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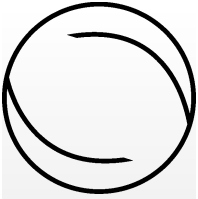
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Against the Tyranny of PowerPoint: Technology-in-Use and Technology Abuse

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Abstract

Over the past five years, PowerPoint has emerged as a powerful piece of communication technology, having profound consequences on presentations (business and educational), classroom communication and, possibly, on the nature of lecturing itself. An analysis of the ways in which PowerPoint is used offers considerable insights into, first, the nature of educational technologies and their organizational implementations; second, the effect of these technologies on the construction and dissemination of organizational knowledge; and, third, the qualities and skills of a society of spectacle, where a great deal of organizational knowledge assumes the form of visual representations. Using illustrations from my personal experience, I examine some uses to which the software is put and some of its potential shortcomings. These include the parcelling of knowledge into bullet points, reliance on visual aids to support weak analysis, and the forced linearity of argumentation that limits improvisation, digression and inventiveness. I argue, however, that PowerPoint can be used more creatively, to build on our culture's emphasis on spectacle and image and related multi-tasking skills that lecturers and students develop. In this manner, PowerPoint can redefine the nature of a lecture, from the authoritative presentation of a text into a multimedia performance that elicits a critical, creative and active response from its audience.

Keywords: technology-in-use, organizational knowledge, learning, visual representations, society of spectacle, paragrammes

One of the technologies that have woven themselves into today's communication processes is PowerPoint. Like email about 10 years earlier, PowerPoint may initially have given the appearance of accomplishing what earlier technologies did (overhead transparencies, slides, chalk and blackboard) only more efficiently, more stylishly. In this sense, it could be seen as an instance of straightforward automation (Zuboff 1985, 1988). Yet, just as email redefined the nature of organizational communication, PowerPoint is having some far-reaching consequences. It directly affects presentations in business, academia and, as illustrated by Al Gore's widely publicized presentation on global warming, public debate. Even more substantially, however, it is capable of redefining organizational knowledge, spawning new genres of communication

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(Kaplan 2006; Orlikowski and Yates 1994; Yates and Orlikowski 1992) and legitimizing new forms of knowing. In business and government, lengthy reports are supplanted by printouts of transparencies while, in higher education, PowerPoint has become the *sine qua non* of the lecture, a piece of technology that both supports and defines classroom practices (Orlikowski et al. 1995; Orlikowski 1992). Thus, the nature of 'presentation', 'lecture' and possibly of 'learning' itself are being irreversibly altered; some indeed may say 'reinvented'.

This paper lies at the intersection of discourses on organizational technologies-in-use and critical pedagogy. It examines PowerPoint as a piece of technology-in-use that both constrains and enables its users. My own focus is on its educational and academic applications, although its ramifications for business applications are also coming to be recognized (Doumont 2005; Kaplan 2006; Karreman and Strannegard 2004; Yates and Orlikowski forthcoming). Like many new technologies and new genres, much of the debate on PowerPoint has elicited strong criticisms and enthusiastic endorsements. The paper examines some of these with references to my own experiences. More significantly, however, it seeks to elucidate how this particular technology is adapted, modified and subverted in the course of its organizational implementations. Further, it seeks to offer an analysis of the effects of such technology on the construction and dissemination of organizational knowledge. More widely, the paper argues that PowerPoint is a technology well suited to the practices of a society of spectacle, where much knowledge and information assume the form of visual representations, such as photographs, images, graphs and diagrams. In this sense, the paper shares the reservations of some commentators regarding the damage it can inflict on the skills of reasoning, and identifies some of its shortcomings when it is used in a routine, passive and predictable manner.

The paper, however, also identifies some uses of PowerPoint that go beyond narrow performativity (Lyotard 1984/1991) and uncritical learning. I argue that it can then become a platform for passionate, discovery learning (Gherardi 1999, 2004), a medium that, far from closing discursive avenues, enables individuals and groups to discover a voice and develop their learning and communication potential. Like other forms of technology, the uses and meanings of PowerPoint are not tyrannically dictated by its designers but emerge in its enactment by different social actors in different contexts (Orlikowski 2000). I conclude that, when used creatively, PowerPoint, instead of destroying old skills of arguing, theorizing and communicating, can generate new learning opportunities entailing discovery, criticism and plurivocality. I argue that creative users of PowerPoint display many of the qualities of bricolage and improvisation that have long been associated with narrative knowledge (Gabriel 2002; Lévi-Strauss 1966; Linstead and Grafton-Small 1992; Weick 1993). Used in this way, PowerPoint does not simplify, codify and objectify knowledge but becomes part of a multi-level engagement with organizational complexity (Tsoukas and Hatch 2001).

A Brief Overview of the Development of PowerPoint

PowerPoint developed from an earlier piece of software, initially created for the Apple Macintosh II, called Presenter. It was purchased on the year of its release by Microsoft for a relatively small sum, rebranded and developed as a simple-to-use instrument mainly for business presentations. In the latter part of the 1990s it became part of the suite of programmes that made up Microsoft Office and in a short period of time established itself as the indispensable medium for business presentations. The concurrent development of email and the internet ensured that PowerPoint slides could be easily communicated to wide audiences, packing a lot of information into what seemed like an aesthetically pleasing and synoptic style. Instead of having to plough through lengthy reports, busy businesspeople could quickly skim through a few transparencies and absorb the essential features of a case or an argument. Very rapidly, with the addition of animations, sound effects and graphics, PowerPoint presentations also become corporate style statements — expressing corporate values, such as ‘modernity’, innovativeness and so forth.

The incursion of PowerPoint in education was almost as rapid as it was in business, even if the reasons behind it were not identical. Its uses can be viewed as symptomatic of some long-term changes in teaching and learning technologies. These coincide with a changing range of demands on academics and increasingly consumerist attitudes of many learners. Many teachers, under great time pressures to deliver on research and administration, under constant email bombardment, and faced with pressing deadlines and obligations, sought a way of rationalizing and simplifying their teaching by embracing PowerPoint as a way of streamlining lecture preparation and delivery. Many publishers quickly realized the possibility of profits from this market and considerably offered ready-made slides, initially on stencils and later online and on CD-ROMs, for lecturers to incorporate into their teaching programmes. Many lecturers, to their delight, discovered that teaching scores and student satisfaction improved with the use of PowerPoint. Gradually audiences, both in lectures and in academic conferences, have come to expect and even demand PowerPoint as an indispensable feature of presentations.

In my experience, students in business, management and the social sciences, once they had tasted the delights of PowerPoint, were unwilling to give them up. In spite of wide cultural differences, diverse learning styles and other preferences, these students, in a very short period of time, came to view PowerPoint as a totally indispensable accoutrement to the lecture. Increasingly they demanded the lecturer hand out the slides *before* the lecture, and a new form of *note-taking* prevailed in the lecture theatre, that of adding comments on copies of the slides. On many courses today, including some taught by the author, lecturers are expected to hand out the PowerPoint of an entire course at the start of a semester.

Some Criticisms

We may caricature the new form of lecture as one of students engaged in one of the favourite pastimes of our age, watching pictures and absorbing largely subliminal messages. As consumers of educational packages, they extended their experience of being consumers of shows and spectacles, on and off TV. This can all be seen as part of the widely debated commercialization of higher education, which turns students into customers and universities into 'McUniversities' (De Vita and Case 2003; Gabriel 2005b; Gould 2003; Ohmann 2003; Parker and Jary 1995; Ritzer 1999; Sturdy and Gabriel 2000; Washburn 2004). Education then could be seen as coming close to entertainment (some call it 'infotainment'), with bite-size morsels of information that do not strain or test their powers of reasoning or comprehension beyond supplying enough material for some largely ritual testing to take place.

In line with Karreman's and Strannegard's (2004) powerful critique of its business uses, we could then observe that PowerPoint in the classroom can reduce the students' critical awareness, naturalize knowledge into seemingly indisputable bullet points and bolster the authority of the lecturer whom it surreptitiously transforms into a salesperson (see also Sturdy and Gabriel 2000). At the same time, PowerPoint can substantially limit a lecturer's ability to deviate from a preconceived lecture plan, improvise or develop a new line of thinking in the course of a lecture. Like a set of rails fixed on the ground, PowerPoint slides lock the thinking process along a single linear path, blocking impromptu variations and digressions; in short, improvisation and exploration.

But criticisms of PowerPoint run even deeper. In the last few years, a lively debate has grown around its uses, mostly conducted on websites, prompted by a stinging critique by Edward Tufte, a Yale professor of information design (Tufte 2003a,c). Tufte charged PowerPoint with degrading the quality of communication, stupefying and boring audiences and debasing everything it touches. Critics have held PowerPoint responsible not only for spiritual and cognitive debasement but for material disasters too (Felder and Brent 2005). Tufte (2003b), for instance, argued that the *Columbia* space shuttle disaster might have been averted had the crucial information regarding the foam, which critically damaged the shuttle's tiles, not been contained in a confusing PowerPoint slide with 10 bullet points at six levels. Tufte's argument is that the vital piece of information that would have alerted NASA to the damage sustained by the shuttle was drowned by information overload, noise and absence of context, which were the result of a PowerPoint mindset (See also Rosen 2005).

And Some Defences

Tufte's lampooning of PowerPoint ('Power corrupts, PowerPoint corrupts absolutely') has earned him some notoriety and fame. Yet, similar charges can, after all, be raised against virtually any form of information technology. Typewriters destroyed the skills of calligraphy, word processors destroyed the skill of producing well-turned phrases, and the internet has allowed every type

of uncensored and unauthorized text to claim an audience. Is one to judge a new technology purely by its negative consequences? Defenders of PowerPoint have pointed out that many of the shortcomings of PowerPoint result from poor usage rather than the technology itself, and claim that one cannot blame PowerPoint for every problem of our educational systems (Abernathy 1999; Griffin 2003). Some educationists have produced evidence from schools indicating that PowerPoint helps pupils absorb information and that it enhances their concentration and motivation to learn (Bartsch and Cobern 2003; Boylan 2004; Doumont 2005; Hu et al. 2003; Susskind 2005). Such defences are essentially *utilitarian* — PowerPoint, may not excite the students or stimulate their thirst for knowledge, but it makes the job of teachers in the classroom easier in keeping the attention of the children, helping to maintain their interest and helping them to assimilate the material.

But PowerPoint has also been defended on artistic and aesthetic grounds, such as by artist and musician David Byrne:

‘Although I began by making fun of the medium, I soon realized I could actually create things that were beautiful. I could bend the program to my own whim and use it as an artistic agent. The pieces became like short films: Some were sweet, some were scary, and some were *mysterioso*. I discovered that even without text, I could make works that were ‘about’ something, something beyond themselves, and that they could even have emotional resonance. What had I stumbled upon? Surely some techie or computer artist was already using this dumb program as an artistic medium. I couldn’t really have this territory all to myself — or could I?’ (*Wired Magazine*, 11 September 2003; <http://www.wired.com/wired/archive/11.09/ppt1.html>)

By using PowerPoint as a vehicle of expression, displaying collages, unpredictable juxtapositions of objects or subversions of conventional images, Byrne demonstrated that this most ‘straight’ and conventional business technology could hold artistic and subversive possibilities. He showed that users display considerable ingenuity in creating new uses and new meanings for technological artefacts, discovering new contexts for them and, even, revealing subversive and ironic potentials that had never figured in the plan of the designers. Uses of this technology then could be viewed as discontinuous and episodic (Tyre and Orlikowski 1996) rather than standardized and routine; active and creative rather than passive and habitual.

A Personal Illustration: My own Experience of PowerPoint

In an attempt to examine the different ways in which PowerPoint may be used in higher education, I offer an illustration from my personal experience, which charts my development from reluctant user, to enthusiast, to sceptic, to qualified supporter. This is, of course, only one academic’s experience with one piece of new technology. It does, however, suggest a considerable diversity of uses, attitudes, perceived risks and opportunities. I first encountered PowerPoint at the inaugural lecture of a colleague in 1997. My then university had just acquired the technology and it was clear that they viewed it initially as a fixture for ‘special occasions’ rather than as a soon-to-be-routine piece of educational technology.

The lecturer used it competently and the audience seemed to appreciate the interesting pictures he showed. The lecturer's apparent power to invoke a new, unexpected and immense range of images at the mere click of a mouse seemed impressive. The content of the lecture was less so. Certainly, the comparison of PowerPoint with the older technology of displaying images using a carousel slide projector, which frequently jammed and got out of focus, highlighted the advantages of the new technology. Several more inaugural lectures followed, making ever more sophisticated use of the PowerPoint, before I encountered it in a normal classroom. During its early years, PowerPoint, in my range of familiarities, signified firmly 'special occasion'.

I used PowerPoint for the first time in 2001 in a presentation at a workshop organized by the World Advertising Research Council, a grand name for an organization running routine courses and workshops for advertising executives. I had been asked to make sure that the organizers had my slides before the actual presentation. I obtained a manual and (in my usual manner) followed the basic steps for creating a presentation on PowerPoint. Revisiting the presentation now, it seems competent and straightforward: 13 slides, nearly all involving a heading and a list of bullets. The preparation of the slides had seemed remarkably easy. I was the first presenter on the day of the workshop and recollect using the technology with easy confidence. My topic was 'The consumer's many faces' — at that stage, I was not tempted to demonstrate the different faces of the consumer with images or pictures. I recollect staying for the next presentation and being impressed by the highly sophisticated graphics, pictures and animations employed by that presenter. The topic of his talk was how to revive sales of a sagging brand of toilet paper and his presentation appeared to generate much more interest than mine.

My next direct experience of using PowerPoint was in my own inaugural lecture in March 2002. I was assigned a skilled secretary who helped me construct what felt like a cutting-edge presentation: 29 slides, all but seven including pictures, many quite provocative; some of them illustrated points I was making in the lecture with pictures, such as buildings, bridges or works of art, at times announcing an idea, at others being out of step with the text I was presenting. The lecture remains vividly in my memory. Dressed in academic gown, standing at the lectern in a twilight zone, I had a strong sense of occasion. PowerPoint appeared to add to my authorial power, as if by pressing a button I could greatly enhance an argument I was putting forward. Maybe more so — the image appeared to make my argument incontestable. I felt somewhat like an actor who has been accustomed to performing without make-up, costume, lighting and sets for a lifetime and suddenly finds himself armed with such appurtenances. My grip over the audience felt correspondingly magnified.

Of course, inaugural lectures are celebrations of academic narcissism, but I was impressed with the ease with which PowerPoint became part of my vanity toolkit. In addition to 'special occasion', PowerPoint at that time came to signify 'sophisticated presenter' or at least 'competent lecturer'. One particular memory from my inaugural lecture has stayed with me. At one point in the talk, I sought to subvert Weber's great metaphor of the iron cage of rationality with my own metaphor of a glass cage to represent today's organizations.

Flashing images, first of an iron cage and subsequently of a glass cage, just before the words had been uttered, gave me a tremendous sense of power, the precise power expressed in the phrase 'A picture tells more than 10,000 words' (which incidentally became the title of a subsequent lecture). What would have taken painstaking efforts of reasoning and argumentation could be achieved with minimum of fuss and minimum of effort; and, possibly, to better effect. Subsequently, on rereading the text of my lecture, I was somewhat disappointed by the paucity of the analysis and the gaps in the reasoning. It took me three years to rethink it, rewrite it and publish it as an academic text that might be defended on its own merits.

Inspecting the contents of my computer, I observe that I subsequently used PowerPoint only once during that academic year, but from the following one (2003/2004) nearly all my class presentations have made use of it. I also notice that I did not use PowerPoint at any academic conference until 2004, but since then I have used it invariably (except in two places where the technology was unavailable, much to the bemusement of most delegates). Have I become a PowerPoint 'junkie'? Maybe, and maybe, like a junkie, I know that my addiction is not good for me. Using PowerPoint continues to give me a sense of control over the audience, a magic instrument with which occasionally to seduce them or at least to tranquilize them. I undoubtedly feel anxious prior to a presentation lest the technology should malfunction. Before lecturing in a new environment, I seek to familiarize myself with the technology and ensure it functions properly. My skills at preparing the transparencies and at using the technology in the classroom have improved greatly. The feeling of security afforded by a well-prepared set of slides is immense.

It is probably true to say that students making classroom presentations adopted it before their lecturers, that they have consistently employed more sophisticated and imaginative graphics and animations than lecturers do. Its usefulness to students making presentations to peers or seniors is absolutely vital. Since 2002, I have hardly ever attended a student presentation, whether individual or group, that has not relied on PowerPoint. It was during a PhD seminar I was facilitating that I observed what can happen when the technology fails. There were going to be three presentations by PhD students in front of an audience of about 10 of their peers. It was due to be held in a small seminar room, which, alone among such rooms, did not have dedicated computer facilities. A rash of activity ensued, seeking to fix the problem, but I announced that this would be a fine opportunity to try out some old-fashioned skills of presenting, debating and, above all, thinking. The result was one of the most creative, enjoyable and fecund seminars any of the participants had attended. Several of the participants reported later that they had learned more from that session than most earlier ones. Yet, when I suggested that the following week's seminar should take place without PowerPoint, I was roundly out-argued by nearly all the participants. It was good to be able to pull it off once, but students did not like the idea of performing routinely without the safety net of the machine. From the following week, we were back to PowerPoint. It made me think of the satisfaction we get in the face of technological adversity, as when a car, a television set or computer fails — we enjoy being able to acquit ourselves without

but would not like to do without these conveniences on which we readily become dependent.

Over the last two years, I have become increasingly uncomfortable with PowerPoint. In my own practice, what struck me in the first instance was how much rarer had become the times when students asked probing questions that used to make me have to think, and how much easier it was to fob off potentially awkward questions by revisiting a slide and going through it again. My discomfort increased on realizing how difficult it had become to vary the pace of the lecture, to digress from the structure of the presentation or to take those dangerous leaps into the unknown, while lecturing, where you have no specific landing spot in sight but trust yourself to discover one while you are in the air. I especially came to resent providing students with the slides in advance of lectures, when every attempt at surprise, disjuncture or humour was given away in advance. I had gradually come to value greatly two short courses I teach each year *without* PowerPoint, and even the occasional technical crash that forced me to revert to more traditional lecturing skills. My malaise about PowerPoint thus built up, leading possibly to the writing of this paper. My concern was that PowerPoint inevitably leads to comfortable, incontestable, uncritical, visually seductive and intellectually dulling communication.

One issue that I find especially troubling is that, in spite of all these reservations, I have continued using PowerPoint, viewing it as part of my 'professionalism'. This is especially the case when presenting to a business or mature audience. My felt need to use it is also more pressing when presenting to a large audience rather than a small one. Arriving for an important talk without my PowerPoint slides has started feeling like arriving naked. In a relatively short period of time, PowerPoint has moved from being a status symbol, a gadget or a resource to being an important and taken-for-granted part of my professional self or 'front', in Goffman's sense (1959: 22).

I have questioned numerous colleagues on their experiences with PowerPoint and have found them consistently similar to mine, though some have fewer reservations about using it than others. There are a few older ones who never made the transition to using it. An economics lecturer and close friend of mine confessed that he considered early retirement rather than be forced to use what he viewed as a deeply flawed communication technology. He said:

'For my entire life, I have delighted in lecturing, in developing my ideas in front of an audience, responding to their queries and concerns. Some of my happiest memories have been in discovering new ideas in the heat of performing in the classroom. Why should I change my ways, purely in response to pressures from students and administrators?'

Another friend of mine explained that, in his highly prestigious institution, only star performers teaching executive development programmes for which participants pay several thousand dollars each earn the right to teach *without* PowerPoint. Chief executives, he explained, do not attend courses in order to collect PowerPoint slides — they leave happy if they have got one or two good ideas or one or two good contacts.

Uses of PowerPoint in Education

Reviewing my experience of PowerPoint, one of the most obvious, yet striking, things about it has been the precipitous increase of its use in classrooms as well as in academic conferences. For many situations today, it has come to be seen as totally indispensable. Yet, a mere five years ago its use in the lecture theatre and the conference hall was fairly limited. It was not until 2006 that the Academy of Management provided the necessary facilities at its annual conference. This increase is due to both 'pull' and 'push' factors — audiences, especially students, demand it, and lecturers find that it makes their lives easier. A useful study can be undertaken looking at the isomorphic diffusion of PowerPoint as an instance of management fad or technical innovation that confers legitimacy to its users (Abrahamson 1991; Spicer 2005; Sturdy 2004; Westphal et al. 1997) — my interest, however, lies more in the diversity of uses to which it is put and the way it shapes the contexts in which it embeds itself.

The ubiquity of PowerPoint makes it easy to confirm that the competence of users varies. We all have experience of presenters going ritually through their slides, determined to exhaust their stock in spite of the exasperation and boredom of their audiences. We also have experience of presenters who dazzle us with impressive graphics, leaving us in doubt as to whether it was all froth and no substance. Slides that seemed full of life and meaning in the lecture theatre turn out to be dull or dead when surveyed on paper the day after.

If competence varies across users, so too do the repertoires of applications to which PowerPoint is put (Ball and Wilson 2000; Orlikowski and Yates 1994). Some users rely on helpful or stimulating illustrations to liven up their argument; others may use bullet points to suggest an argument's basic structure; yet others may employ slides as a kind of hyper-text offering a commentary on their oral presentation. Styles in the use of PowerPoint vary — the number of slides and the speed at which they succeed each other, the nature and extent of the animations etc. Above all, the content of the slides and its relation to the oral presentation vary, reflecting each user's style and competence and the nature of the communication. The content of slides itself also varies, but much of it involves a) bullet-points lists, b) visual illustrations (schematic illustrations or photographic and other images) and c) statistical data, often in pie charts or other such forms (or a combination thereof). These categories, of course, overlap — lists can be presented as graphs and statistics as images (e.g. pie charts).

Lists

Lists of bullet points are the main format for presenting PowerPoint text, something reflected in all standard templates provided by the manufacturers. Lists have been the target of much criticism (see, for example, Feynman 2001). Lists imply certain assumptions that are not always met. For instance, many people (and most students) confronting a list will assume that it is exhaustive, that the items on it are co-equivalent (no list can be made of apples, dinosaurs and average rainfall in London) and that they are mutually exclusive (one cannot have

in a list of Manhattan, Queens, Brooklyn and Lower East Side). In reality, few lists meet these requirements, and yet they block thinking into precise areas of overlap or items that are absent from the list. Furthermore, lists obscure contexts and assume an unquestioned authority that conceals weaknesses in analysis, argument and structure. As Karreman and Strannegard argue, bullet points confer a false authority on dubious knowledge, making it appear unavoidable and 'natural'; they appear to 'speak objective truths, undisputed wisdom and uncontested assumptions' (Karreman and Strannegard 2004: 9). This is supported by an experiment I tried out in my own practice as a lecturer, by randomly rearranging the bullet points on slides and then rearranging the slides in a presentation. To my surprise, it took minimum skill of improvisation to extemporize around the new spurious order and I doubt that anyone in the audience noticed. Such is the rhetorical power of a list of bullet points that huge inconsistencies and other flaws can easily be obscured.

This false authority of bullet-point lists makes them a potentially disastrous device in education, dulling the critical faculties of students and offering bad lecturers a comfortable mantle of security. Yet, not all lists are bad lists and not all audiences respond to them in a dull, uncritical manner. Lists have had their defenders. Feyerabend (1987), an enthusiast of argument if there was ever one, made a case that (properly constructed) lists are 'basic ingredients of common sense' and indeed early forms of theory. Thus, Aristotle made extensive use of lists in developing his theories, and some of his well-known works amount to little more than highly detailed (and carefully constructed) lists, which constituted essentially his lecture notes. Max Weber's tripartite theory of the legitimation of power, Burke's five key terms of dramaturgy, and Freud's three parts of the mental personality are all lists that act as the basis for theory. Numerous more examples could be offered.

But lists have other uses, beyond being potential building blocks of theory. One of these is to help us structure our thinking, even if poorly constructed lists act as substitutes for structure. As punctuation points in a presentation, they can enhance understanding and communicate reasoning structure from the presenter to the audience. Furthermore, lists have mnemonic and aesthetic qualities too. A well-defined list, in its economy, completeness and originality, can afford much pleasure. A list that assumes a convenient acronymic quality (such as the four P's of marketing) installs itself easily in the memory. All in all then, in spite of serious potential pitfalls, lists can be useful cognitive and communicative devices. Like definitions, lists would ideally assume a provisional or working quality, inviting refinement and criticism and discarding when exhausted or fatally flawed.

Images

In spite of the importance of lists, it seems to me that the true blessing—and maybe the curse too—of PowerPoint is its ability to display images. By projecting pictures, the presenter can transport his or her audience to distant places, replacing the orderly setting of the lecture theatre with visions of exotic lands

and unusual sights. Ours is truly a society of visual representations, and PowerPoint can turn the modest, old-fashioned lecture into a real show, stimulating to the eye, entertaining and exciting. When presented with simultaneous audio and visual stimuli, our minds remain alert, seeking to establish the relation between sound and image, presented with countless instantaneous puzzles to prevent boredom from setting in. Sometimes, the image may reinforce the sound or vice versa. At other times, image and sound can work against each other or may produce entirely novel effects.

Like lists, pictures can have detrimental effects on learning. As I discovered on rereading my inaugural lecture, image can come to the rescue of poor argument, flawed structure and unreliable analysis. It also wrecks style, obliterating the finer nuances of language for the immediate bombardment of the senses. Like watching television, watching a sequence of vaguely attractive and undemanding images on a screen in a darkened room may induce a quasi-hypnotic state in the viewer, dulling his or her critical spirit and inquiring intelligence.

Yet, like bullet-point lists, images can be very useful devices in generating and disseminating knowledge. In some areas, like architecture, knowledge is vitally captured in visual representations that enable professionals to communicate with each other quickly and effectively. Much design work is carried out through images, sketches and drawings that embody and express ideas and innovations (Whyte and Ewenstein 2005). Photographs, drawings, sketches, graphs and computer printouts are all images, the commonest of which, as Elkins (1998, 1999) has shown, are hybrids of two or more such elements. For certain types of knowledge transfer, such as explaining the functioning of the human heart or the construction of a new building, image is indispensable. In areas like anatomy, geography or physics, PowerPoint, with its use of images, often with three-dimensional graphics and infinite variation of nuance, magnification and colour, immeasurably enhances understanding and communication.

Another type of image that features in PowerPoint presentations is the diagram, such as the schematic representation of material in 2 x 2 matrices, Venn diagrams and the like. These can relate large amounts of information in a relatively economical way, although, as in the case of lists, they may conceal many of the simplifying assumptions upon which they rest. Yet, like lists, diagrams can help both to structure our thinking process and to simplify mind-numbing complexity into something that we can understand and relate to. Diagrams can also afford some aesthetic pleasure in conveying information economically, wittily and elegantly. As with lists, therefore, while images can prove counter-productive in many respects, they also open up new possibilities of creative thinking, communication and learning.

Like well-constructed lists, well-thought out, imaginative diagrams can be the basis on which theory and even entire domains of knowledge, like business strategy, are based. In such domains, the visual representation can be as important an instrument of learning as the highly detailed argument (Porter 1985, 1991).

Statistics

Statistics in PowerPoint often feature as graphs, pie charts and the like. These have been branded 'chartjunk' by Tufte (2003c), and admittedly they lack the rich informative detail and precise beauty of numbers. Yet, they can reveal relative proportions in a quick manner and maybe avert some of the misunderstandings that arise from miscounting the number of zeros at the end of numbers. Graphs, pie charts and other graphic representations of figures can generate misleading impressions, but so too can numerical data (Gould 1996; Holmes 1990).

More generally, it does not seem that charts have undermined the emphasis on measuring and quantification, in what Boyle (2000) calls the 'tyranny of numbers' and its social effect, the audit society (Power 1997); if anything, the graphical representation of statistics has enhanced the rhetorical force of numbers, by encouraging the construction of quasi-scientific league tables, rankings and so forth. In short, PowerPoint neither undermines the power of numbers and statistics, nor should it be viewed as responsible for bolstering it. As with the use of images, so too in the presentation of statistics, PowerPoint can present information in an economical, evocative and even aesthetic manner although, of course it does not always do so. It does not seem to me that PowerPoint by itself, and when properly used, substantially degrades the quality of statistical information conveyed.

All in all, it appears that PowerPoint encourages a certain linear form of reasoning that dislikes digression and has limited flexibility. Complex arguments can become simplified into bullet points and lists; fancy illustrations can conceal inadequate analysis or can create misleading impressions; pictures and images can easily turn a learning process into one of entertainment. Yet, some of the criticisms levelled at PowerPoint may be exaggerated or missing the point. In the first instance, some of the criticisms of PowerPoint are clearly aimed at poor uses of the technology — badly constructed lists, poorly presented statistics and facile illustrations. Secondly, some critics appear to be comparing a PowerPoint presentation (and sometimes a flawed one at that) with an 'ideal lecture situation', where an inspired lecturer improvises, discovers and illuminates. In reality, many routine lectures involve little improvisation, discovery or illumination, and many of the lecturer's 'inspired digressions' may be experienced by students as confusing, tedious and over-complicating the issues. By contrast, a routine PowerPoint presentation may offer the kind of *structure, simplification* and *support for argument through illustration* that learners favour. Undoubtedly, it restrains and limits the lecturer's freedom, but this may not be unwelcome to confused and anxious students. When skilfully used, PowerPoint can offer certain advantages to teacher and learner, including a useful tool for summarizing key points with mnemonic cues and lively visual supports that can embed learning. PowerPoint, then, offers some easy solutions to problems of presentation, which may not always be the optimal solutions, but they support communication and learning.

Critics may argue that certain technologies by themselves create bad habits. Routine use of PowerPoint can then be seen as creating linear, sequential, lazy

thinking, and providing a security blanket for both incompetent presenters and insecure learners. It helps the former to camouflage shortcomings of analysis, thinking and critique through fancy graphics and compelling images. As a machine for packaging learning in standardized, digestible parcels, it helps the latter by confirming the view that all knowledge is 'stuff' assuming the form of bullet points. In this way, PowerPoint makes sensical discourse far easier — it smoothes out all the dangerous possibilities of misunderstanding, miscommunication etc. However, as Tyre and Orlikowski (1996) have argued, technologies-in-use are adapted to different contexts not as a continuous, incremental way but in a discontinuous, episodic one. Periods of routine use are interrupted by episodes of intensive activity when new uses, new contexts and new meanings are discovered. It is in this way that PowerPoint can be thought of not only as a learning technology, but as a technology that is itself learned by using, and whose learning reconstitutes the nature of learning.

Reinventing the Lecture — from Authoritative Text to Multimedia Performance

Having offered a more equivocal assessment of some of the costs and benefits of PowerPoint technology, I would now like to examine how this technology is affecting the nature of a lecture and, more generally, classroom learning. In a much-quoted argument put forward at the time when computers were beginning to make a large impact in classrooms and offices, Zuboff (1985, 1988) contrasted two modes of implementing new technologies at the workplace. The first was termed 'automation' — a situation where the machine leaves the fundamental process unchanged but performs tasks previously carried out by humans or simpler machines. This generally leads to marginal gains in productivity, staff redundancies and deskilling for the remaining workers. By contrast, Zuboff proposed a different mode of implementing new technology, for which she offered the not altogether helpful term 'informate', whereby fundamental tasks are rethought and reconfigured in the light of new technology. By 'informating' rather than automating tasks, some of the negative consequences of new technologies are avoided; instead of deskilling and alienating workers, new technologies can lead to a reskilling and, in some cases, enhanced autonomy and control in the workplace.

Like other types of technology, PowerPoint may be used to automate the lecturing process. Where an old-fashioned lecture may have employed a drawing on a blackboard to draw the relations between certain concepts, PowerPoint offers a colour diagram; where a traditional lecture may have used an anecdote or a joke to support an argument, a PowerPoint lecture may use a photograph or a cartoon to liven things up; where a traditional lecturer may have turned his or her back to the audience in order to produce a more or less successful circle on a blackboard, PowerPoint enables a lecturer to produce perfect circles, without sacrificing eye contact. Such uses of the technology essentially simplify old tasks. My argument, however, is that the influence of PowerPoint goes far beyond this, to reconfiguring the nature of lecturing into a multimedia, multi-skill

performance, rather than the delivery of a more or less polished spoken text. The audience, for its part, may then approach the lecture as a multi-faceted experience, lived in several dimensions, visual and audio, cognitive and emotional. This is what Orlikowski and her co-authors (1995) refer to as metastructuring, a dual process whereby users adapt the meaning and scope of technology to particular practices, and the parallel process of altering contexts to fit the technology.

As a piece of technology-in-use, PowerPoint has very rapidly become an organizing template that shapes beliefs and actions in lecture theatres, board-rooms, conference halls and elsewhere. At the same time, it has become a means through which knowledge is constructed as an organizational resource, codified, negotiated, contested and embodied (Tsoukas 1996). It seems to me that two factors conspire to encourage the metastructuring effected by PowerPoint: first, our society's increasing emphasis *on image and spectacle*, and, relatedly, second, the *new range of skills which emphasize multi-tasking*, discontinuity, visual alertness and semiotic sensitivity as against patient and deep thinking, long periods of concentration and deference to the authority of a 'text'.

In emphasizing the visual image, PowerPoint plays into our culture's obsession with image, picture and spectacle. Writing at a time when most homes did not have a colour television and when computer screens and electronic games had not been invented, Guy Debord opened his situationist manifesto thus:

'In societies where modern conditions of production prevail, all life presents itself as an immense accumulation of *spectacles*. Everything that was directly lived has moved away into representation.' (Debord 1977, paragraph 1)

Allowing for the obvious hyperbole and the parody of Marx, Debord's premise seems to be even more apposite today than in the 60s when it became the basis of his then fashionable critique (see also Boorstin 1962; Brown 1998; Edelman 1988; Elkins 1998, 1999). Numerous theorists, including Bauman, Ritzer and Baudrillard, have since argued that spectacle has become the primary type of experience in late modernity, dominating almost every aspect of our public and private lives. Inspired by Bauman, Ritzer (1999), for instance, has argued that spectacle has led to a re-enchantment of the world in late modernity's cathedrals of consumption, such as shopping malls, glass buildings, tourist resorts, sports venues and theme parks, which are all minutely planned and orchestrated shows, with spectators themselves becoming part of the display. Many, if not most, of our experiences are visual experiences, on our television screens and computer monitors, on posters, in newspapers and magazines, in our city streets and in our homes. Spectacle saturates public and private spaces, offering 'the promise of new, overwhelming, mind-boggling or spine-chilling, but always exhilarating experience' (Bauman 1997: 181). If, as McLuhan noted, the printing press brought about the first victory of the visual over the aural/oral (McLuhan 1962), the rise of television, spectacle and image accelerate the process.

A few theorists have noted that, as our culture becomes more ocular-centric, i.e. dominated by spectacles and images appropriated and experienced through the eye, many of our theories have become ocular-phobic (Jay 1993; Kavanagh 2004). As academics, we mistrust the image, fearing that it seduces, it misleads

and it induces passivity. Undoubtedly, images can create their own regimes of truth, the hyper-real, that at times becomes more 'real' than reality (Baudrillard 1988; Boorstin 1962; Eco 1986; Gabriel 2005a; Sontag 1977). Yet, what has changed since the situationist critique is that some theorists of spectacle have offered a more nuanced evaluation. Image and spectacle do not invariably induce passivity and stupefaction. Appropriating images is far from a passive experience. As consumers in a society of spectacle, we are frequently seduced by image. But we also learn to mistrust image, to question and probe it. We develop skills to read and decode, question and ignore, frame and unframe, combine, dismiss and ignore images (Gabriel and Lang 2006). Visiting museums and art galleries, we learn to compare, contrast, filter out, frame and focus on particular exhibits. Similar skills are used in engaging with the diverse spectacles we observe in our streets, our shopping malls, our theatres and our theme parks. Even watching television can become an active experience, especially for young viewers, who constantly interpret images, characters and plots intertextually with reference to other images, characters and plots. Thompson, for example, notes that:

'Media messages are commonly discussed by individuals in the course of reception and subsequent to it ... [They] are transformed through an ongoing process of telling and retelling, interpretation and reinterpretation, commentary, laughter and criticism ... By taking hold of messages and routinely incorporating them into our lives ... we are constantly shaping and reshaping our skills and stocks of knowledge, testing our feelings and tastes, and expanding the horizons of our experience.' (Thompson 1995: 42)

Not only have we become experts at appropriating images in different ways, but many of our memories assume visual forms. Retention becomes linked to image. As Susan Sontag put it, 'the memory museum is now mostly a visual one' (2004) — remembering has come to signify having a mental image of an event or of a phenomenon. An event captured on camera becomes instantly more memorable than one of which no visual record is left. If learning requires memory, most people today would more readily remember a well-chosen image than a well-argued case. By reconfiguring the lecture as a multimedia performance enabled by PowerPoint, rather than seeking to use PowerPoint to automate tasks previously performed by slides, chalk and board and so forth, the visual sensitivities and skills of our age can be put to the service of learning and education. PowerPoint then becomes the latest prop to assume the 'part of the individual's performance which functions in a general and fixed fashion to define the situation for those who observe the performance' (Goffman 1959: 32), while the ability to project images and pictures (including photographs, cartoons, paintings and drawings), along with graphs, diagrams and even lists, allows lecturers to take advantage of their audiences' visual sensitivities and visual skills. PowerPoint could then be said to embed itself in organizational performances at two levels — a theatrical one, in which it functions as a symbolic prop, and a more technical one, in which it helps the construction and dissemination of knowledge in particular ways. Of course, Goffman and exponents of the dramaturgical approach of action would not accept this distinction.

The risk of epistemic closure that PowerPoint carries (Karreman and Strannegard 2004) can then be overcome as creative users of PowerPoint

discover that they can use it to generate and sustain discontinuity. Discontinuity is a crucial element in many types of learning. Its importance for stimulating curiosity cannot be overestimated. Discontinuity between knowledge and experience, between different types of sensory stimuli, between emotion and cognition, between what is known and what is desired — all of these fuel a desire to learn and to explore. Discontinuity represents a boundary that invites transgression, a journey to be made, an unknown to be experienced. It also implies an anxiety to be conquered. In some ways, the very predictability and linearity of PowerPoint makes it a fascinating instrument to subvert, by taking a variety of risks. There are different performance risks that can be taken (e.g. risqué slides, collages, discontinuities, omissions and disruptions); there are fascinating and troubling juxtapositions of narrative and imagery; there are startling possibilities of irony and self-parody, where the spoken text points in one direction and the projected picture in a different one. In such ways, the lecture can be reconfigured from listening carefully to a single voice of authority to an experience of seeking to decode a multiplicity of signals, some audio, some visual, which sometimes reinforce each other, sometimes are out of step with each other and sometimes interact with each other to produce novel effects.

This proposed reconfiguration of the lecture as a multimedia performance builds not only on our culture's obsession with spectacle but also on a wide range of skills that are emerging in a new generation of pupils groomed on watching television, playing computer games and decoding advertisements while at the same time talking on their mobile phones and preparing their homework. These skills have replaced the older skills of learning that involved patience, concentration and application. By contrast, the skills of today involve speed, multi-tasking, short bursts of concentration and the ability to deal with constant interruptions. The skills include (if I may be permitted proposing a list):

- filtering out much that is irrelevant noise and focusing on what creates a memorable emotional experience;
- tolerating uncertainty, lack of plot and absence of closure;
- coping with plurivocality, with ill-defined characters and ambiguous moral messages;
- accepting experiences with ambiguous or opaque meanings, without closure;
- enjoying puzzles without permanent solutions;
- juxtaposing, comparing and criticizing.

For all our concerns regarding the suppression of critical spirit in learning, our culture is far from uncritical. On the contrary, as consumers we are accustomed to criticizing constantly the products, services and experiences that we have and those we observe in others. Under an increasingly consumerist ethos in education, lecturers themselves become frequent objects of comparison and criticism by their students. In its early days, using PowerPoint at all may have been enough to impress students. As, however, they become exposed to different performances and different uses, they learn to discriminate, to compare and to creatively appropriate.

Conclusion

What I am proposing is that PowerPoint does not have to be viewed as a machine in the service of a strict regime of knowledge management, as some of its critics have claimed (Alvesson and Karreman 2001). Nor, in line with a naive interpretation of McLuhan's well-known aphorism, does PowerPoint always operate as a medium that tyrannically conveys a fixed set of messages (McLuhan 1964). Instead, it can convey a multiplicity of messages, in a multiplicity of ways. In particular, it can be viewed as a resource that builds on our culture's emphasis on image and related skills of decoding, multi-tasking, filtering and criticizing. Instead of automating existing features of the lecture, it can redefine the lecture as a multimedia experience, problematizing knowledge, posing questions, framing puzzles, creating discontinuities and stimulating a desire to learn. It can then make use of our culture's predilection for multidimensional experiences, for texts with diverse and obscure meanings, for images that can be decoded in a variety of ways. In such circumstances, lecturers themselves, instead of being deskilled, rely on a new range of skills to make the best of the resource available to them. Instead of using PowerPoint in a routine, mechanical manner, they experiment with different possibilities and discover new potentials. In so doing, they can use PowerPoint just as sophisticated consumers use the things they buy, in ways that go beyond the designs of the designers, manufacturers or advertisers (De Certeau 1984). They combine different components, they make unorthodox uses of specific items, and they reframe and modify the things they use, to meet their desires and express their individuality.

The term 'paragramme' has been proposed for flexible routines, around which users improvise, innovate and reconfigure (Gabriel 2002) to create new and unique solutions, new and unique performances. In contrast to 'programmatic' users, who rely on closely following instructions and recipes, paragrammatic users are flexible, idiosyncratic, opportunistic and ad hoc. They enjoy 'bricolage' and tinkering (Fiske 1989; Lévi-Strauss 1966; Linstead and Grafton-Small 1990; Weick 1993) with the resources available to them, eschewing what is predictable and 'programmed'. Paragrammatic users of PowerPoint may resort to lists and bullet points when the situation demands, they may show pictures when they present an interesting complement or counterpoint to the argument being made, and they may discard the technology altogether when they risk lapsing into predictable and mind-numbing routine. Instead of bemoaning the rigidity of the resource, they look for ways to make it pliable and surprising. In this way, they avoid falling into the tyranny of PowerPoint, as well as blaming PowerPoint for other more subtle forms of tyranny. PowerPoint becomes a creative resource, mastery and even virtuosity over which can be a feature of the user's professional identity, rather than a threat to it (Lamb and Davidson 2005; McLaughlin and Webster 1998; Walsham 1998; Wenger 1998).

When used in a paragrammatic way, PowerPoint becomes part of an 'epistemology of practice' (Cook and Brown 1999), involving a wide range of skills in its use, and delivering a diversity of learnings as its outputs, instantiating what Cook and Brown refer to as the 'generative dance between knowledge and knowing [that] is a powerful source of organizational innovation' (Cook and Brown

1999: 381). Instead of replacing arguments, theories, narratives and stories with images, lists and trite graphs, PowerPoint can open up the possibility of juxtaposing and comparing arguments with lists, enriching narratives with images and adding to the clarity of theories with graphs. Different contexts invite different uses, different users employ it differently, and different members of audiences make sense of it in different ways. Paragrammatic uses allow PowerPoint to function side by side with other genres (e.g. the vignette, the story, the syllogism, the typology and so forth) that enable its users to make sense of complex organizational realities without misleading and premature codifications.

In conclusion, I would argue that, like many forms of information technology (such as computers, email, and even the internet), PowerPoint in its early stages seemed to offer the convenience of doing old tasks in more efficient and more polished ways. It created exaggerated hopes (for some parties) and concerns (for others) that it would lead to tighter knowledge management, through codification, standardization and closure. Overall, the conveniences afforded by PowerPoint were viewed as having a downside, which included deskilling, routinizing and standardizing. In line with a widely held western anxiety, technology becomes the slave-turned-master, imposing its tyranny on everything it touches. My contention is that many users of this technology have realized that this tyranny is not unavoidable and that, like other types of educational technology, when used in a creative and non-routine way, it can provide a learning and a teaching experience in line with the visual sensitivities and skills of our times.

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