When a wiki is the way: Exploring the use of a wiki in a constructively aligned learning design

Peter Jones
Department of Social Work and Community Welfare
James Cook University

The second generation of Web-based tools, the so-called Web 2.0 applications such as podcasts, blogs and wikis, have captured the imagination of many educators, who recognise their potential for creating more collaborative and truly interactive online learning environments. However, whenever new technologies become available, there is a risk that they will be employed on the basis of novelty rather than for sound pedagogical reasons. To ensure that the latest crop of online tools are actually contributing in meaningful ways to the creation of effective and authentic learning environments, educators need to be mindful of the foundations of effective learning design and sound pedagogical principles. This paper explores the use of a wiki in a final year, undergraduate, social work course. Drawing on the concepts of constructive alignment and models for effective learning design, the wiki was integrated into a purposefully designed learning sequence in a manner which allowed students to engage in online collaboration directed at the achievement of a set of intended learning outcomes. In this way, the wiki becomes a fully integrated and coherent part of the learning experience, rather than simply a technological add-on.

Keywords: wiki, constructive alignment, learning design, social work education

Introduction

The advent and popularisation of the so-called Web 2.0 applications, including blogs, wikis and podcasts, has brought a renewed enthusiasm for the use of web-based technologies in higher education. Many commentators and educators have, rightly, identified the enormous potential inherent in these technologies for making online learning a more interactive, collaborative, and therefore satisfying, process, for both teachers and students. However, there is a danger that in the excitement of the desire to realise these possibilities, and to be seen to be at the leading edge of educational technology developments, educators will begin using these tools in ways which do not necessarily reflect adequate attention to issues of effective learning design.

Baldly stated, this is the issue of educators using technological tools, not because they serve a useful purpose in terms of their learning design and objectives, but rather, because they can. In other words, the very existence and availability of the technology becomes the rationale for its use, a situation with significant implications for the way we think about learning. As Lee notes,

> The novelty factor can often cause us to be tempted to implement the latest and greatest technology, sometimes without thinking carefully enough about whether or not this is actually going to result in meaningful learning. (2005:19)

The challenge for educators then becomes to include such web-based applications in their toolbox of potential technologies, and to integrate them into the design of their learning materials on the basis of an assessment of the degree to which their inclusion will contribute to the creation of a meaningful learning experience and, in particular, assist students in meeting identified learning objectives.

Two particular bodies of work may provide some useful guidance in making such an assessment, allowing educators to ground their use of ICT in the principles of effective learning design. The first of these is the work of John Biggs (2003) in developing the concept of constructive alignment, and the second is the recent work of Oliver (1999) and Oliver and Herrington (2003), developed, in part, as a component of an Australian Universities Teaching Committee (AUTC) project looking at effective online learning designs.

Constructive alignment

The concept of constructive alignment is based on a social constructivist view of learning, which argues that learning is a process of 'making meaning' whereby students construct their individual sense of meaning through the learning activities in which they are engaged (see, for example, Vygotsky, 1978; von Glasserfeld, 1987). This contrasts with transmission or banking models of learning which conceptualise learning as a matter of information transfer, from teacher to student. This foundation is particularly significant in terms of the design of learning materials and activities, as it highlights the need for educators to design learning experiences that will provide students with the opportunity to engage with resources and activities in such a way that the potential for 'meaning making' is maximised. In this sense effective, integrative design is identified as crucial to effective teaching and meaningful learning.

Alignment, in the sense used by Biggs (2003) refers to the need to ensure that there are clear and logical connections between the intended outcomes of the learning experience and the practices and processes utilised in the learning environment. In other words, what the educator does, must sit in a clear and coherent relationship to what it is hoped students will achieve. While a range of elements of the learning process can be considered as part of alignment, the key elements usually identified are a set of intended learning outcomes (ILOs), teaching and learning activities (TLAs), and student assessment. Biggs' model is predicated on first identifying appropriate ILOs which then effectively define the form of student assessment and suggest the most appropriate teaching and learning activities. This is often represented as a linear process:

ILOs ⟶ **TLAs** ⟶ **Assessment** ⟶ **Evaluation**

The incorporation of ICT, and web-based applications in particular, may occur in either or both the TLAs and the form of student assessment. The point, according to this idea, is to ensure that their inclusion is purposeful and reflects an alignment between the intended outcomes and the teaching and assessment methods. Including a blog or wiki as part of a learning experience, simply because the available technology allows you to, or because it is a new and exciting method, would not necessarily meet the criteria for constructive alignment. Including one because it constitutes an activity or form of assessment which will assist students in achieving the intended learning outcomes would, however, be consistent with principles of constructive alignment.

Increasingly, such ILOs may indeed include specific reference to the desire to equip students with the skills and knowledge required in a technology driven world. As Walker (cited in Lamb, 2004:44) notes, the development of 'network literacy' becomes in itself an increasingly important learning goal for students in higher education, and one that is obviously well placed to make use of the emerging Web 2.0 technologies.

Learning design

Another way of thinking about the rationale for inclusion of web-based tools in higher education comes from work that has been done around ideas of learning design and learning sequences. Some of this material stems from a project initiated by the Australian Universities Teaching Committee (AUTC) and is perhaps best represented in the work of Oliver (1999) and Oliver and Herrington (2003). Oliver contends that when we think about designing a learning experience, we should consider three critical elements and the way that these overlap and interact. These elements are learning activities, learning supports, and learning resources (Figure 1).

The educational designer, according to Oliver and Herrington (2003), should engage in a three stage process of design, with the first step involving consideration of the learning activities that students will engage in, including formal assessment processes and tasks. The second stage is designing the supports that will be made available to students to assist them in completing these tasks and to provide scaffolding and feedback. Finally the designer needs to make decisions about the resources that are to be made available to students, which they will then engage and interact with, allowing them to successfully complete the activities and facilitate support.

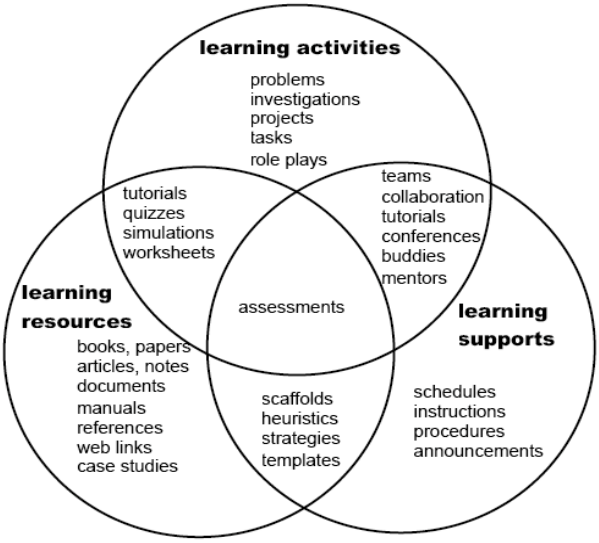

Figure 1: The design framework (Oliver and Herrington, 2003:14)

Using these design elements, it is possible to construct learning sequences, which illustrate the relationship between these elements over time. A very basic sequence, drawn from a traditional classroom setting, might look like this, where learning resources are represented by a triangle, activities by a square and supports by a circle:

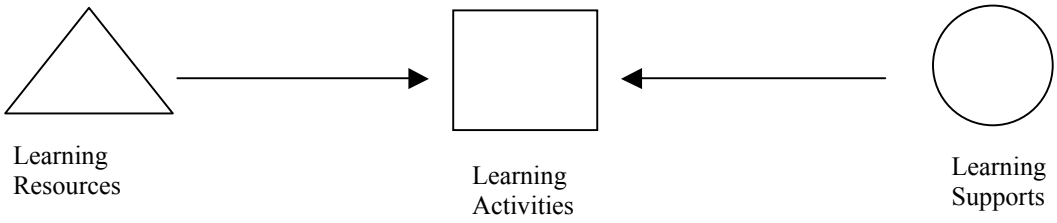

Figure 2: Learning design sequence

A number of examples of the fuller articulation of learning sequences are available through the Learning Designs website, where results of the AUTC project mentioned above are displayed (Learning Designs, 2003).

The argument made in this model is that the use of such a purposeful design process maximises the creation of learning environments that will effectively promote knowledge construction. The design sequence asks us to consider the relationships between the various elements, and in this sense there are also clear connections to Biggs' concept of constructive alignment. Taken together, these ideas give us some clear tools to use, and issues to consider, when designing learning experiences that may incorporate ICT, and web-based learning applications in particular.

Integrating a wiki into a constructively aligned learning design

'Theories for Social Work Practice' is a final year subject in the Bachelor of Social Work degree at James Cook University. The subject is offered both in an on-campus mode, with a traditional lecture/tutorial format, and as a fully distance education subject, where students receive a set of print materials containing core resources for the subject. Both cohorts of students have access to a BlackBoard based subject website which exists on 'LearnJCU', the university's web-based learning system.

In designing the subject, a number of Intended Learning Outcomes were identified. These included ILOs which stated that by the end of the subject, students should be able to:

- Describe the features of a range of particular practice theories and critique these with reference to the counter-oppressive perspective

- Demonstrate an understanding of the applicability of various theoretical perspectives for practice in different social work domains

In addition to these specific learning outcomes, James Cook University, like many other tertiary institutions, has also articulated a number of generic attributes or skills which all graduates should possess and which, therefore, should be incorporated into course design. These generic attributes include, amongst many others:

- the ability to use online technologies effectively and ethically
- the ability to work with people of different gender, age, ethnicity, culture, religion and political persuasion
- the ability to deploy critically evaluated information to practical ends

Taken together, the ILOs and the graduate attributes establish the foundation from which learning tasks, supports and resources are developed, in a manner consistent with the principles of constructive alignment. In the case of 'Theories for Social Work Practice', an additional challenge was to design the learning experience in such a way as to meet the unique needs of both on-campus and distance education students. Furthermore, the subject design took place within the context of a pedagogical philosophy that identified collaborative and cooperative processes as desirable features of effective teaching and learning (Rodriguez Illera, 2001; Fish, 2006; Lee, 2007).

The next stage of the design process was to develop a student activity that would allow the achievement of the first of the ILOs identified above, i.e. to 'Describe the features of a range of particular practice theories and critique these with reference to the counter-oppressive perspective', and which could accomplish this by creating a mechanism for students to work collaboratively, particularly in light of the fact that many of the students were geographically dispersed. Making use of the online environment made sense in such circumstances and wiki technology in particular offered the potential for students to work together on researching and articulating the features of practice theories for social work.

The wiki has become very well known as a piece of social software in a relatively short time span. The nature and features of wikis have been discussed extensively elsewhere (see for example Augar, Raitman and Zhou, 2004; Chawner and Lewis, 2006; Tonkin, 2005; Lamb and Johnson, 2007) but essentially, a wiki is a web site that is editable by users, who access the site through a standard web browser. The most well know and often referred to example is Wikipedia, an online, collaborative encyclopaedia.

The particular characteristic of the wiki which has made it of great interest to educators is the potential it has for facilitating online collaboration through an effective, easy to use interface. Wiki software is relatively flexible and adaptable and a number of case studies are now emerging of its application in different types of learning environments (Bruns and Humphries, 2005; Boulos, Maramba and Wheeler, 2006; Chen, Cannon, Gabrio, Leifer, Toyne and Bailey, 2005; Godwin-Jones, 2003). Many of these accounts point to the value, or potential value, of the wiki in increasing levels of interaction amongst students online and in creating opportunities for truly collaborative practices that move beyond those offered by, for example, asynchronous discussion boards and email.

In 'Theories for Social Work Practice', the wiki was used as the method for a particular learning activity. The TLA that was developed for the subject was an assessment task where students enrolled in the subject were allocated into groups of 6-7 and asked to construct a collaborative account of the major features of a particular practice theory, using a wiki tool situated on the Blackboard subject site. Each group contained a mixture of on-campus and distance education students, who communicated with each other via asynchronous discussion boards as well as email and phone, if, or where, students themselves negotiated these latter methods. Student groups in both on-campus and distance modes had access to the same sets of learning resources, in the form of prescribed textbooks and journal articles as well as lecture material and peer discussions, delivered either face-to-face or via print and online discussion boards.

Selecting specific aspects of the ILOs and graduate attributes, the alignment of these elements can be demonstrated as in Figure 3.

This serves as an example of constructive alignment because the assessment tasks and teaching and learning activities are congruent with the intended learning outcome, desired graduate attributes, and pedagogical philosophy in such a way that successful engagement in the activities, and completion of the assessment task, maximises the potential for the achievement of both the ILO and graduate attributes.

Similarly, the second of the ILOs identified above, i.e., that students should be able to 'demonstrate an understanding of the applicability of various theoretical perspectives for practice in different social work domains' was aligned through similar teaching practices and a piece of assessment requiring the application of a theoretical perspective to an authentic case study.

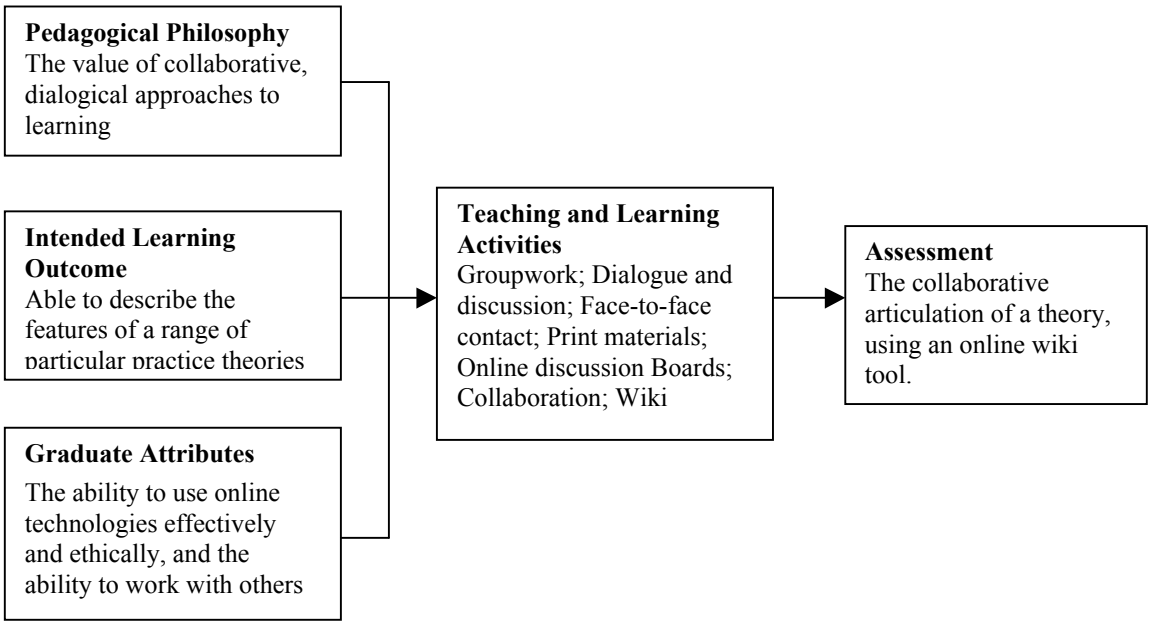

Figure 3: Constructive alignment of learning elements

A further interesting and valuable dimension of this design is revealed when looking at the elements through the lens of Oliver and Herrington's learning design construct (2003). In this articulation of the learning design, the learning activities, resources and supports are identified and related to each other, displayed as a learning sequence in a temporal format.

In this learning sequence, which is actually part of a larger sequence used in the subject but extracted here for illustrative purposes, the initial learning activity is the piece of assessment requiring students to work online in groups to produce a collaborative account of the features of a social work practice theory, using a wiki tool. The learning resources made available for students to engage with and draw on in this task included prescribed texts, journal articles, web links, lectures, and lecture notes, provided either face-to-face, online or in print form depending on the students' mode of study. The learning supports included the asynchronous discussion boards where wiki groups negotiated and collaborated on the task, the 'Guide to Wiki Use' provided by the lecturer, a 'test' wiki established for students to try out and develop familiarity with the technology, and face-to-face, email and phone contact between individuals, groups and teaching staff.

The wiki produced by each of the student groups was then made available to the entire student cohort. This allowed the outcome of the learning task to now assume the role of an additional learning resource, as students were able to draw on the content of their peers' wikis when completing the second assessable learning task, the case study application of a particular theory for social work practice.

Constructively aligned, designed with intent

This account demonstrates the use of a wiki, as an example of a Web 2.0 technology, in a way which attempts to move beyond the use of technology for technology's sake towards an integrated, purposeful incorporation of the technology to maximise the potential for meaningful learning. The wiki in this example is aligned in a manner that reflects Biggs' (2003) concerns by ensuring a logical relationship between the wiki task as a piece of assessment, the intended learning outcomes, the pedagogical philosophy, the desired graduate attributes and the teaching and learning activities. The successful completion of the assessment ends up, almost inevitably, meaning the successful achievement of the learning outcome, and the learning activities engaged in along the way are clearly directed at this goal.

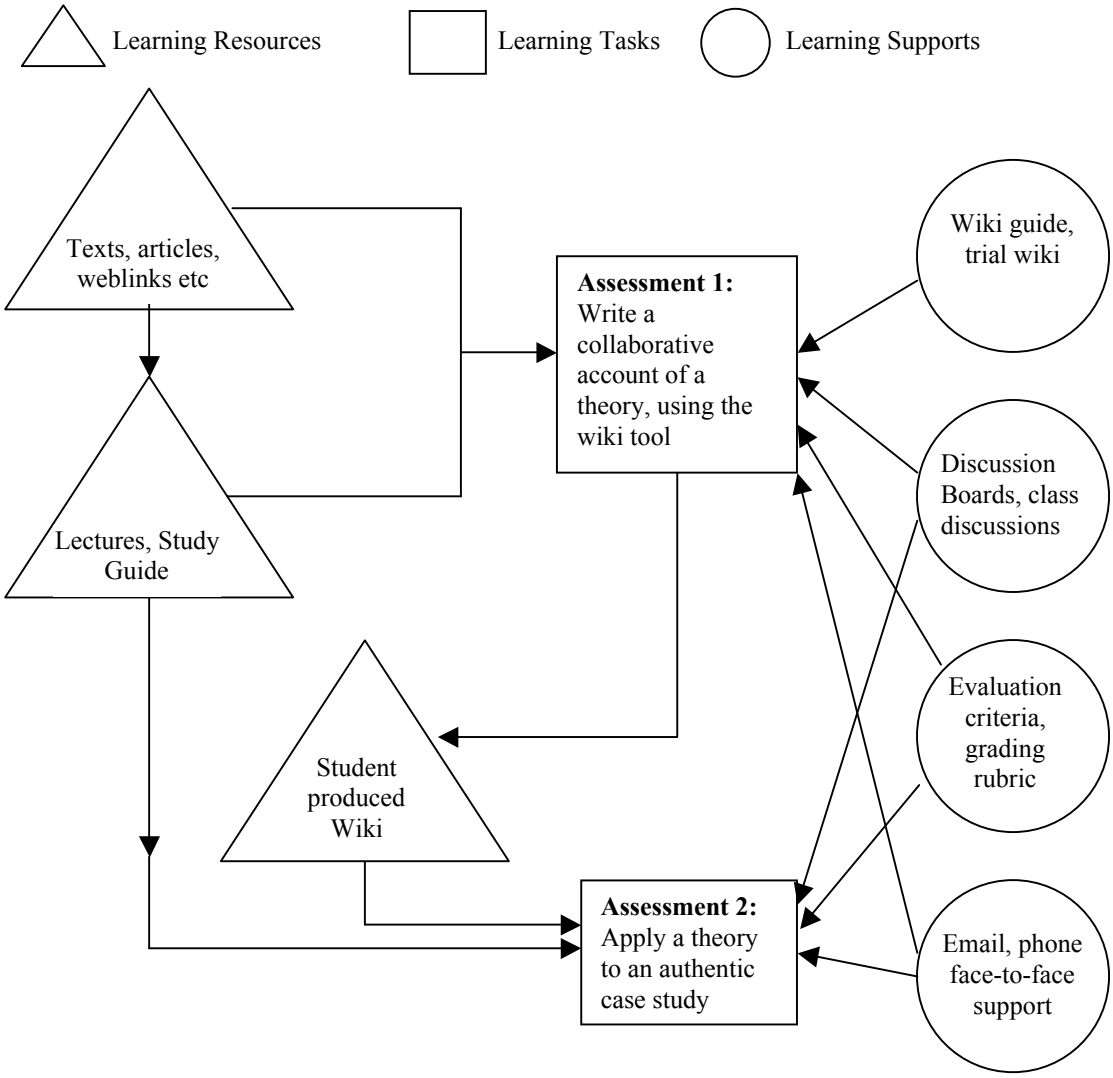

Figure 4: Temporal learning sequence

The wiki is designed into a learning sequence as an integrated component, a specific task which is clearly related to both a set of resources and a system of supports, helping to ensure a learning environment that maximises knowledge construction. As Oliver (1999) and Oliver and Herrington (2003) have demonstrated, these elements are critical in the development of successful learning designs, particularly those which are ICT mediated. Displaying the design in the form of a temporal learning sequence allows the designer to identify and capitalise on potential relationships between these three elements, for example, in this case, the situation where the outcome of a student task (the wiki) becomes, in turn a resource to be used in the completion of a subsequent student task (the case study).

While not specifically addressed in this paper, an evaluation of the effectiveness of the integration of wiki technology into a constructively aligned learning design is also an important component of this process. The author is currently undertaking such an evaluation, including a content analysis of students' contributions to the collaborative process and their discussions on the asynchronous discussion boards related to the wiki assessment.

Conclusion

There can be little doubt that web- based technologies, and in particular second-generation tools such as podcasts, blogs and wikis, will play an increasingly important and prominent role in higher education. There are already many examples of such technology being employed in a wide range of learning environments. It is vitally important, however, that the excitement surrounding the possibilities and potential offered by such technology doesn't distract educators from the need to ensure that their introduction is based on a sound pedagogical foundation.

This paper offers an account of an attempt to incorporate a second generation web-based tool, a wiki, into a subject on the basis of its pedagogical congruence and coherence. It is certainly not a perfect, or even an entirely successful, example of this goal, but it does perhaps illustrate some of the issues which might usefully be considered when examining the relationship between pedagogy and technology.

While there will be many possible approaches to ensuring that technologically mediated learning reflects sound educational principles, the work that has been done on constructive alignment and learning designs, as demonstrated by Biggs (2003) and Oliver (1999), suggests some very useful ways forward in this regard. Ensuring that technology, when used, is used on the basis of its legitimate place in a constructively aligned, coherent learning sequence, and not simply on the basis of its availability, is one way of guaranteeing that the technology is serving, rather than driving, the creation of effective and meaningful learning environments.

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Peter Jones
Department of Social Work and Community Welfare
James Cook University, Douglas, Townsville, Qld 4811
Email peter.jones1@jcu.edu.au

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