorporating empty, meaningless PowerPoint and WebQuest activities. .

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