



Evaluating pedagogical affordances of media sharing Web 2.0 technologies: A case study

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This short paper describes a small, ongoing case study exploring how the affordances of a media sharing Web 2.0 application (*VoiceThread*) can be evaluated for its pedagogical value. Web 2.0 technologies emerge so quickly it is difficult for educators to gauge their actual value in practical terms. In many cases the latest Web 2.0 technologies are superseded almost before they emerge from their beta testing phase. Rather than focusing on the individual characteristics or details of the technology itself, this case study uses a new learning design framework (the Digital Artefacts for Learner Engagement framework: DiAL-e) to chart the affordances and uses which educators might find valuable. The tool has been used as the basis of an on-line pilot project for the Joint Information Service Committee in the UK (JISC) in which academics from further and higher education have been learning how to harness the potential of digital artefacts and Web 2.0 tools to enhance teaching and student learning. The initial responses from participants and tutors indicate this is a useful instrument through which to evaluate the potential pedagogical value of a particular application set within a wider socio-cultural context.

Keywords: VoiceThread; affordances; DiAL-e Framework; media

Introduction

Identifying particular pedagogical ‘affordances’ of educational technology is fast becoming the holy grail of educational technologists and researchers alike. Both are interested in identifying the unique feature sets and characteristics of particular technologies that add value to the learning experience, over and above, what might be expected without the technology. No where is this more apparent, at the present time, than in respect to Web 2.0 technologies (McLoughlin & Lee 2007; Mejias, 2005). This short paper seeks to explore further the concept of technological affordances with specific reference to Web 2.0 technologies in the context of media sharing applications.

The authors are currently developing and teaching an entirely online Masters module using Web 2.0 technologies and media rich artefacts (e.g. digital video, sound archives, digital texts) as part of a JISC sponsored project to investigate the issues of teaching online in post-compulsory settings. The module is a professional development module as part of a University Post-Graduate Certificate in Teaching & Learning in Higher Education (PGCertHE) for academic staff. The module focuses on the application and use of technology to enhance teaching and learning, and crucially, explores the issues arising when staff use and re-purpose digital content to support learning and teaching.

The module showcases a number of tools and artefacts designed to support learners in the tertiary sector. It is focused around a new learning design framework (DiAL-e framework) which concentrates on activities to engage students in meaningful and challenging tasks, rather than on content or the transmission of information alone (Burden & Atkinson, 2008). Although initially designing a tool to facilitate and support the design of learning activities, the authors have also begun to recognise the framework’s potential as an evaluative tool in a number of different contexts. In this paper we explore the potential of the framework to act as an evaluative tool in discriminating between the various affordances of a single Web 2.0 technology: a conversation sharing tool called Voice-Thread (<http://voicethread.com/>). The purpose of the article is not to explore a specific technological tool itself, but rather to explore in more detail than is often the case, the specific pedagogical affordances of a single technology application in order to illuminate with greater granularity the specific features of pedagogical affordances as a whole.

Background

In constructing an entirely online module based around the use of Web 2.0 technologies and focused on media rich resources, such as video archives, we were acutely aware of the disparities likely to be encountered if learners were required to reflect and discuss using a text based system alone. Reflection and peer review were central design elements in the module structure and students were required to post both personal and public reflections around their learning and the artefacts we were using in each unit. Therefore we were conscious of the need to find an online tool that would enable asynchronous comments and feedback from students and tutors alike around pieces of media such as video clips, images and presentations. In VoiceThread we believe we have found a tool that meets most, if not all, of our requirements. The tool is part of the Web 2.0 phenomena enabling learners to create conversations (threads) around media, using media itself. It is freely available, although a Pro account is required for more than three postings. The media under discussion can be almost anything ranging from still images, video clips, presentations, audio files, documents or any combination of these. The application has the ability to securely capture and hold an entire group discussion or thread on one page, making it visually clear and immediate for learners and tutors. In order to facilitate widespread take-up and participation the application is designed to accept a wide range of inputs from users including computer (e.g. microphone or web-cam), telephone, texting, hand-drawings, or uploading a file (e.g. audio file).

As with so many of the new Web 2.0 technologies VoiceThread was not designed specifically for an educational audience and it is widely used by a range of other parties including fan groups (e.g. the LGPA fan-book club), business interest and social groups in addition to educational users.

In terms of functionality the application includes:

- The ability to zoom in and look around a specific artefact (e.g. an image)
- Ability to leave (and easily delete) comments related to the artefact/object or related to other comments
- Simple navigation through pages (where more than one image is included)
- Video doodling: allows the user to write or annotate on a video (e.g. to show what might be happening)
- Create groups using tags
- Ability to keep the thread private, public or by invitation
- Various levels of access: able to watch but not comment; see and comment; co-editors
- Comment moderation: allows the author the opportunity to see comments before they are shown publicly

What are pedagogical affordances?

The rhetoric around the potential of Web 2.0 technologies to initiate and lead educational transformation is considerable (O'Reilly, 2005). However, very few of the current crop of Web 2.0 technologies started life designed as educational tools. In common with many educational technologies they have been appropriated by educators for pedagogical purposes. In some cases this is readily apparent but as McLoughlin & Lee point out the 'affordances' of such technologies are not pre-defined by their particular functionality (2007, p.3). In other words, the specific design and functionality of a particular tool or technology does not define its pedagogical usefulness. At least not by itself. Rather there are other important ingredients required including the imagination and creativity of the individual user as they conceptualise problems or issues in their own environment that the particular tool might facilitate or help solve. To illustrate this point McLoughlin & Lee note how blogging entails typing and editing, which are not affordances in themselves, but rather enablers of affordances which include idea sharing and interaction (2007, p.3). They identify the following categories of 'affordances' associated with Web 2.0 or social software:

- Connectivity and social rapport
- Collaborative information discovery and sharing
- Content creation
- Knowledge and information aggregation and content modification

They also make the crucial point that social software affordances do not, by themselves, guarantee that effective learning will occur. This requires 'careful planning and a thorough understanding of the dynamics of these affordances' (2007, p.4). It is the 'dynamics of these affordances' we are seeking to explore and identify in this study.

Methodology

We begin by applying McLoughlin & Lee's definition of the term affordances, namely 'the activities or practices that the function of a technology enables the user to perform', to this specific media sharing technology named 'VoiceThread'. Table 1 illustrates the various functional attributes of VoiceThread and alongside them the pedagogical 'affordances' which they enable.

Table 1: Technical features of VoiceThread and their affordances, after McLoughlin & Lee (2007)

Features of the technology	Affordances
<ul style="list-style-type: none"> Ability to zoom in and out of the specific artefact itself (e.g. an image) 	<ul style="list-style-type: none"> Concentrate or focus learner attention on specific aspects of the artefact
<ul style="list-style-type: none"> Ability to post asynchronous comments related to the artefact: e.g. <ul style="list-style-type: none"> written responses to an artefact audio comments video comments 	<ul style="list-style-type: none"> Learners and tutors can provide feedback about a media object (e.g. a video) at a granular level, attached to specific aspects or points of the object itself Opportunity for formative feedback on media related work prior to formal assessment
<ul style="list-style-type: none"> Ability to post handwritten annotation on the artefact (e.g. a video or image) 	<ul style="list-style-type: none"> Learners and tutors can identify specific temporal or spatial aspects of the artefacts and isolate these features for increased attention or concentration
<ul style="list-style-type: none"> Ability to post asynchronous comments related to other comments 	<ul style="list-style-type: none"> Communities of learners can see and respond to the cumulative postings and 'collective wisdom'
<ul style="list-style-type: none"> Artefact (i.e. the subject of the discussion) can be made accessible online 	<ul style="list-style-type: none"> Learners are able to receive feedback and comments from a global audience, easily and quickly – instant feedback possible
<ul style="list-style-type: none"> Ability to invite groups and keep the thread private, public or a mixture 	<ul style="list-style-type: none"> The 'learning conversation' can be managed by the teacher or learner to ensure it is open to the appropriate audience
<ul style="list-style-type: none"> Comment moderation (i.e. the tutor can decide if other comments are seen by those posting their own notes) 	<ul style="list-style-type: none"> This feature enables the tutor to decide whether to let learners see (and possibly be influenced by) other comments or whether to keep them all private until everybody has posted returns. This might be desirable in certain circumstances (e.g. tests)
<ul style="list-style-type: none"> Full discussion captured on one single page 	<ul style="list-style-type: none"> Visually the entire learning conversation can be conceptualised in one diagram rather than stretching though a long text thread

From this initial analysis it is apparent that the functionality of this particular application (left-hand column) does not always easily translate directly into an affordance with pedagogical significance (right-hand column). In some cases there is no obvious or apparent pedagogical use for the functionality of the tool. In other cases the pedagogical affordance will only be apparent under certain specific conditions and contexts. For example, the comment moderation function will enable a tutor to make posted responses invisible to other users until such a point as s/he wishes to reveal them. In the context of an examination class, in which the tutor does not wish individual comments to be influenced by 'group-think' this may be very useful. But such a context – particularly in light of the collaborative and social nature of our particular module – is unlikely to be universally required. Therefore this suggests the pedagogical affordance is also a product of the dynamic between context, functionality and social setting.

The DiAL-e framework and Web 2.0 affordances

The DiAL-e framework tool has been designed to support educators in identifying suitable learning designs based on learner engagement rather than subject content (Burden & Atkinson, 2008). The framework is an active, iterative development that enables users to populate a dynamic matrix with exemplars drawn from personal practice. The two axis in the matrix represent 'learning spaces' and 'learning designs'. Learning spaces are conceptualised in terms of size (large to small) or modalities of learning (online, lab space, mobile) as spaces in which learners use digital resources when engaging with the learning designs framework. The learning designs axis identifies ten discrete, though interrelated, approaches to engaging learners in learning activity. The framework continues to develop as overlaps in practical application are clarified and the different subject-orientated taxonomies are interpreted. However each of the 10 learning designs has a specific focus and articulates possible activities which require the learner to 'do' something with the resource in question.

Kirschner and others make the important point that affordances alone do not guarantee effective learning (2002). There needs to be an understanding of the dynamics between other features such as learning design. By using the DiAL-e framework we have begun to add value to this issue of identifying pedagogical affordances in Web 2.0 technologies. We identify with a much greater degree of granularity where the affordances for a particular technology are at their strongest. This is shown in Table 2 where we have proposed the pedagogical affordances for VoiceThread against each of the DiAL-e learning designs, by providing more insights and examples linked to pedagogically sound engagements. Although an application such as VoiceThread could be used in a wide variety of different educational contexts, the DiAL-e framework provides an additional level of filtering to specify, at a more practical level, the match with genuine learning opportunities.

Table 2: The affordances of Voice-Thread as seen through the DiAL-e framework

Applicable DiAL-e learning designs	Pedagogical affordances available through Voice-Thread
Stimulus activities (designed to engage or motivate learners)	Posting a video clip to Voice Thread without the sound, or soundtrack without the movie, and asking learners to post comments with their reflections about what might be happening or what might be missing - 'top and tail' exercise
Narrative or story-telling (understanding the nature of story and story-teller)	Shared writing (or speaking). The tutor posts an initial image, comment or video in the artefact window and learners construct a shared narrative around the object adding to each comment that is made.
Collaborative (working in groups to construct knowledge)	Using Voice-Thread to host the initial stages of an experiment (e.g. a video with voice over) and asking learners to undertake the experiment themselves and post their observation/data collections to this thread. Or - As a survey instrument to collect opinions: post the clip and invite learners to use their phone/text to comment on the piece
Conceptual (developing higher order thinking skills: e.g. hypothesising, analysis)	Predict, observe and evaluate design: Using a stimulating video clip or single image learners are asked to predict what will happen next: i.e. to make a hypothesis. After learners have left their prediction in the form of responses, the tutor uploads a new artefact showing the next stage allowing learners to refine their original prediction. Analysis: Using the zoom tool learners are able to focus in on a particular aspect of an image or diagram: ask students to analyse and give feedback on differing parts of the image
Empathy (encouraging learners to see the world from alternate perspectives)	By carefully selecting a suitable piece of media learners could be asked to undertake a series of different roles posting to VoiceThread perspectives they find difficult or personally disagree
Representational	Learners deconstruct an image or moving image text and leave postings around the artefact that build up to give a more complete view of how this piece of media has been constructed and what it really represents

Conclusions

The affordances of a specific technology (Web 2.0 or any other) do not stand alone from other considerations such as the social and cultural settings in which the learning is situated. Our initial experiences with VoiceThread and other similar Web 2.0 applications strongly under-line the importance of sound planning, imagination and creativity on the part of the tutor in designing meaningful learning experiences with these technologies. Affordances can be so broad and general as to be almost meaningless in terms of planning specific learning experiences. Our initial investigations using the DiAL-e framework as an evaluative tool suggest it has considerable scope and potential in assisting educators to identify which specific affordances might have value and in which contexts. In our ongoing study we are now moving to consider the impact and importance of space (the other axis of the DiAL-e framework) as another variable against which to consider affordances of particular technologies. We believe these two variables – space and learning design – will provide educators with a valuable instrument through which to gauge the potential value of a new technology, such as VoiceThread. To ask not what the tool can do, but what their students can do with the tool.

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