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Note to Self: Note Taking and the Control of Information

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ABSTRACT

Many areas of teaching and learning have been transformed through digitisation. The mobility of content and the capacity to cut and paste text has saved time for students and teachers. However, the impact on note taking as a mode of information management is under-researched. This article explores the ideological role of the software programme PowerPoint for note taking in the current classroom, placing attention on how and why students are now photographing slides with smart phones. The consequences of this disintermediation in information management are assessed alongside the best use of PowerPoint to enable the development of visual literacy rather than the deskilling of teaching and learning.

Keywords: PowerPoint; disintermediation; information literacy; information management; note taking.

Note to Self: Note taking and the control of information

As a society we should be mindful that PowerPoint, in concert with allied computer and Internet-based technology, is having a profound effect on higher education. PowerPoint is not merely a benign means of facilitating what educators have always done. Rather it is changing much (perhaps most) of how we engage with our students and the disciplines which we profess. We should be curious as to why this is so.

Russell Craig and Joel Amernic (2006)

Something odd started to happen in my classrooms through 2012. Something strange emerged in my public presentations. While I was speaking, students would jolt up their arms like a periscope on a submarine. They were not asking a question or gaining permission to go to the toilet. In their fist was a smart phone. This was not a spontaneous and resistive gesture against the alienation of the web or the privacy breaches of geosocial networking. Instead, this raised smart phone was photographing PowerPoint slides. This social ritual – raised arm with camera-noise-lowered arm – made the classroom look like an Apple commercial or a scene from a modern version of Lucky Jim. Funny? Yes. Worrying? Absolutely.

This article deploys this emerging socio-educational ritual as its starting point. I remain interested in how students control information. Particularly, I explore if the disintermediation of note taking – photographing other people's notes rather than constructing a personal pathway through information – will transform our understandings of reading, referencing, and knowledge.

Where are your notes?

Each year of a teacher's professional life is distinctive in its own way. But 2009/10 revealed an odd and new issue to resolve, alongside new joys and enthusiasms. When handing back assignments, I bring students into the office for an individual discussion about the paper. It is important, particularly in first-year education, that each student

has confirmation that we know their name, know that we care about them, and that we want to spend time helping them with reading, writing and thinking. Their improvement is our goal. One way to demonstrate that commitment is through sharing time.

This dialogue mattered because an oddity emerged through many of the papers. The usual issues with drafting surfaced. Students wrote a paper, put a spelling checker through it and submitted it. This problem is easy to solve. Teachers create a scaffold and structure to improve their writing through considered selection of assessment. I also showed them that (at least) ten drafts are required before they even think of submitting a paper. To speed up their improvement, I gave students a checklist so that they could learn to implement an effective editing structure:

Draft one: Correct all spelling and grammatical issues.

Draft two: Check that all references are complete.

Draft three: Verify that all quotations are accurate.

Draft four: Read the introduction. Does it explain the trajectory of the paper?

Draft five: Read the conclusion. Is there an efficient and evocative ending to the assignment?

Draft six: Check the first sentence (the topic sentence) of each paragraph. Does it convey the content of the paragraph that follows it?

Draft seven: Check the last sentence of each paragraph. Does it create a transition to the next paragraph?

Draft eight: Read each word and sentence for meaning and clarity. Is each word required? When in doubt – chop it out.

Draft nine: Ensure that there is cohesion between sections of the argument.

Draft ten: Do you answer the question? Return to the question and the marking criteria. Are you addressing all the required elements in the assignment? What mark would you give the paper?

These flaws with writing, drafting and editing are easy to address. But by 2009, a new scholarly problem emerged in the feedback sessions. Over half the cohort demonstrated no flow between ideas. It was as if each paragraph was written in isolation, disconnected from the surrounding sentences. To attempt to diagnose the origin of this new problem, I asked them to show me their notes from module readings, thinking that perhaps one answer for the fragmentation of argument might be found there. I was right, but in ways I did not expect.

Each student, upon being asked to reveal the notes they had taken from their readings, pulled out notes from the lecture and seminar. I said that they looked fine, but where were their notes derived from the weekly readings?

Pause.

There were no notes. Some of them had highlighted a few phrases. Some had squiggled a few comments in the margins. Some had given the materials little except a cursory reading. This was a new problem. I still own my notebooks from my first year at university, so I was able to show them the long term value of such a process. I showed them the thousands of pages of notes on my laptop organised by subject. If I need material on cities, popular culture, popular music, feminism, men's studies or online learning (to name only a few categories), there are notes on which to base my new research. Here is a screen grab that captures some of the popular cultural studies notes.

The idea of taking notes from readings was foreign to these students. After a few days thought and preparation, I came up with some solutions to teach them how to take notes and create a record of their readings and reflections.

1. Take notes from readings separate from the books and articles. Do not write 'notes' on photocopies or the books themselves. Do not annotate digital copies.
2. Stop highlighting text and underlining. Take notes. Do not colour in your photocopies.
3. Ensure that every module has a separate file. Insert notes from module readings on separate pages from the notes from lectures and seminars.
4. Ensure than an accurate reference is logged. This will save time later.
5. Either type or write your notes. Ensure they are legible for future use.
6. Write down the key argument of the writer/s in one sentence.
7. Look at the bibliography/reference list used by the writer, noting the quality and dates of the cited scholarship.
8. Copy important quotations accurately. Carefully differentiate between your notes, the paraphrasing of the author, and direct quotations.
9. Ensure that your notes are sufficiently detailed so that you do not

need to return to the original text when writing an assignment.
10. Ensure that your notes are sufficiently brief that you have not paraphrased the entire article.

When students applied these simple principles, I noted incredible improvements – of twenty and thirty percent – between the two assignments. The intervention was successful. But I was left amazed, confused and bewildered at how students could enter a university unable to take notes from books and scholarly articles. Perhaps I should have felt fortunate that they had even taken notes from the lecture. A professor at Abilene Christian University, Bill Rankin, reported a more disturbing trend.

About five years ago, my students stopped taking notes … I asked, 'Why are you not taking notes?' And they said, 'Why would we take notes on that? … I can go to Wikipedia or go to Google, and I can get all the information I need.' (Rankin, 2011, as cited in Chen, 2011)

The complex functionality of taking notes – to improve memory, trigger factual recall, shape an interpretation of data, and provide a guide through disciplinary knowledge – is dismissed through such a statement. Further, these students are not learning a range of other skills that are activated through note taking: auditory literacies, real-time interpretation of data and concentration on the management of complex ideas. Displacement culture – where a student can ignore the information in the present because it will supposedly be available at a later time – encourages inefficient scholarly practices. There is no way to justify reading Facebook updates during lectures on the basis that 'everything' in the lecture will be available on Wikipedia and Google. Such a statement is ignorant and wrong.

While I improved the basic academic skills for my students, for many months I pondered the cause of the above issue. Then, while delivering a seminar to the Trinity Librarians' Group in Portsmouth, the librarians provided the answer. The librarians told me that teachers in their schools deliver all their materials via PowerPoint. They uploaded the slides to the virtual learning environment and printed them out for the students to revise. There is a reason for this degree of attentiveness. Schools are conscious of examination league tables. Teachers can leave no ambiguity or risk that students may fail. So they not only teach (to) the exam, but give the students page after page (after page) of PowerPoint slides so that they do not miss anything in their notes. A 'good teacher' in such a system was one that constructed detailed, text-heavy PowerPoint slides and shared them with students. An outstanding review of this process is Strauss (2013).

The unexpected consequences of their actions are that students do not learn how to take notes. A dependency culture is created on the teacher, facilitated by PowerPoint and its non-Microsoft equivalents, Apple's Keynote and the open source OpenOffice Impress application. (Preezo is a simplified version of PowerPoint that enables the uploading of PowerPoint presentations. KinetiCast is another site that allows presentations to be created, including the addition of video and images.) Many academics, when these students reach university, perpetuate this problem. A lack of professional development, planning, and preparation for a teaching session means that too many academics go into a lecture with PowerPoint slides. They have not written a lecture. They have written PowerPoint slides. Staff think they are the same activities, that preparing PowerPoint slides and lectures are an identical process. They are not.

Once the PowerPoint slides are produced, a new problem surfaces. Students want to receive the slides so that they do not have to bother 'copying' them. The opportunity to write individually appropriate notes that are derived from – but not the same as – their teacher's slides does not appear to be an option. Students now expect to receive the slides, often before the lecture. The excuse for this practice is that the students can concentrate on authentic learning in the auditorium, rather than copying notes. That has not been the result. Jeremy Littau, Assistant Professor of Journalism and

Communication at Lehigh University, realised something strange was happening in his classroom:

Those who brought laptops with them, purportedly for note-taking, seemed to be performing less well than students who did not. And not only were they distracted; so were their nearby classmates … "The conspiracy theorist in me assumed they were on Facebook." Apparently, some were. Or on Twitter or YouTube or eBay … When he started surreptitiously tracking the performance of the laptop users, Littau found out something else about them: they were getting lower grades. (Marcus & Littau, 2011, as cited in Marcus, 2011)

Littau made a decision to stop laptops being used in his classrooms. His justification, based on experience and expertise, is valid and important.

We fall in love with the idea of technology and don't always think through what students are learning from it. Technology tools are just that: they are tools. Even when they become something that's just there to waste time, that's fine. But if it's my time or your classmates' time, that's different … We've had enough experience with the internet that it's now time to sit back and look at what we're getting from it. (Littau, 2011, as cited in Marcus, 2011)

Such a realisation from academics has come after university administrators around the world have ensured that campus buildings are enabled for wireless connectivity. The focus has been on tools, hardware and software, rather than information and media literacy and the careful development of knowledge through a curriculum. Clifford Nass, Stanford's Professor of Communication, realised that "We've reached a period where attention is no longer valued. There's been a cultural change where we've forgotten about the idea of paying attention." (Nass, 2011, as cited in Marcus, 2011)

Lectures and tutorials are analogue. Note taking requires analogue decision-making that may result in digitised notes. By pretending that lectures are only vessels to convey digital content – the PowerPoint effect – students then switch off from the analogue experience and play in a digital distraction factory.

There is one further layer of problems. Not only students assume that a lecture can be captured by PowerPoint slides and that notes are not required, but there is confusion between students 'reading' slides and actually conducting their course readings.

From:
Sent: 09 November 2011 20:26
To: Tara Brabazon
Subject: Assingment 1

Hi Tara! :)

Hope you are doing well! I just wanted to clear some things up with my confusion towards assignment number one. I have been working on it for a while now and im not quite sure if i am meeting up to your standards. I have been composing an actual scrapbook with photos and some comments of topics from week 1-10 and also i have made a powerpoint with my commentary of the readings (i'm thinking by when you say readings you are talking about the actual readings you have posted that we are required to read? or are you talking about the readings off the powerpoints from class?) along with some songs i have chosen that fit the topics of week 1-10. Please let me know if im on the right track here? Thanks so much!

Regards

Glancing at visual aids has been tangled with reading scholarly materials. In other words, students are confusing skills with

knowledge, tools with literacies. To provide one example: Shahid Alvi has taught courses at a 'laptop university'. He received two odd comments in the student reviews. Not surprisingly, they involve PowerPoint:

Since laptops take makes (sic) up a significant portion of our tuition fees, I expect that each and every lecture I go too (sic) utilises this resource, as I am paying over a $1000 every year too (sic) use it, because of your lack of enthusiasm to post your lecture notes online, I feel that you have not fully utilized this resource. I believe it should be appropriate in a claimed 'Laptop Based University' all course material should be available online.

Since we do pay extraordinary amounts for the services of the laptop, we expect that at least the lecture slides be posted on WebCT or the professor make use of silicon chalk for the class discussion. (Alvi, 2011)

These two comments capture the situation in our contemporary university. A laptop is a profoundly beneficial resource. It can move around the world. Learning can be conducted while commuting, in the home and during 'dead time' of the day. Yet students reduce the use of a laptop to downloading lecture slides. Indeed, they judged the value of their teaching, learning and education by the capacity to download slides. This is disintermediation at its worst. Students are not required to interpret the knowledge of others. They simply copy it.

Richard Arum and Josipa Roksa's study in *Academically Adrift* has tracked the 'progress' of thousands of such students through universities. Their results were startling:

We found consistent evidence that many students were not being appropriately challenged. In a typical semester, 50% of students did not take a single course requiring more than 20 pages of writing, 32% did not have any classes that required reading more than 40 pages per week, and 36% reported studying alone five or fewer hours per week. Not surprisingly, given such a widespread lack of academic rigor, about a third of students failed to demonstrate significant gains in critical thinking, complex reasoning and writing ability (as measured by the collegiate Learning Assessment) during their four years of college. (Arum & Roksa, 2011)

Clearly, there is an urgent need for the development of information and media literacy to connect teaching and learning. There are other ways to use PowerPoint beyond the disintermediation of note taking between teachers and students. Restrict the availability of the files. Use them as it was intended: as presentational tools. Another option is to construct a small slide presentation delivered before the lecture, presenting the structure of the day, key questions, important links and some born digital objects. Such a self-standing presentation orients the students and meshes with the digital storytelling literature. (Some of this fine literature includes Lambert, 2002; Field & Diaz, 2008; Miller, 2008; Ohler, 2005, 2006; and Teehan, 2006.) This package is *preparation* for the lecture, rather than a *replacement* for it. Therefore, students arrive with a sense of the week's teaching and learning and a guide through the reading. PowerPoint leads into the learning process rather than replacing it.

Other strategies to curtail the PowerPointing of knowledge require a restructuring of lectures and seminars. Since digital distractions have fed into our classrooms, I have increased the speed of delivery and content covered in each class. This is a recognition of the Paul Virilio argument that the fast dominates the slow (Virilio, 1995, as cited in Trend, 2001). I pitch the content at a high level, rather than teaching what could be scrounged from Wikipedia. I move between sound, vision, taste and touch so that many literacies – including analogue literacies – are activated. While the preparation

level is high, the students are unable to become comfortable or bored in the lesson. Because I do not distribute slides, they know that the moment an idea has passed, if they have talked through it or Facebooked through it, they cannot get it off PowerPoint. They can choose to be on Facebook. If they do, then there are consequences for their actions.

The rule for teachers is simple: write the teaching session first, building on the required learning outcomes. Then make a decision about the media used to convey these ideas. Continually ask the question: what is the best media (form) to convey these ideas (content)? Unfortunately, this crucial stage in the preparation of a teaching and learning session is lost. Instead, the default setting for media choices is PowerPoint. There are also examples of this lack of preparation from the business community. Duarte (2010, p. xxi) reported that "A recent survey conducted by Distinction had some startling findings. Of the executives surveyed, over 86 percent said that communicating clearly impacts their careers and incomes yet only 25 percent put more than two hours into preparing for very high-stakes presentations. That's a big gap."

The 'selection' of PowerPoint is a decision *not to make a decision* and reduce preparation for teaching, learning and public speaking. Inexperienced staff not only reduce their teaching preparation with an (over-) reliance on the safety net of PowerPoint, but then break the first rule of media for teaching and learning. They read the slides. A key rule of media is that if teachers are showing the text, then do not read the text (Newton, 1990). Let visual literacies operate where they work best (Leshin, Pollock, & Reigeluth, 1992). Let auditory and oral literacies function at their most efficient. Less text is better text. By reading what is already seen, the complexity of diverse sensory experiences and literacies are cheapened and undermined. There is nothing gained from the session orally or aurally that was special, distinctive or different from what was seen on the screen.

This flaw in presentation and speaking leads to the final – and most serious – problem for our students. The presenter has written their entire script on PowerPoint slides. Students have recognised this strategy from teachers. Therefore, why should they attend the lecture or seminar when everything said is on the slides? That is not student laziness. It is a logical and rational decision. If all the relevant information has already been prepared and presented on the PowerPoint slides which are uploaded to Blackboard, WebCT or Moodle, then there is no benefit in attending the class.

The unfortunate consequence of this decision is that students lose – or do not gain – the ability to take notes from what they hear. The decision from school teachers to present not only the key ideas from the curriculum but notes from the textbooks via PowerPoint slides is having an impact at universities. I understand the intense pressure teachers face from head teachers, parents and students to attain results that will lift schools up league tables (Strauss, 2013). The long-term cost to students and education will be difficult to measure. But we currently have generations of students arriving at university unable to take notes from their readings or aural presentations.

Teachers model behaviour for students. When teachers confuse writing with PowerPointing and preparation with constructing slides, it is no surprise that students also start to skip stages in reading, writing and thinking. This focus on standardisation rather than standards has been building for some time. The early research on PowerPoint predicted such an outcome. Bartsch and Cobern (2003) compared the use of overheads and PowerPoint, not recognising the similarity between them. They both are text-based, visual media. One is analogue and the other digital. Yet the medium is not the message. PowerPoint can be used well or badly. Overheads can be used well or badly. The difference is with regard to the mobility of data. Students cannot cut and paste off a transparency. They are forced to take notes in real time. These distinctions and scaffolding strategies were rarely recognised in the research. 'Results' were based on the premise that PowerPoint and transparencies were

radically different media, not recognising the similarities in terms of visual literacies but the differences in terms of mobility:

We investigated whether students liked and learned more from PowerPoint presentations than from overhead transparencies. Students were exposed to lectures supported by transparencies and two different types of PowerPoint presentations. At the end of the semester, students preferred PowerPoint presentations but this preference was not found on ratings taken immediately after the lectures. Students performed worse on quizzes when PowerPoint presentations included non-text items such as pictures and sound effects. A second study further examined these findings. In this study participants were shown PowerPoint slides that contained only text, contained text and a relevant picture, and contained text with a picture that was not relevant. Students performed worse on recall and recognition tasks and had greater dislike for slides with pictures that were not relevant. We conclude that PowerPoint can be beneficial, but material that is not pertinent to the presentation can be harmful to students' learning. (Bartsch & Cobern 2003)

There are errors in research design, theories of social semiotics and media literacy here. Firstly, the 'success' of a lecture was determined by quizzes assessing factual recall. Obviously, text-based data that the students must recall is best learnt in the simplest and most direct way possible. Remembering that the Second World War commenced on 3 September 1939 is best learnt by rote and via unadorned text. Inserting a clip of Leni Riefenstahl's *Triumph of the Will* would not assist this recall. However, if interpretation and analysis is required, it is necessary to increase the gap between signifiers (form) and signifieds (content). Therefore, a more complex discussion of the Second World War recognises the multiple theatres of war and the myriad entry and exit points of different nations. The French War against the Germans was of a different length and form when compared to the specific Second World War in Singapore, Australia or New Zealand. Quizzes cannot assess the ability to manage this complexity.

Even noting these methodological issues with the study, the difference between PowerPoint and transparencies was a mean of 0.03 marks (Bartsch & Cobern, 2003). Further, this early research that confirmed that students preferred PowerPoint to transparencies (Cassidy, 1998; Perry & Perry, 1998; Susskind & Gurien 1999; West, 1997) rarely sought a reason. The key is that the slides could be moved out of the lecture theatre, onto the web and seem(ed) to provide an easy revision tool for students. Similarly, Erwin Mantei assessed the effectiveness of PowerPoint by examination results. His study in the Physical Geology classroom distributed PowerPoint slides before the lecture, told the students to print them out and add their notes to the sheets. They were then assessed on the contents of the PowerPoint slides and – is there a surprise here? – did better than the group that were not granted access to the slides:

The higher exam scores associated with the test group appear to result from the introduction of Internet notes and PowerPoint lecture presentations in the classroom. Students in the test group enjoyed the PowerPoint lecture presentations and felt the internet notes helped them to learn the material better than the traditional presentations used in other classes. These students performed better on exams than those in the control group, reinforcing Pearson et al.'s (1994) results that show students learn more when they enjoy the method of presentation. (Mantei, 2000)

Motivation is a complex concept to either define or measure. But online student rankings composed of numbers far greater than this test group – for example on sites such as Rate My Professors (Rate my professors, 2013) – value easy courses with little work that generate higher marks. Enjoying the mode in which a teacher presents ideas is important. Form matters, but the capacity to

manage complex content beyond bullet points matters more.

Alongside these studies of PowerPointed learning success, there have been long term critiques of the software. Edward Tufte's article from *Wired – PowerPoint is Evil* (Tufte, 2003) – is the most famous. He was clear in his view that "convenience for the speaker can be punishing to both content and audience. The standard PowerPoint presentation elevates format over content, betraying an attitude of commercialism that turns everything into a sales pitch" (Tufte, 2003). He continued, stating that "PowerPoint presentations too often resemble a school play – very loud, very slow, and very simple" (Tufte, 2003). What should only be a slide manager for a presentation has become the presentation.

Extending Tufte, Clive Thompson moved beyond good and evil and stated that "PowerPoint makes you dumb" (Thompson, 2003). He commenced his argument with a tragic case study: the loss of the Columbia space shuttle. The Investigation Board at NASA not only blamed the ship's foam insulation but also argued that PowerPoint was a significant variable in the failure. Complex information was presented via the software programme rather than a technical report. The engineers had crammed information into bullet points rather than present the scale and danger of the situation (Thompson, 2003). As a slide manager, the software's function is to simplify information, reinforcing the ideology that 'seeing is believing'. For example, Colin Powell in February 2003 made his presentation in the United Nations, arguing that Iraq possessed weapons of mass destruction. The facts were believed because the visuals were put together in a way that created the assumption of causality and logic, simply through the artificial effect of slides presenting a narrative.

There are important consequences for students in collapsing form and content, medium and message. PowerPoint is not the problem; however, its poor use is hurting staff and students. It is misleading staff into believing that they have prepared for their teaching. It is making students think that they are taking notes, when they are simply printing slides. It is destructive disintermediation. PowerPoint's AutoContent Wizard and downloaded templates supply a close to finished presentation. Ian Parker argued that PowerPoint

helps you make a case, but it also makes its own case: about how to organize information, how much information to organize, how to look at the world … it's hard to shake off AutoContent's spirit: even the most easygoing PowerPoint template insists on a heading followed by bullet points, so that the user is shepherded toward a staccato, summarizing frame of mind. (Parker, 2001)

PowerPoint slides can be beautifully presented. They are tangling the presentation of information with the development of knowledge. (A fascinating study of PowerPoint and how habits of mind are created is Adams (2006).) PowerPoint conveys information well. It may block the development of knowledge. The question is how – through better use – it can scaffold the relationship between information and knowledge.

Storytelling and SlideShare

PowerPoint simplifies and automates digital story telling. SlideShare, launched in 2006, hosts some fine designs. It is the PowerPoint/ Keynote equivalent of YouTube. Instead of 'Broadcast yourself,' you now 'Present yourself.' Like YouTube, SlideShare has not only created channels, but 'branded spaces' for businesses to promote themselves, one PowerPoint presentation at a time. To cite the site: "Want a custom microsite within the world's largest professional sharing community? Showcase presentations, whitepapers and webinars to a professional audience. Get direct and measurable business results" (Slideshare, 2013). While this corporate element has consequences for the way in which teaching and learning materials are framed and distributed, there is no doubt that SlideShare may be an agent of change and honesty along with PowerPoint. The slides are self-

standing, disconnected from a public speaking environment. These are visual presentations, without the pretense of any connection with analogue, oral communication. John Thompson described this function:

In response to the numbers of educators and students using PowerPoint, SlideShare (www.slideshare.net) features storage of presentations online. This enables students to show their work to a larger audience, for example. Or administrators can upload presentations from professional development sessions so participants have access afterward. However, SlideShare is not just a place to upload a presentation. Your slideshows can be public or private. You can synchronize audio with your slides, and you can join a community of SlideShare groups who share your interests. The opportunity to participate in a community of users is a major attribute of Web 2.0 applications. (Thompson, 2008)

Presentational platforms have a long history. The blackboard arrived in the early 1800s. It supported instruction. It did not deliver it. It organised information. It was not information. The ubiquity of PowerPoint has meant it has become the default presenter in classrooms, conferences and disseminating research. What is surprising is the lack of studies evaluating its effectiveness. The research projects have been small, mono-institutional, and often based on one class, often the classroom of the instructor/article writer (Craig & Amernic, 2006). As shown earlier in this article, PowerPoint is compared with overhead transparencies. Student responses and attitude are assessed by an in-class questionnaire. The fascinating element of these studies is that a platform is compared to a platform. Form is compared with form. The assumption is that the content carried on the medium or platform can be totally excluded as a variable and ignored from the empirical study.

Bartsch and Cobern's (2003) study in conducting a meta-review of the empirical research about PowerPoint located the following trends:

1. Students prefer PowerPoint presentations. (Significantly, all of these studies are over a decade old. They were part of a movement that unproblematically aligned new technology with better teaching, which I presented in *Digital Hemlock* (Brabazon, 2002). These studies that argue that students prefer PowerPoint are Cassidy (1998), Perry & Perry (1998), Susskind & Gurien (1999), and West (1997).)

2. There are mixed results with regard to graphics and student memory. Some studies show an improvement (ChanLin, 1998; ChanLin, 2000; Lowry, 1999; Szabo & Hastings, 2000). Others do not (Stoloff, 1995; Susskind & Gurien, 1999; Szabo & Hastings, 2000; West, 1997).

3. There is a study that shows a decrease in student performance in the movement from overhead transparencies to PowerPoint (Bartlett, Cheng, & Strough, 2000).

Significantly, a study by Szabo and Hastings, a project published at the tail-end of the micro-flurry of empirical research about PowerPoint around the year 2000, offered quite definitive results:

PowerPoint lectures, at least in some circumstances, mainly add to the entertainment rather than to the education of the students … Apart from possible benefits on recall, no significant advantages to PowerPoint lecturing were found … students like PowerPoint as a lecturing method. Their preference for PowerPoint lectures, in contrast to their beliefs, is not accompanied by better academic performance. (Szabo & Hastings, 2000)

Szabo and Hastings logged the flaws in the earlier studies. The quizzes were assessing recall on the content presented on the PowerPoint slides. By most definitions of learning at University, this would not be valued as a positive and long term outcome.

Significantly, none of this research mentions that PowerPoint slides create a mobility of notes, so that students do not develop the skills to hear, interpret, select and write in real time. Similarly, the studies do not reveal the consequences to lecturer preparation, whereby the entirety of the lecture content is on the slides, meaning that students do not need to attend to gain the information.

The most intriguing use of PowerPoint to students is to disconnect it from live, real-time lectures. Instead of tethering the software to the live delivery, an automated and short slide presentation with embedded sonic and visual content and lodged on SlideShare can be given to students before the session commences. Part summary, part intellectual orientation, it uses the digital environment to produce and provide the data that is not well presented in analogue lectures. There are fine guides to assist the construction of these specialist and separate learning objects. The best is offered by Nancy Duarte. Known as the advisor to Al Gore in constructing his visuals for *An Inconvenient Truth*, she is interested in visual storytelling, using PowerPoint and Keynote not just as visual notes but as a way to shape our engagement with the environment. Her methods – although not using this language – develop visual literacy. She recognised that there is a relationship between language and power. When visuality is employed, ambiguity enters the relationships between signifier and signified, form and content. Negotiating that ambiguity is a key moment in learning. Duarte realised that "the power lies in how much something stands out from its context" (Duarte, 2010). This is a key statement. Learning occurs not when a medium or platform fits into its environment, but when something dislodges and agitates common sense.

The great gift of slide-generating and organising software is that it shapes ideas. It can tell stories, balancing emotional connectivity and evidence. The greatest problem of PowerPoint is that it is used to present text. Presentation and communication are different. The problems emerge when PowerPoint users conflate them:

> It's becoming the cultural norm to write presentations as reports instead of stories. But presentations are not reports. Many people who create presentations are stuck in the mindset that if they use a presentation application, like PowerPoint, to create a report, the report is a presentation. It is not! Reports should be distributed; presentations should be presented. Documents masquerade as presentations, and these 'slideuments' have become the lingua franca of many organizations. While documents and reports are very valuable, they do not need to be projected for the purpose of hosting a 'read-along.' (Duarte, 2010)

Such a corrective is not only important for businesses, but also for educational institutions. A stand-alone artefact using slides and sound can open students to course content by storytelling. When used well, it can provide a point of view and pathway through material, offering opportunities to take risks and move students from personal experience and into different histories and research. Noted speakers like Steve Jobs used very little text on slides (Gallo, 2010).

By constructing a separate learning object using SlideShare as a portal and vehicle for storytelling, there is a recognition that some information is not meant to move between platforms and is not meant to be read quickly. The key is to use minimal text and maximal empty space to orient learners rather than drill content. Carmine Gallo realised that

> about 40 percent of us are visual learners, people who learn through seeing. This group retains information that is highly visual. To reach visual learners, avoid cramming too much text onto the screen. Build slides that have few words and plenty of pictures. Remember: individuals are more likely to act on information they have a connection with, but they cannot connect with anything that they have not internalized. Visual learners connect through seeing. (Gallo, 2010)

The key for teachers, even more than other modes and forms of presenters, is that verbal and visual modes of communication are distinct. (The importance of Harold Innis in this discussion is clear (Innis 1951 & 2006).) Slides fail when there is confusion between written and spoken forms of language. Listening and textual reading are different. Indeed, Nancy Duarte refers to them as "conflicting activities" (Duarte, 2008). She states that selecting the correct media is an act of respect for listeners, readers and viewers (Duarte, 2008). But students are a particular type of 'audience' and education is not entertainment or – indeed – a business. Jane Bozarth realised that "there is so much more to e-learning, and to PowerPoint than bullets and animated text" (Bozarth, 2008). Indeed, there is much more to learning than digital platforms.

(Post) Lecture again?

When I started writing *Digital Hemlock* in 2000 (Brabazon, 2002), the lecture was supposedly living on fumes. Interactive, virtual, mobile, student-centred, micromoments of content were the future of schools and universities. This future never happened. Instead, conventional lectures have been filmed and uploaded into Virtual Learning Environments. While lectures have weaknesses, they also hold a great strength. At their best, they are motivational, inspirational and model scholarly behaviour for students. Yet in the desire to make content mobile, context and commitment have been lost. In the desire to make presentations standardised and of even quality, excellence has been destroyed. I have termed this 'the Google effect', the flattening of expertise (Brabazon, 2006). Software designed for business has infiltrated education and corroded what makes teaching different from marketing. The more the advocates and consultants celebrated interactivity, mobility, virtuality and student-centred learning, the more that carefully considered mixed media teaching and learning was replaced by one size fits all PowerPoint. Very early in the cycle of the read-write web, Heather-Jane Robertson logged how research has failed to determine a positive correlation between educational technology and student achievement. Instead, "technopositivism" has become "a marketed ideology". Robertson stated that "the future requires no footnotes" as marketing has replaced research into learning, teaching and education (Robertson, 2003). The assumption that templates and other forms of visual uniformity would enhance learning has ignored the arguments of Freire (2013), Postman (1996), Giroux (1994), and Aronowitz & Giroux (1995). Students do not learn when they understand all the words, ideas and concepts presented to them. Comfort does not create learning.

Neil Postman – in the midst of this PowerPointed age – needs to be read and re-read. Too many PowerPointers are reading McLuhan (on 18 July 2011, a Google Scholar search revealed over 1200 refereed academic articles on PowerPoint that mentioned Marshall McLuhan). Postman always stressed the importance of learning incorporating both orality and printing. Orality created communities, cooperation and collective responsibility, while the printed word activated individuality, autonomy and competition (Postman, 1993). One is not better or greater than the other. Both are needed not only for learning, but for living. The challenge is to create the balance. The difficulty is that visuality washes away other sensory experiences. PowerPoint transforms the human voice into a DJ (at best) and a commercial voiceover (at worst) in response to the visual wave of slides. Further, the type of visuality – bullet points, a lack of punctuation and pronouns – cheapens visual literacy. Printed language is a part – and a profoundly important part – of visual culture.

Lecturing well, as a sub-section of teaching well, is incredibly difficult. As Crang revealed, it is "an accomplishment – bringing together a very particular constellation of speaker, space, technology, audience and attention" (Crang, 2003). It also requires a high level of expertise, deploying Antonio Gramsci's model of an organic

intellectual, to not only be an expert but to hold so much expertise that it can be translated for new audiences. PowerPoint is fordist lecturing. Without developing a deep knowledge of a subject, PowerPoint "lends authority to the speaker" (Driver, 2003) via software rather than scholarship.

Craig and Amernic question how power operates in and through the PowerPointing lecturer. They offer the evocative description of their own practice when they "subcontract our teaching to PowerPoint presentations" (Craig & Amernic, 2006). The literature is split. Creed has argued that "PowerPoint is teacher-centred" (Creed, 1997). Conversely, Crang suggests that the lecturer is now a distraction from the slides, a "disembodied voice" (Crang, 2003). Nunberg confirmed that the slides "have begun to take on a life of their own" (Nunberg, 1999). As I argued in the last section of this article, the 'life of their own' is probably their best use, as a self-standing preparation for a lived, live, analogue lecture.

Perhaps the most disturbing element of Craig and Amernic's study is their dystopic question, "has the PowerPoint slideshow *become* the curriculum?" (Craig & Amernic, 2006). The answer to their question is yes. It does not have to be this way. One of the greatest compliments my first year students ever gave me was to state that when they arrive for their Monday morning lecture, they never quite know what to expect. In choosing not to choose PowerPoint, or at least choosing to use it differently, learning becomes unsettling and disruptive of conventional or accepted patterns. One of my mantras that I apply in my daily life is to "teach the surprises". My students – as always – have taught me. Photographing PowerPoint slides is a sign that interventions in information management are required. We need to learn from the surprises as well.

Biography

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