ABSTRACT

This paper is aimed at bridging the divide between the two extremes: that the latest generations of ICTs are a panacea for all the problems facing education or, that since the majority of students do not have access to advanced ICTs and probably will not have in the foreseeable future, programme designers should ignore the potential of ICTs altogether when designing their programmes. Rather than adopt an either/or approach, a mixture or blend of the two is proposed. A blended delivery is discussed to explain that it is more than a sum of its constituent parts, but also that its benefits and disadvantages must acknowledged. A plethora of factors impact on a blended delivery system, and some of these will be considered, using the Durban University of Technology Department of English and Communication’s Comm. Skills Online course (PRINTS Project) as a case study. The PRINTS Project uses a blended course delivery for a first year communication skills course, working within a multitude of factors that are experienced at most tertiary vocational training institutions throughout the country. Whilst these include lack of access to the latest technologies, the project is able to utilise existing ICT to enable our learners to use the facilities more fully when they are encountered. A description of the PRINTS Project illustrates that blended delivery enhances not only course specific learning but also provides scaffolding for broader academic literacy. The delivery process is analysed within a critical realist orientation, which is highly compatible with the constructivist learning approach of the PRINTS Project and has additional ontological dimensions which are helpful in pointing the way to social transformation. Fundamental to this orientation is the concept of social mechanisms which sustains the social system. This concept is discussed to indicate that an understanding of the input factors of the blended delivery system can be used to better achieve the desired output. The paper discusses a tentative empirical model of blended delivery which can be used to identify some of the key factors which contribute positively or negatively towards blended learning in multicultural settings. This may point the direction of further research and aid in course and curriculum development.

Key words: blended delivery, course evaluation, critical realism, modelling, social mechanisms.

INTRODUCTION

This paper is aimed at bridging the divide between the two extremes: that the latest generations of ICTs are a panacea for all the problems facing education or, that since the majority of students do not have access to advanced ICTs and probably will not have in the foreseeable future, programme designers should ignore the potential of ICTs altogether when designing their programmes. Rather than adopt an either/or approach, a mixture or blend of the two is proposed. A blended delivery is discussed in general, including descriptions of various types of blending. Using the Durban University of Technology Department of English and Communication’s Comm. Skills Online course (PRINTS Project) as a case study, a specific type of mixed mode delivery is elucidated to explain that it is more than a sum of its constituent parts. Although it will be noted that a plethora of factors impact on such a blended delivery system, for reasons of brevity only some of these will be considered for illustrative purposes. The mixed mode delivery system is then analysed from the researcher’s perspective to show that an understanding of the factors, both negative and positive,
that affect blended delivery can assist both course design and curriculum development. A critical realist analysis is proffered, and the central tenets of such a research orientation are explained. This explanation presents an argument as to how it may assist the research process. The paper concludes with a discussion of a tentative empirical model of blended delivery which can be used to identify some of the key factors which contribute positively or negatively towards blended learning in multicultural settings.

**MYTH OR PANACEA**

A quality online environment is essential to enhance the learning process (Herrington, et al 2001; Paterson, 2005; Pratt 2003a, 2003b, 2003c; Smith, 2005; Warschauer, 2002). The online environment can spread delivery where staff numbers are thin in the face of an ever expanding student body. The designers can collaborate with the facilitators who draw feedback from the learners. Staff induction programmes (as is available at DUT) empower more and more lecturers to be able to facilitate and manage their own online environments. These allow further development of the course module, catering towards specific diploma relevance and industry needs. The class lists can be easily managed on the LMS (learning management shell/system), and revision and assessment become totally automated. These systems not only increase efficiency but also provide qualitative enhancements. However, these systems do not come without problems (Oliver & Trigwell, 2005; Paterson, 2005; Pratt 2003a, 2003b, 2003c; Smith, 2005; Warschauer, 2002). An online environment necessarily requires substantial initial funding, but also investments of time. Designers must build the learning environment within the LMS after the underlying pedagogies and objectives have been thoroughly researched. Facilitators must register the learners on the class lists after confirming all registrants through (usually) the traditional paper based class-list updates that swamp service departments at vocational training institutions in South Africa, whilst maintaining an online presence and perpetual updates. The learners must be introduced to the LMS, a system that may well determine and manage their results. The initial funding becomes inadequate to maintain the hardware capabilities. More paper based forms to justify the need for more P4’s in more venues with more peripherals and more reliable connectivity and multimedia capabilities. Once you consider research funding it is easy to understand why so many suggest that online learning should be ignored.

In the face of this dilemma, the obvious route seems to adopt a blended delivery (Herrington et al, 2001; Oliver & Trigwell, 2005; Pratt, 2003a, 2003b, 2003c; NADEOSA Conference theme 2004)). An optimum mix of the critical elements suggested by Herrington et al (2001) may be one aspect of a blended delivery. In developing these critical elements they draw on a plethora of literature which reiterates the two extremes constituting the theme of this year’s conference, yet they maintain that awareness of contextualisation should inform which elements assume priority. Paterson, in examining how information systems can be variously utilised, he suggests differing ‘configurations of platform, architecture and software elements to meet institutional needs’ (2005). Oliver and Trigwell, in a critique of blended learning, acknowledge that it is a valid response to ‘the failure of purely online learning to meet the training needs of organisations’ (2005: 21). Their criticism of blended learning has two foci: inconsistent application of the term, and a concentration on teaching and instruction rather than the learner centred approach that is currently adopted. Their expanded list of definitions of blended learning, drawn from the literature, run from a combination of pedagogical approaches, through mixing of tools and media in the learning environment, to an integration of online and traditional face-to-face teaching. Whilst it is true that the term blended learning is taken to imply different things in varying contexts, it cannot be refuted that what happens in these various contexts is indeed a blend or mix of different methodological approaches. It therefore may be unwise to discard the term, given that the literature pronounces that what happens in most higher learning institutions today is a blend drawn from ongoing research. Needless to say, a learner centred approach, as suggested not only by Oliver and Trigwell but by most current writers, should drive current research.
The PRINTS Project has been conducted by DUT’s Department of English and Communication for the past four years. Pratt describes how it was developed to meet the changes sweeping through the institution ‘in an attempt to find creative solutions to problems such as larger classes and diminishing resources’ (2003a). The Project began as a translation of the previous (traditional face-to-face) scenario project that integrated the different modalities of speech, writing and nonverbal communication, requiring learners to investigate and report on a specific problem which was relevant to their field of study. The course elements weave together small group project work, experiential learning and simulations in an outcome based development of higher order competencies. Translated into electronic mode the scenario became more real in that the learners were required to conduct an internet search for Professionally Relevant Internet sites. Learners are required to find a number of sites within a set of themes that have direct relevance to their diploma studies, describe these sites and indicate their usefulness in terms of the project criteria. Classes are held in computer labs to facilitate access to the internet, and initial instruction on the LMS and general computer literacy scaffolding is provided by the facilitator during class time. Class session tasks are posted on the LMS leading up to the final presentation of a written formal report which is uploaded to the LMS. Finally, the learners’ research also provides the content for a group oral presentation.

The first intrinsic benefit to such a project is that the content which drives it is necessarily diploma specific and relevant to each different group of learners, yet Pratt envisioned many more which can be attributed to the online aspect of the project. Course Notes and other project materials can be displayed online thereby bypassing duplication delays, and compensate for faulty audio-visual equipment; links to other educational sites extend available resources without adding to course costs; learner exposure to computer mediated communication; email and discussion facilities allow for communication between students and students, and students and facilitator across geographical distance (DUT has six campus spread between Durban and Pietermaritzburg) as well as after lectures; online resources such as self tests and slide shows compensate for the lack of individual tutor attention; increased learner motivation due to the enjoyment of browsing the internet; and increased academic literacy (Pratt, 2003a) Academic literacy, probably the most important aspect of any communications course, is variously enhanced through the PRINTS Project. Surveys show that learners read far more than they would normally have done because of the online availability of texts (2003a). Reading skills were developed because the learners had to review large numbers of texts, thus improving higher order cognitive skills such as analysis and assessment. Van Wyk draws the important conclusion that ‘academic literacy is taught in context with a focus on the real-world skills learners will need to succeed in the academic discourse community’ (2004). The PRINTS Project mimics such real world activities not only because of the professional relevance, but also because of the requirement to reproduce, reflect and report upon their findings. The learners engage in online written discussion which constitutes a form of peer review. It was found that the learners ‘produce[d] better structured and polished written work because it was on public display’ (Pratt, 2003a).

Although the project is considered a success it is not without problems. Post merger class sizes often exceed the number of computers available to learners, and many learners have never used computers. The computers available to first year students are antiquated and susceptible to infection and other glitches. Budgetary allowances often preclude updates for these groups. However these problems, seen as challenges, can be overcome. The group work nature of the project made it seem natural for a group of five learners to work around one or two computers, with some doing the actual searching whilst others took notes and drafted responses to the weekly tasks. Group members undertook peer teaching because group competence means that the end results appear more professional thus gaining higher marks. Although the machines and peripherals are not cutting edge technology they are sufficient to achieve the tasks at hand. It would be nice to use Bluetooth technology to present slideshows from laptops through digital projectors, but perhaps that is a misplaced want. A real drawback to our mixed mode course again lies in the nature of the
course: the users are exposed to the internet with all its rich resources and become distracted from the actual task. This applies equally to facilitators as it does to learners. It has been found that the learners will browse their webmail, upload ringtones and wallpaper for their cell phones. Some will browse non-professional sites looking for song lyrics, social contacts and illicit materials. Again, this precipitates from the nature of the course and is intrinsic to such a mix in delivery. The impact of such factors is the focus of a research project being conducted by the author. Implicit in this research is that mixed mode or blended delivery does enhance the learning process by making the learning environment more inviting to learners. The aim of the research is to harness the positive factors (enhancements) whilst nullifying the detractors (inhibitors) within the blend.

CRITICAL REALIST RESEARCH

Earlier in this paper the many different types of blended learning were illustrated, and it was amply clear that the greatest challenge in the PRINTS Project was to decide on the mix of resources, activities and media which have the potential to enhance learning (Pratt 2003b). As researchers, those involved in the project decided on a constructivist pedagogy which ‘encourage[s] learners to construct their own meaning from knowledge and information in the learning process and places an emphasis on interaction and socialisation among learners’ (Herrington et al, 2001: 265). Yet the designers had to also decide on authentic activities and maximising the potential and minimising the distraction of an online environment. The ongoing research aims to transform the learning environment at higher education vocational institutions, and develop better, more relevant and more exciting courses for our learners.

There is a large and multifaceted range of users of online learning environments, including learners, instructional designers and administrators. Further, a blended delivery is more than the sum of traditional and eLearning delivery, as aspects of each may combine in unexpected ways. The actors in a learning environment are not individuals in a social vacuum (Smith; 2005). ‘Human processes and interactions are intertwined and rely on underlying plans, situated actions, observable and unobservable behaviour’ (von Brevern; 2004: 6), that is, they are always already contextualised. The online researcher must perpetually analyse not only each element, but also the interaction of the whole. The researchers in this project have found that critical realism provides a firm philosophical foundation to examine these systems. In an eLearning environment critical realism aims to expose the working of the processes with which the actors must engage. Its explanations posit ‘underlying mechanism[s] (M) which generates the regularity and thus consists of propositions about how the interplay between structure and agency constituted the regularity’ (Pawson and Tilley; 1997: 71 cited in Carlsson; 2003). Simply put, Context (C) + Mechanism (M) = Outcome (O). The researcher, then, seeks to determine what works best for whom in which environment, the designer implements (builds) the suggestions (hypotheses), whilst the learner interacts with the course as an eLearning environment. Each has different experiences, hence a subjective epistemology.

Critical realism is a complex philosophy developed mainly by Roy Bhaskar (1978, 1979). Critical realism is highly compatible with the scaffolded constructivist learning approach which has proved so effective in the PRINTS Project, but has additional ontological dimensions which are helpful in pointing the way to social transformation. It is compatible with a ‘soft’ constructivist teaching approach (see Pratt & Gutteridge, 2006 under review) because, while critical realism has a realist ontology, its epistemology is constructivist. It is not, however, compatible with hard constructivism which holds that reality is a social construct. In critical realist terms this commits the epistemic fallacy – that being is defined in terms of knowledge.

Critical realism is anti-positivist, and works sensitively towards social transformation by exploring the complex system of social forces underpinning everyday social functioning. ‘Thus, critical realist explanation involves the uncovering of the underlying structures and mechanisms that co-determine a particular empirical outcome’ (Smith; 2005). Table 1 reflects that the critical realist ontology includes external reality (‘domain of the real’) and acknowledges that we cannot directly know all aspects of this reality. It takes cognisance of human experience (‘domain of the actual’) as
well as human reflections and theorising (‘domain of the empirical’), and these may include theories about the nature of the ‘real’.

Table 1: Bhaskar’s three domains (1978:56)

<table>
<thead>
<tr>
<th>Domain of real</th>
<th>Domain of actual</th>
<th>Domain of empirical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanisms</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Events</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Experiences</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Critical realists model open ended systems operating in real world situations (Bhaskar, 1979: 45). The systems and processes are undeniably real, and they secrete emergent properties independent of the researchers or their knowledge of them. The knowledge gained through observation and analysis of these properties remains subjective and transient. A subjective epistemology is common to both constructivism and critical realism. However, whilst that is sufficient in a learning and teaching paradigm, it raises serious problems as a research orientation. A plurality of realities is the necessary result of constructivist research theory. ‘If there is no rational basis to choose between competing theories then how can one justify any particular generalisation’ (Smith; 2005)? How would the researcher be able to argue for the implementation of any one modification? The critical realist suggests that the subjective epistemologies are the result of the experience and analysis of emergent properties of the generative mechanisms at play (firing) for that specific context. It is based on a realist ontology. That is, that the structures and objects exist independent of our knowledge of them and that they effect and affect events and our knowledge of them. Thus the objective reality allows ‘a researcher to generate some means of making independent judgements about the institutional structure and power relations present in an IS [information systems] initiative’ (Carlsson; 2003: 17). In this way, theoretical relevance to social systems is described and generalisations can be justified.

A MODEL OF BLENDED LEARNING DELIVERY

This process can be seen to involve a type of classical induction, where a hypothetical formal structure is inferred from the properties of the system. Bhaskar describes this as a transcendental argument, and it makes it possible to distinguish the applied aspects of the mechanisms more clearly. Pratt describes a theoretical model of the formal structure of the social mechanisms involved in blended learning delivery as consisting of five essential communicative functions providing felicity conditions for successful communication: the contextual, ideational, interactive, social and reflexive functions (Pratt, 2005:4).

• Contextual: This function relates to the social context in which knowledge is constructed, and requires the course designer to decide how learning is to be contextualised.
• Ideational: This function relates to the source of the knowledge to be constructed, or the process whereby knowledge actually comes into being, and raises the question of what course content/materials are to be provided, and how.
• Interactive: As knowledge is constructed in learning interactions (including interactions with course materials and other resources), the course designer needs to anticipate how participants will interact in constructing knowledge.
• Social: The social parameters, conventions or constraints operating in a given learning situation need to be identified and made explicit to learners, particularly in respect of local assessment criteria.
Reflexive: This relates to how participants will reflect on and assess their performance in constructing knowledge, and includes the issue of formal assessment and how it will be carried out, as well as course assessment (Pratt & Gutteridge, 2006 under review). Pratt argues that these five function can be viewed as a generalizable principle of course design and that they equally provide a theoretical model of blended learning as they identify the functions which need to be carried out in both modes of course delivery (2005: 5). An advantage of this modelling system is that it is descriptive rather than prescriptive in that it does not show how the functions should be carried, but rather which functions are operative within a specific context. The author’s current research has found that each aspect of the blend, that is the traditional and the eLearning delivery, has both positive and negative influences, and that the blend effect may serve to soften, heighten or otherwise modify these influences. Table 2 postulates an empirical model of a blended learning delivery system and attempts to illustrate this complexity.

Table 2: Empirical model of a blended learning delivery system

<table>
<thead>
<tr>
<th>INPUT</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>in terms of learner culture</td>
<td>in terms of access and affect</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FUNCTIONS</th>
<th>Traditional delivery</th>
<th>BLENDED DELIVERY</th>
<th>eLearning delivery</th>
<th>FUNCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>contextual</td>
<td>Actual classroom</td>
<td>&lt;- comfort zone outer limits -&gt;</td>
<td>Virtual classroom</td>
<td>contextual</td>
</tr>
<tr>
<td>ideational</td>
<td>Oral/written texts</td>
<td>&lt;- limited resources unlimited resources -&gt;</td>
<td>Hypermedia texts (but: nonprofessional sites)</td>
<td>ideational</td>
</tr>
<tr>
<td>interactive</td>
<td>Small group face-to-face interaction/reading-writing</td>
<td>&lt;- personal warmth more interactivity -&gt;</td>
<td>Predominantly reading-writing (but: chat rooms)</td>
<td>interactive</td>
</tr>
<tr>
<td>social</td>
<td>Teacher precepts, parochial group mores</td>
<td>&lt;- rule-governed socially mediated -&gt;</td>
<td>Global/cyber social awareness</td>
<td>social</td>
</tr>
<tr>
<td>reflexive</td>
<td>Teacher/peer feedback (including formal tests)</td>
<td>&lt;- narrow feedback wide range feedback -&gt;</td>
<td>Teacher/peer/public feedback, online tests/self-tests</td>
<td>reflexive</td>
</tr>
</tbody>
</table>

The model is developed from Pratt’s theoretical model, yet is tentative and does not claim to be exhaustive. Rather, it tries to show the main effects of the blend in terms of either complementary, compensatory or enhancing influences. The outer limits weirdness of internet exploration balances the comfort zone of the actual classroom, and the blend effect is to encourage learners to explore from a safe base. The limited resources of oral or written texts available in classrooms and libraries are compensated by the unlimited, easily accessed resources of the internet. Personal warmth and immediacy of small group face-to-face interaction is complemented by the heightened interactivity of electronic communication. The narrowness of classroom rules is seasoned by the growing global social awareness resulting from netsurfing. While classroom assessment is more personal and
directed, the Internet offers multiple chances for feedback, and self-testing gives the learner more control and independence.

The model accommodates both intrinsic and extrinsic motives. Although learners in the PRINTS Project are compelled to complete class tasks, assignments and control tests, they also seek the immediate gratification of net surfing and webmail. It improves on previous models as it postulates particular influences measured against access to learning resources and affect on the learning experience. The author’s current research project hopes to refine this model further as input functions are identified and described in relation to their observed outputs. It is hoped that this may assist course development and increase throughput at the institution.

CONCLUSION

ICT is not the panacea for all the problems facing education for the reason that some of the problems facing education lie outside of the ICT systems. A description of the PRINTS Project illustrates that some problems are institutional whilst others precipitate from the ICT users, as well as the computer glitches with which everyone is familiar. Equally, ICT systems should not be discarded because they do enhance learning, as evidenced by the literature and reviews of the PRINTS Project. A critical realist analysis of the delivery of this course reveals that the interaction of the various agents with these multifarious systems may also affect learner outcomes. This evidence points to the much supported claim that a blended delivery may glean the best from a mix of traditional face-to-face delivery, online delivery, and other institutional and social systems. Further research and the refinement of hypotheses and models may refine course delivery, aid curriculum development and increase academic throughput.

References


