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ACADEMIC PAPER

Presentation software: Pedagogical constraints and potentials

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Abstract

In this paper, critical discussions of electronic presentation software, initially focused on PowerPoint, are reviewed. The potentials and pedagogic implications of newer forms, such as Microsoft Producer, Prezi and Xerte, are then considered. Discussion turns to whether teaching technologies, including face to face formats, constrain or prompt pedagogic innovation. An argument is developed about using presentation software in a different context to construct learning objects (stand-alone online resources), to isolate the effects of the presentation software itself. Finally, non-technological issues which also affect actual use are considered, especially in teaching subject specialisms like leisure studies.

Keywords: learning objects; pedagogy; presentations; PowerPoint

Introduction

This article arose from reading some published debates about presentation software and also from reflecting on the processes in creating blended learning modules for a recent Higher Education Academy project to develop open resources. The organising body in this case was the Centre for Sociology, Anthropology and Politics, and the modules in question, which are now published in an open repository, concerned the Sociology of Leisure (Gilhespy & Harris, 2010) and Introductory Research Methods (Gilhespy, Harris & Roberts, 2010). The team used a variety of presentation software to devise the stand-alone elements of each module, including PowerPoint, Producer, Prezi and Xerte.

Many colleagues will be familiar with presentation software like PowerPoint, perhaps to the point of using it habitually. The software is still controversial, however, and its use can attract impassioned comment. It is clear from the controversy that using presentation software is not just a technical matter but one that raises deeper issues of teaching style and, beneath those, views of teaching, learning and pedagogy. Some authors have simply discussed students' immediate preferences and views but others have pursued some deeper implications about matters such as conceptions of knowledge (specifically whether PowerPoint limits a "constructivist" approach); types of narrative (linear or networked) that are promoted or discouraged; and the effects of technology in general and whether it can determine teaching interactions (either totally or in some softer sense).

It is important to attempt to further clarify the context in which the software is used by considering the whole teaching situation. Do perceived constraints and limits arise from using

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PowerPoint's default settings uncritically, for example, or is it that conventional teaching itself limits discussions with students equally strongly? Some of the issues become clearer when considering the use of presentation software to move beyond acting as a supplement to face-to-face teaching towards helping to produce stand-alone learning materials intended for online teaching and learning, sometimes in the form of reusable learning objects (RLOs). This in turn leads to a discussion of newer forms of presentation software, especially Xerte, which was initially designed to permit such online teaching and learning.

As the critical review proceeds, more contextual and non-technical elements appear for discussion. The preferred teaching style of the user of PowerPoint is a variable, for example, and some critics have suggested ways to overcome any linear or reductionist tendencies implicit in the software by adding stimulating materials of various kinds while working face-to-face; or by permitting more interaction with the PowerPoint slides, both from students and from lecturers. It is clear that connected notions of knowledge, learning and teaching are involved; and the pedagogic options, in the form of frameworks or paradigms, need to be summarised more systematically.

However, it is possible to suggest still further elements of context. Here, actual practices can be affected by social and political constraints; not just by adherence to ideas and paradigms. These practices operate at the level of the organisations in which teaching is embedded and, more broadly, at the level of the whole university sector. In particular, the role of student assessment emerges as a factor that affects most of the elements already discussed; from student interest and attention; through notions of what counts as valuable knowledge and the best way to acquire it; to seeing student grading as a crucial and immovable requirement by influential social groups outside the classroom.

At this point, discussions of online teaching become relevant in their own right, and also as a way to see what might remain if some of the organisational constraints were removed. PowerPoint, its spin-off application Producer, and devices such as Prezi and Xerte, are all capable of being used to generate independent online resources. Devising materials for open repositories, for public use and not just for a conventional university course or module, will remove some of the more obvious organisational constraints such as the need to squeeze lectures into one hour at a specified time and place, make them fit modular templates, or conform to bureaucratic validation and quality agendas. Online materials need not become dominated by student assessment: calling them RLOs has probably helped designate them as supportive and optional.

For some designers of electronic materials these are problematic freedoms, forcing authors to rely on their own resources to deliver quality and student engagement. The ways in which this is often done include offering interactive episodes like opportunities to respond, familiar from face-to-face teaching (see Moore Partin, Robertson, Maggin, Oliver, & Wehby, 2010). Software like Xerte offers templates with many such episodes for convenient use, enabling students to alter the sequencing of material, take diagnostic tests of various kinds, and add comments to images and video. More extensive opportunities for students to exert some control over the direction of their work are also available in the form of hyperlinks to additional resources. However, more generally, an open form of writing is required, it will be argued here, which provides genuine opportunities for students to use their existing knowledge to comment upon, test and develop academic materials. Subjects like hospitality, leisure and tourism potentially provide such opportunities in abundance.

Finally, a number of possibilities, limits and opportunities, sometimes contradictory ones, arise from the potentials built into the software, but it is clear that users (both lecturers and students) can also discover and exploit additional options. This makes it important to research actual use, instead of staying at the general level. Some initial proposals are offered at the end of the paper.

PowerPoint: Bullet points and linear narratives?

PowerPoint is probably the most widely used and discussed presentation software in higher education in the UK. Strong opinions have been expressed on the relative merits of using the

software, and on its effects on teaching practices. Several studies have attempted to evaluate its immediate impact. Basturk (2008) found no significant differences among students' reactions when comparing PowerPoint and low technology presentations. While Adams (2006) found students who did not respond positively to PowerPoint, Clark (2008) found far more that did, and suggested that its capacity to use images and other materials might appeal particularly to new kinds of students with different kinds of multiple intelligences, especially those who learn best with visual elements.

These data might not go very far to tap the full effects of the software, but the popularity of teaching materials is becoming an important issue. Courses need to recruit, and modules are also sometimes offered for student choice in an internal market, which adds to the general requirement to consider student preferences. More generally, student satisfaction is becoming a major dimension in various league tables that rank order UK universities. Delivering a popular module in an interesting manner is arguably as important as delivering an effective one. Presentation software seems to help in providing novelty and an additional focus of attention, although this is by no means universal. The specific impact on students of a presentation is likely to depend on many additional variables including subject matter, design of the lecture, live performance of the lecturer, and any connection with assessment, especially where the stakes are particularly high.

Adams (2006) developed the argument at a deeper level by suggesting that students have unknowingly been denied a crucial aspect of authentic higher education, since they see only the product and not the process of the lecturer's argument, and this leaves them only able to participate as consumers. The software might be popular but the real limits may not actually be perceived by students or staff. However, several studies suggest these limits can be overcome by making presentations more interactive, as discussed later.

In pursuing this deeper issue, Tufte (2003) is frequently cited as a critic of PowerPoint, but his particular argument is slightly unusual. In a more substantial earlier book (Tufte, 1990) he considered several innovative techniques to display data visually. One of the main conclusions is that diagrams should be densely populated with data that convey up to four dimensions for analysis, enabling multiple interpretations (for example, of both the individual value of digits and their distribution, as in digitised maps with different overlays). It follows, for him, that PowerPoint slides can never adequately depict such multidimensional data, since the display options feature low visual contrast and high "noise" levels. What is left, in effect, is the option to use simple text. The default settings suggest the use of bullet points in particular. Explanatory strategies are consequently highly limited too, usually taking the form of a simple linear sequence of slides, Tufte (2003) suggested. PowerPoint presentations often cover this informational poverty with what Tufte (2003) called "Phluff": unnecessary clutter, like clip art; decorative layouts and corporate branding; prominent lines and boundaries; and the distracting effects of uncontrolled white space. Presumably, this occurs most often when users are not graphic display experts, and where they are unable to alter default settings, or resist corporate guidelines on layout.

Tufte's (2003) publication provides several examples of poor slide layout and he reviewed the report of the Columbia Accident Investigation Board, which criticised excessive use of PowerPoint at NASA. The Board concluded that over-enthusiastic use of the software failed to emphasise important risk factors amid the clutter, leading to "intellectual failures in engineering analysis" (p. 7). Overall, Tufte argued that:

The cognitive style characteristic of standard default PP [PowerPoint] presentations [include] . . . foreshortening of evidence and thought, low spatial resolution, a deeply hierarchical single-path structure . . . breaking up narrative and data into slides and minimal fragments, rapid temporal sequencing of thin information rather than focused spatial analysis . . . Phluff, a preoccupation with format and not content, an attitude of commercialism that turns everything into a sales pitch. (p. 4)

Tufte's (1990) alternative forms of presentation, superbly constructed and reproduced diagrams, require both considerable skill to construct, and probably the resources of a major

university like Yale, where he was based. These particular options are rarely explored subsequently. Nevertheless, the general criticisms informed the arguments between Adams (2006, 2007) and her critics, especially Vallance and Towndrow (2007).

PowerPoint's auto-content feature, with its suggested templates, illustrated the most determinist aspects for Adams (2006). She acknowledged that even these features can have a pedagogic value, but said they should not be accepted uncritically. She did not deny that PowerPoint can be modified by skilled teachers, who can always alter or simply switch off the presentation, and she noted that later versions offer the facility to include hyperlinks, embedded videos and images to add new dimensions to linear narratives.

Nevertheless, the routine use of PowerPoint was the problem for Adams, especially when deployed by busy teachers who might not realise the implications of the default settings, and how they might limit intentions in practice. Adams' view was that the technology behind PowerPoint software acted as a kind of soft determinism: "the imposition willy-nilly of new cultural grounds by the action of new technologies" (McLuhan & McLuhan, 1988, cited in Adams, 2006, p. 396). In those circumstances, PowerPoint strongly encourages a linear structure which is not suitable for all kinds of narratives, bullet points that set an agenda that is hard to modify, and slide-shows that literally frame what is to be discussed.

As with many other contributors to the debate, Adams only considered using presentation software in conventional lectures, where there is a substantial face-to-face element. The effects of this element are assumed to be entirely beneficial. It is possible to argue, by contrast, that the software might only exaggerate the existing features of conventional teaching which are already likely to use linear narratives, encouraged by outcomes-driven teaching and the effects of assessment (further discussed below).

Vallance and Towndrow (2007), having offered a useful review of Adams (2006), suggested that her worries can be dealt with simply by recognising the limits and attempting to balance them with other kinds of activity, in particular "the integration of good learning tasks" (p. 223). Their example demonstrates that a presentation (on basic statistics) can be followed by students practising their own calculations, discussing the results, then asking each other to perform the calculations on a new set of data. Other commentators like Gier and Kreiner (2009) advocated the incorporation of content-based questions (CBQ) into presentations:

The instructor presents questions to the class based on the PowerPoint slides several times during a lecture . . . the CBQ technique allows the instructor to address any content that students did not understand based on student responses to the questions. (p. 135)

In practice, PowerPoint slides are usually incorporated into whole classroom performances. Lecturers can interact with and interrogate items on slides, and comment on them on behalf of the audience, and this helps highlight issues and foreground them for discussion. For Knoblauch (2008) this was a much more critical use of pointing and it "turn[s] the static elements and the parts of the talk into a dynamic process . . . the meaning of presentations given to a live audience cannot be reduced to what is written on the slides only, as Tufte (2003) claims" (p. 83-84).

Similarly, Maxwell (2007) showed how to resist the totalising tendencies of PowerPoint conventions in teaching History, expressed in the unstoppable and frenetic 60-slide lectures he had observed. He argued that "effective teaching . . . does not require complete control over student attention" (p. 42). Instead:

PowerPoint lectures [should be comparable to] a guided tour of a museum: PowerPoint slides are the artifacts on display, and the lecture is the tour guide's commentary, during which questions may be asked and answered. (p. 50)

Adams (2007) returned to her main point by insisting that such innovative features are not typical, and that a more habitual and uncritical use of the technology is likely to allow the

teaching assumptions and conventions implicit in the software to dominate practice. She located the source of the problem in the primal and the unconscious:

Educational technologists as well as the educational profession at large severely underestimate the sophistication required to appreciate the reach of educational technologies in the corporeal, relational, temporal, and spatial niches of our pre-reflective experiences and primal practices.... Realistically we can only bring to explicit awareness those aspects of our mediated lives that for one reason or another have presented themselves as concerns. (p. 230)

Kinchin, Chadha and Kokotailo (2008) suggested that thinking about the different options in practice leads to the real issue, which is a dispute about what counts as knowledge, especially a contest between objectivist and constructivist conceptions. This helps us move to another level of debate again. There is a central issue of what expert knowledge actually looks like and how it might be presented effectively. Kinchin et al. (2008) suggested that expert knowledge is not easily objectified, and often operates with loose networks of concepts: they use metaphors, like spokes in a wheel or webs, to describe these structures. However, these complex holistic structures frequently have to be turned into a more linear chain structure in individual lectures. Students can be misled if they think that an objectivist linear presentation accurately represents expert knowledge.

The answer is to supplement PowerPoint presentations with other materials, including adequate introductions, handouts and notes pages, to remind students that there is more than a simple sequence of concepts involved. Kinchin (2006a) suggested that the slides themselves can be printed out to form a suitable web-like concept map, and he provided some examples. Similarly, Ingram (2008) showed that PowerPoint slideshows can be used to offer alternative pathways through a basic mathematics lesson: optional slides are hyperlinked to become leaves attached to a main stem.

Pedagogical implications

It is clear that some familiar debates about pedagogy are implicit in these discussions, often related to the issue of teaching styles, usually dividing didactic from interactive forms. This classification has been much debated at all levels of the UK education system, from landmark studies of teaching styles in schools (Bennett, 1976) through to classic discussions of effective teaching styles in physical education (Mosston & Ashworth, 1990). The debate also turns on whether teachers or students should control the agenda and pace of instructional episodes.

Clearly, the issues are connected. If expert knowledge is seen as hierarchical and relatively separated from everyday understandings (what Bernstein, 1971, calls strongly “classified” and “framed”), effective teaching must preserve a hierarchy of control where experts dominate, and learners have to become socialised into the particular form of knowledge before they can usefully discuss any substantive issues. If educational knowledge is seen as a social construct, however, students might be asked to participate in constructing their own versions of it in a more democratic and dialogic version of teaching.

A systematic review of the options and how they are linked was offered by Goodyear and Jones (2004) in a paper which became influential, especially in discussions about blended learning. Conceptions of learning are divided into either “passive reception” or “discovery” types. There are parallel conceptions of knowledge as either involving “deficit and accrual” or “guided construction” (Goodyear & Jones, 2004, p. 13-14). The authors suggested that current practice increasingly favours the latter options in each case, and suggested further “characteristics of good learning” (p. 16-18), including seeing learning as extensive; linked to communities of practice; situated, progressive, reflective and related to learning in several ways, not all of them dependent on teaching. This trend indicates nothing less than a paradigm shift for them featuring, among others, moving from information transmission to the design of learning tasks; from teacher-centred and teacher-managed learning towards learner-centred and managed forms; from individualistic to community types, and from inert to usable knowledge (Goodyear & Jones, 2004).

Although it is common to discuss pedagogy in this rather abstract philosophical way, it is also clear that ideas about teaching or knowledge do not determine actual practice on their own. It can be misleading to use the same term to describe activities which operate under very different social and political conditions. If we take the term dialogue as an example, Socratic dialogue in ancient Greece involved a barely-hidden struggle between Socrates and his companions for prestige and personal ascendancy: Socrates' opponents complained that "the unskilled player is always in the end checkmated and reduced to silence by the expert, though he's really in the right none the less" (Plato, trans. 1964, p. 248). By contrast, in the work of Freire (1973) dialogue takes place only where participants are declared to be fully equal, even if one group are university-educated and the other group is semi-literate, and the aim is not to score points off the unskilled debaters and privilege experts, but to liberate them from political oppression. This in turn requires an egalitarian "humble, loving and courageous encounter" (Freire, 1973, p. 100).

In the more familiar situation of university teaching in the UK, the ability to establish a relationship of equality with students is severely limited by the important role that lecturers have in assessing them: assessment grades are definitely not publicly discussed as socially constructed. The prevalence of assessment probably explains the persistence of what Kinchin et al. (2008) called objectivist knowledge, despite the popularity of constructivist conceptions. That, in turn, might help explain the prevalence of linear sequences of instruction, and the apparent passivity of students, who might just want to do well in the test.

The organisational aspects of university teaching also have effects. For example, timetable constraints and the organisation of the teaching day affect the length of the instructional sequence, so it is easy to see how arguments and discussions can get compressed into linear sequences. Decisions to offer shared modules, as with research methods, can affect the design of suitable learning tasks if students come from educational routes with quite different competencies. The new managerialist (Brehoney & Deem, 2005) apparatuses of validation committees and outcomes-based teaching can also marginalise opportunities to explore topics through student discovery.

Isolating the effects of presentation software

Presentation software therefore enters a situation which has already been structured, and it is difficult to isolate its effects specifically. One option is to see face-to-face interaction as a natural form, offering a unique source of creativity and interactivity, threatened by the intrusion of unnatural technology. Adams (2007) was right to suggest, however, that technological constraints are apparent in all forms of teaching, including the use of a blackboard, which "invites a different set of teaching practices and pedagogical relations" (p. 232). It follows that there are no natural and unconstrained pedagogies. It can be no longer a matter of trying to understand software-assisted presentations by contrasting them with some pure non-technological alternative.

It is worth noting that face-to-face teaching can itself be criticised, for example by being implicated in the reproduction of social privilege. Far from being a naturally democratic medium, discourse delivered in the classic elite lecture, at least, operates with a series of coded inputs which reward students who share privileged cultural backgrounds. Bourdieu, Passeron and Saint Martin (1994) argued that this is achieved through the frequent occurrence of ellipsis or allusion, for example. Only elite students are really in a position to fill in the missing referents in ellipses or follow the allusions. It is hard to avoid these coded elements, Bourdieu et al. (1994) argued, because they are intimately connected with the idea of a proper academic style. If this still applies, advocates of face-to-face might be warned that they too might be affected by the soft determinism of a particular technology while imagining uncritically that they can overcome its constraints by minor adaptations.

Written or recorded material provides a chance to remove these elements for those wishing to consider different styles, if only because writing down academic discourse encourages the editing of ellipses and allusions, and discourages scholarly display, especially in the form of spoken improvisation. However, written or recorded materials thereby run the risk of being seen as not conforming to proper academic style.

Some progress in analysing specific effects might be made by considering presentation software that clearly breaks with face-to-face teaching and offers possibilities of standing alone. Discussions also need to be broadened to include other options, specifically to include electronic forms such as multi-media or hypertext. Other forms of presentation software help to illuminate these options. However, critical analysis of the newer forms is not as widespread as with PowerPoint, so the ensuing discussion is based more on personal reflection following some actual use of the software. This use was extensive enough to prompt some insights, but there is no claim that it is sufficient to offer an actual guide to practice.

Microsoft Producer and multi-media presentations

Producer was designed as an add-on for PowerPoint, and it offers a chance to construct multi-media presentations easily and cheaply: it is free to licensed users of PowerPoint. The software enables the display of text, images, PowerPoint slides, audio and video tracks. A number of templates enable any or all of these elements to be accommodated on a single screen in panels of varying sizes, and it is relatively easy to customise the templates as well. Producer is also fully compatible with freely available software of slightly more power, such as Microsoft Movie Maker for video capture and editing.

Leffingwell, Thomas and Elliott (2007) gave some examples of what might be done using Producer software to record lectures or workshops. Sound is recorded either live or beforehand, and the sound files are synchronised with the PowerPoint slides used in the session. The software itself conveniently synchronises the components on command. The resulting presentation can be published in a form suitable for streaming or for distribution on a CD. Ortega, Stanley and Snavely (2005), at Boston University, used the same techniques to produce short introductions to topics instead of face-to-face sessions, and these are available to students online. Students take a short diagnostic test and then proceed to more conventional workshops: “residents have reacted favourably to this new Internet-based lecture” (Ortega et al., 2005, p. 106).

Neither of those examples used the facility to include video, although that is also possible. Using videos to try to capture live lectures is problematic, especially with simple equipment, and 30 minutes of “talking heads” is likely to lead to loss of attention. Some more engaging options are reviewed by Beard, Wilson and McCarter (2007). The conventional advice is to use what can be an expensive medium for topics that particularly require moving images; depicting sequences, using distinctively visual data, or demonstrating fieldwork, for example. Video can potentially extend ordinary types of perception with time-lapse or slow motion, or offer non-naturalistic points of view (crane shots, zooms, unobtrusive observation). Moving images can also deliver a sense of involvement, and make learning more sensory and real (Beard et al., 2007).

The notion of fully synchronised media seems to reflect the old notion of tight educational design in distance education, like the original “right first time” approach at the UK Open University in the 1970s (Harris, 1987), where everything had to be carefully controlled to be on message. However, it is notoriously difficult to control tightly the gaze and focus of an audience for video and many commentators have found that this limits a heavily didactic or simply instructional intention. This is not the only option though. Maxwell (2007) and Winn (2003) suggested that still images can be included simply because they interest and amuse students, and the same surely can be said for video. It was noted above that increasing the popularity of teaching sessions is an important feature of modern teaching. There is no need to emulate the production values of professional broadcasters, since material with much lower values is so widespread, including videos stored on YouTube, and low production values can have an educational role in appearing as raw material.

Audio tracks, similarly, need not always offer academic speech or commentary but might be musical, aimed at achieving affective objectives: calming, stimulating, involving or inspiring students, or orchestrating and punctuating instructional sequences. There is a substantial literature on the effects of musical accompaniment on educational activity, not least in studies of sport and exercise (see Martin, 2008), but as examples of more general work,

McRae (2007) showed how particular musical features are associated with “aesthetic chills”, themselves connected to openness to new experiences. Le Roux (2005) reviewed a number of studies of music in the workplace and suggested that musical accompaniment can decrease boredom, “improve performance by increasing psychological arousal, and vigilance . . . and increase psychological well-being” (p. 1106).

It might be possible to define a genuinely multimedia sequence as one that specifically does not offer tight synchronisation with strong didactic intent, but which offers a series of experiences where the different media communicate in a distinctive way. Producer caters for this possibility for designers, and also allows the user some control over the different media, including switching off their individual channels. If saved in a suitable pre-published format, as well as in the finished form, the presentation can also be decomposed back into separate elements like text and audio for student use (see Gilhespy, 2009).

Personal examples of Producer presentations are available online, and are offered here for critical inspection. The software only runs using Internet Explorer and, since it has not been supported by Microsoft recently, there are some occasional problems requiring another download. Harris (n.d.a) combined a video of an extreme sport with a panel of text summarising Lyng’s discussion of “edgework” (Lyng, 1990). It is intended that users see the video as raw material to test Lyng’s arguments and it is also very engaging to watch. Harris (n.d.b) has a series of PowerPoint slides summarising basic advice on preparing for unseen examinations, with video accompanied by music designed to affect mood positively.

Prezi and new visual metaphors

Prezi is a relatively new piece of software, so far not discussed in the literature, and available for use free of charge. Prezi offers a number of basic design templates enabling combinations of text, images, embedded objects and hyperlinks. These can be joined by adding a path between them. When the presentation runs, different sections are displayed in close up, in sequence, to give the effect of zooming.

It is possible to depict a network of concepts or arguments in an expert understanding, to return to the issues raised earlier by Kinchin et al. (2008), literally as a series of wheels and spokes, or as webs. These can be displayed initially to the viewer as a ‘zoomed out’ overview, and then the software can zoom in to examine individual arguments and sequences in more depth and detail. Any sort of suitable sequence, including a chain structure, can be imposed on the network by inserting pathways.

Prezi’s displays offer the same sort of limits on size as does PowerPoint; the narratives need to be broken down into fairly small pieces of text, if not exactly bullet points. However, Prezi also offers a number of operations that can act as additional useful pedagogic metaphors. The ability to zoom enables a piece of text or image to appear from the horizon of the screen and come into close up. This would seem to be an excellent visual equivalent to the very common surface/depth metaphor in social science, where what appears on the surface can only be explained by examining what lies beneath or behind the surface reality; the inexplicably diverse free choices of leisure activity revealing social patterning on uncovering the deeper effects of social class or gender, for example. Prezi presentations can also be configured to run on their own, and it becomes possible to leave other items barely visible on the horizon, encouraging users themselves to zoom in to find out what they are saying.

Prezi can make arguments seem to flow from one node to the next as the educational objects track across the screen. It is possible to reverse the flow and go back, and to indicate a diversion or aside. Different perspectives can be visually depicted as viewers see an object first one way then, as the display rotates, literally from a different point of view. Many examples of published Prezi presentations can be found on the main site (Prezi, n.d.).

Xerte and extended learning objects

Xerte started as an attempt to devise open source software to produce stand-alone reusable learning objects (RLOs), not specifically to accompany lectures. The team who produce

Xerte (University of Nottingham, 2008) have incorporated many user-friendly qualities, including a number of templates covering educational operations, which require no programming knowledge. The applications are predominantly based around text but there are also facilities to incorporate images, such as photographs, drawings and maps, audio and video, including a search function for videos already published online. Text is entered directly into text boxes on pages, but it can also be incorporated as Flashpaper documents or as hypertext connected via links.

JISC TechDis, an advisory body of the UK Government Joint Information Systems Committee focusing on accessibility and inclusion, recommends Xerte particularly, for its user-controlled options to change font size, page size or contrast. These are easy to operate and increase accessibility for visually disadvantaged users (JISC TechDis, n.d.).

A number of Xerte templates offer designers the chance to ask questions or set tests, including some involving text manipulation like drag and drop exercises to alter sentences or narratives. Sections of still images can be magnified and annotations added: "hot spots" can be selected, each with their own additional commentary when clicked. Video can be synchronised: text boxes are made to appear at chosen intervals as the video stops so that users can be invited to analyse sequences. Hyperlinks connect to commercial networking sites like DeLicious or Facebook, and can be added to other sites. Finally, the whole production can be saved as a template and anyone who downloads it, including student users, can edit, add or delete their own material.

It is possible to see conventions embedded in the software, as discussed earlier. The main forms of presentation are still linear, and there is encouragement to minimise the text for each page, since scrolling down the page is possible but less intuitively obvious to inexperienced users. The original conventions for RLOs also assumed particular pedagogical functions. Most explicitly, RLOs were designed to be small discrete operations involving the learning of particular isolated skills (see Koppi, Bogle, & Bogle, 2005). The main applications were in study skills (see the list at the RLO-CETL, n.d.) or research methods (see the list at MERLOT, n.d.). Designing objects like this meant they could be used as supplements to a wide range of actual courses (i.e., they were reusable). Clearly, the now-familiar objections also arise, principally that isolating abstract skills from whole contexts of knowledge is reductive.

With Xerte these assumptions can be reworked. It is possible to use the software to develop much larger and more extended learning objects (ELOs), covering a number of separate topics, much as a good lecture series might. The use of hyperlinks permits additional routes through the material, which users can pursue for themselves. The default route could follow a linear sequence from page to page, covering what is required, either for assignments or for the purpose of gaining an introduction or overview, but other routes could involve branching off from the basic sequence, via hyperlinks, into material which offers more detail, depth or controversy. Making these materials stand alone enables users to impose their own timings and directions according to their perceived interests.

An example of this extended use can be found online (Harris, n.d.c) and is one of those provided for a Sociology of Leisure module, intended to offer a series of pages on studies of social mobility in England and Wales. Newcomers can work through the pages to get some idea of the main themes in this work. Those aiming to explore further can click hyperlinks to be taken to a series of reading guides (see below) which summarise chosen pieces of work in more detail, highlight critical themes and organise debates between rival interpretations. Those reading guides contain still more links for anyone wishing to specialise further. Social mobility as a topic clearly leads into central areas such as social stratification, but there are also important methodological issues debated throughout, which might also be followed. Implications for Leisure students especially are dealt with in more detail in connected and accompanying ELOs such as one summarising a recent study on leisure and stratification (Harris, n.d.d).

A whole cluster of Xerte ELOs like this, stored online, could exceed the content limited by the organisational requirements of modules or prerequisites, and users could impose their own order on topics. This would encourage syllabus independence. Inexperienced students need not simply be exposed to the infinite resources of the Web as an immediate step after a specific pedagogic sequence, although it is still common practice to expect students to embark on a complex reading list after having had a conventional lecture. Offering some additional guidance can help. Such material might include web-based reading guides: a series of commentaries, critical reviews and summaries of key texts (see, for example, Harris, n.d.e).

Syllabus independence becomes of particular importance in the design of research methods modules. These face the usual constraints of having to fit material into a block of time and into a specific sequence, even if this contradicts good pedagogic practice. Often, there is such a wealth of material, and therefore many different research methods, that there will never be sufficient time in a conventional module to cover all of them. There are also a number of candidates for inclusion, from philosophical and theoretical discussions of methodology, to particular methods thought to be useful to employers (principally quantitative ones, possibly), to the particular craft elements of methods in use in particular academic specialisms. It often helps to engage students by linking methods modules to actual research they are undertaking themselves, say in the form of a dissertation. An online format that allows students to explore methods widely and at different levels, before, during and after doing their own dissertations, has an obvious appeal.

It is clear that these principles and choices have to be considered before actual presentations can be constructed. Familiar professional work is still needed to select suitable topics and teach them at an appropriate level while balancing all the other considerations such as costs, student assessment, choice and retention, the constraints and opportunities of working in teams. This work can sometimes be underestimated in the discussion of presentation software, which can depend on the technical characteristics of the kit, including the ease with which it can be used.

As a simple example, software like Xerte encourages particular kinds of interactivity, sometimes of a novel kind. However, motivating students to actually interact with any sort of presentation, face-to-face or stand-alone electronic, still requires some conventional pedagogical experience and understanding. Enthusiasts sometimes assume that all the participants are bursting with questions and interests, waiting only to be released by a dynamic video or test. A blended approach, where face-to-face contact can be used to diagnose individual difficulties, motivate and encourage individual pathways through obstacles seems to be the most promising option.

Conclusion

Presentation software cannot be seen as offering a simple technological fix to the classic problems of pedagogy and assessment which have been discussed above. At the same time, the devices do offer new possibilities, especially when considered as stand-alone electronic learning objects. Instead of always discussing the possibilities by referring to issues which are still grounded in face-to-face teaching, with criticisms that often simply assume the superiority of live presentation and discussion, the new software might be considered differently. In some ways, electronic teaching materials might be better understood as forms of mass media, with potential forms of audience engagement characteristic of television or radio, rather than those associated with the public talk or meeting.

One challenge is for designers to offer more openness in their materials, to reveal to students spaces where academic arguments can be questioned and gaps acknowledged, eschewing design principles that recommend a fully finished and authoritative episode with every student reaction predicted and controlled. Instead, open texts would encourage a number of readings. Students will still require some sort of resources based on educational or cultural capital to intervene effectively but an invitation alone will not always produce results.

In the academic subjects covered by this journal, there is a possibility of students using what Fiske (1987) called “popular cultural capital”, their own knowledge, as participants or as workers, in hospitality, leisure, sport or tourism practices and organisations. It is the ability to use such popular capital to locate oneself in professionally-constructed narratives that makes popular, non-educational media so involving and participatory. Thinking about educational equivalents seems to be an important challenge for the modern university.

An important issue is what actually happens in practice when both designers and student users interact with the software, in terms of both form and content. Actual use can expose critically the assumptions in apparently finished products or, quite to the contrary, close off discussion. The contexts in which such encounters take place are crucial. Practices can aim at making software-based sessions supplement, modify or completely replace conventional teaching; the products can be designed to enhance popularity or effectiveness (or both); and designers can use them to develop syllabus independence among students or to teach to the test more effectively. Students will have a complementary set of intentions. Innovative uses can be limited by a range of factors from levels of technical expertise to the degree of control exercised by conventions of teaching in particular institutions.

Detailed studies of actual use would seem to be required if we are to move beyond general discussion, perhaps involving the use of reflective diaries, as designers and users encounter constraints of various kinds and consider how or whether to overcome them. The analysis would then need to examine matters such as the circumstances in which lecturers use or refuse to use presentation software; what their intentions were in the encounter; whether constraints on their intentions emerged and if so from where; and what they imagine student use or reaction to be. The same set of issues might well be explored for student use too. Finally, it would be of interest to explore what additional meanings are energised by discussions of presentation software, and why the software seems to engender enthusiasm or abhorrence, technophilia or technophobia.

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