University of Hertfordshire

The Learning and Teaching Institute

Spring 2014

Blended Learning in Practice

Contents

Editorial

Helen Barefoot

Welcome to the Spring 2014 edition of our e-journal, Blended Learning in Practice. We would like to take this opportunity to say a big thank you to Dr Philip Porter who edited the journal since its inception in 2009 until November 2013. Philip developed the journal and through his excellent custodianship has seen it flourish. Dominic Bygate and I have taken over the reins from Phil and we hope we do him, and the journal, justice.

The journal looks a little different to previous editions as we have a slight change in focus. We've always been keen to publish research pieces from participants on our Post Graduate Certificate in Learning and Teaching in Higher Education (PGCertHE) and have included at least one article from a PGCertHE alumnus in each previous edition. We have decided to extend this further and have included more research articles from our PGCertHE participants.

Dominic Bygate

Within this edition; Tassos Patokos from the Hertfordshire Business School discusses how Game Theory could be applied to student learning when considering how student self-belief and confidence can affect performance. Tassos considers the implications for practice in terms of tutor intervention.

Leonor Silva de Mattos also from the Hertfordshire Business School critically discusses the use of blogging as a reflective tool within Higher Education. Including observations from her own students, she considered the benefits of using blogging as an assessment tool yet also identifies some of the challenges and potential risks.

Elizabeth Akers, a practising nurse, shares her thoughts on the value of simulation within nursing education. She discusses the benefits of 'practising disasters' and the importance of effective de-briefing.

Nick Schulze, from the School of Computer Science, critiques the literature surrounding the use of Web 2.0 in education and through the use of wiki case studies, examines the benefits and challenges from both a technological and a group-working perspective.

Our final research article is by Simon White, from the Hertfordshire Partnership Foundation NHS Trust, who discusses the introduction of formative assessment quizzes. The article discusses the benefits of this approach not only from a student learning perspective but also from a tutor perspective.

Editorial

Our regular student voice section is presented by Ashlesha Shukla, the placement student from the Learning and Teaching Institute. Ashlesha discusses her placement activities as well as her study beliefs.

This edition also includes a Prezi presentation from Dominic and Ashlesha regarding the use of different technologies within teaching. We hope you enjoy reading the edition and welcome any feedback.

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Dominic Bygate is a full time member of the Learning and Teaching Institute. He has extensive experience of working across the university with teams and individuals in order to enable colleagues to examine their current practice and to make pedagogically sound decisions when embracing change. In particular his work involves exploring how adopting blended and flexible approaches to teaching and assessment can enhance the student experience through increasing engagement and attainment. He has worked in the financial and software industries and has over 25 years experience of teaching in HE. He is a Senior Fellow of the Higher Education Academy, a Chartered Physicist and has recently completed an MBA specialising in the management of change. Dominic is also a member of the JISC Learning and Teaching Practice Experts Group and has presented extensively at JISC and HEA events.

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Tassos Patokos is a post-doctoral researcher and Senior Lecturer in Economics at Hertfordshire Business School, as well as a software engineer. His main area of research is game theory, in particular evolutionary game theory and psychological game theory. Among his interests are political philosophy, behavioural economics, environmental economics and working with simulations. He is the author of a research monograph entitled 'Internal Game Theory' which was published by Routledge in 2013.

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Leonor Silva de Mattos worked for the University's Graduate Consulting Unit (GCU) as a Lead Researcher back in 2008, where she mentored and helped young graduates achieve and perfect their commercial research skills. She was appointed as a Visiting Lecturer shortly after and has been teaching marketing and economics modules across all levels ever since. In 2009, she left the GCU and was appointed SDL (Supported Distance Learning) coordinator for a top-up degree programme in Business Administration. The programme is delivered in collaboration with some of the university's partners both overseas and in the UK. It incorporates elements of traditional teaching methods with online learning and self-guided study.

Leonor has been involved in small scale research projects that aim to understand how the integration of new technologies can influence learning and teaching with a particular focus on Blended Learning programmes with large numbers of international students. She joined Navitas' HIC (Hertfordshire International College) in 2013, where she also teaches international students at pre-masters level, and is a permanent member of the College's Enhancement Team. Leonor has recently completed a PgCert in Higher Education and is a Fellow of the Higher Education Academy

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Elizabeth Akers is a clinical practice educator teaching within the cardiac unit at Great Ormond Street Hospital. Her special interest is in the use of simulation to recreate clinical events (emergencies and difficult/challenging situations) in an effort to develop the skill set of the nursing and medical teams involved in the treatment of infants and children.

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Simon is currently employed as the Senior Professional Lead: Prevention & Management of Aggression for Hertfordshire Partnership University NHS Foundation Trust. His professional background is in Mental Health Nursing , having experience in clinical practice, management, and supporting student nurses in clinical practice. Simon has over 20 years' experience in teaching / training within NHS / Private Health and Social Care and within Universities. He has a number of professional qualifications including; Registered Mental Health Nurse, BSc (Hons) Interprofessional Health & Social Studies, PG Cert (Higher Education), registered Teacher with the Nursing Midwifery Council and a Best Interest Assessor (Deprivation of Liberty Safeguard). Currently alongside his fulltime role he supports the University of Hertfordshire as a visiting lecturer within the Mental Health & Learning Disabilities field of nursing, he is also a Fellow of the Higher Education Academy.

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Having graduated from several distance learning programmes over the last twenty years (including the UH online programme in 2008) he has first-hand experience of the transformation for learners that the internet has enabled, and finds the potential for continuing improvements in the practice of web-based learning alluring.

In his "day-job" he describes himself as a programmer, where he has seen a similar transformation. His first job was programming an ICL 1904T mainframe using punch cards, paper tapes and a teleprinter. Today he develops client/server and web-based systems for both public and private sector. nickschulze@quantum.eclipse.co.uk

Directing the students' mind games: A game theoretical view of the learning process

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Abstract

Experimental data consistently shows that the students' beliefs about their own academic ability have a significant effect on their performance and their level of engagement. The aim of this paper is to offer an original game-theoretical model that supports and explains such empirical data: the student is modelled as being engaged in a game, in which his/her decisions on how much to study are affected by his/her self-efficacy beliefs or self-confidence. It is argued that if game theory is used to analyse such games, it is possible to gain insights that might otherwise be missed. One of the implications for practice is that the tutor is in a position to intervene in the interaction involving the student and the student's own beliefs. Attempting to enhance the student's self-confidence levels through feedback is likely to result in greater engagement and better performance, even in cases where the student's current performance does not inspire very encouraging feed-back.

Introduction

Most people's first reaction upon hearing the term 'game theory' is that this theory is about how to play games in the literal sense of the word, such as chess or poker. While game theory may be applied to 'proper' games people play for fun, its scope is much wider: A'game' is defined as any kind of interdependence between two or more parties. Interactions between, for example, shop-owners, family mem-bers, doctor and patient or two countries can all be seen as 'games', and may be analysed by use of game-theoretic concepts (such as the 'Nash equilibrium'). The theory is commonly associated with economics, because one of its major applications is the study of interdependences occurring in markets (between firms and consumers). Nevertheless, game theory is not contained within economics, but it has infiltrated an array of diverse sciences (such as medicine, engineering,

biology or psychology) that use its methodology for a wide range of purposes. Because of its numerous crossovers with other disciplines, Nobel laureate Roger Myerson has boldly assessed its impact as '*comparable to that of the discovery of the DNA double helix in the biological sciences*' (Myerson, 1999).

Interdependences are abundant in an academic environment, as students interact with other students, tutors and administrative staff on a daily basis. All these interactions may be seen as games, and therefore, they can be modelled and studied with game theory. Examples of such games could be situations when two or more students are engaged in group work, when a tutor designs an assignment in a bid to increase students' engagement, or when a student gets in contact with the tutor to request an extension for his/her assignment – all of them typical scenarios in academic life.

More often than not, researchers in the pedagogic / education literature study games between students or between students and tutors, but do not establish explicit links with game theory. For example, in an attempt to eliminate instances of superficial learning, Azer (2009) explores the interactions between students and tutor in problem-based learning; in a similar but more general venture, van de Pol *et al*. (2010) make reference to 'scaffolding' in the teacher-student relationship. There are also numerous researchers who have written on the pedagogic merits of using games and simulations in the classroom (Annetta et al., 2006; Colby & Colby, 2008, or Lee, 2010), but without extending their analysis to game theory's broader definition of a 'game'. Nonetheless, the literature contains several examples of how game theory may be applied to model interactions in an academic environment: among the most recent contributions, Sadowski *et al*. (2012) coin the term 'game-theoretic pedagogy' and explore how applications of game theory may be beneficial in helping students appreciate their moral obligations to their peers, while, for another example, Zartman (2010) focuses on how game theory can be helpful in enhancing the students' negotiation skills.

This paper proposes a novel way in which game theory may be applied in education. The main idea, explored in the next section, is that, except for the

insights that game theory can offer when used to analyse interactions between students and tutors, it may also be applied to single individuals (i.e. that do not actively interact with others). Section 3 explains how this idea links with the existing literature, and Section 4 discusses the benefits of this theoretical approach and its implications for practice. Section 5 concludes with a general remark and a critical note.

The learning process as a one-person game

Formally, what is needed for a game to be defined is a set of players, the available strategies for each player, and the payoffs for each possible combination of strategies that may be chosen by the players. For example, if Mary and Paul play 'scissors-paper-stone', the set of players is {Mary, Paul} and the set of strategies available to Mary and Paul are {play 'scissors', play 'paper', play 'stone'}. Given that each player has three strategies to choose from, there are nine possible combinations (i.e. different outcomes). Each of the nine combinations is associated with a payoff for Mary and a payoff for Paul (depending on who wins); these payoffs are numbers that may be interpreted as the players' satisfaction levels. For instance, if Mary's satisfaction level from winning is assumed to be equal to one and Paul's satisfaction level from losing is zero, then the combination where Mary chooses 'scissors' and Paul chooses 'paper' will give Mary a payoff π=1 and Paul a payoff π=0. The game is fully defined by the set of players, the set of available strategies, and the payoffs for all possible outcomes. Clearly, for this definition to be meaningful, the set of players needs to have at least two elements. This section proposes an extension of this definition, as it is argued that a game may be defined even when there is only one player.

The main idea will be introduced with another example, which will also serve as a frame of reference for the discussion of this paper: assume that John has to revise for an exam and has a choice between two options (strategies): put high effort (*H*) or put low effort (*L*). Choosing *H* is associated with a good performance, while choosing *L* leads to poor performance. At the same time, John holds a belief about the probability of performing well: this pertains to John's own self-perception

and relates to his self-knowledge, self-esteem or self-concept. If John is quite confident in himself, then his belief that he will perform well will be quite high. On the contrary, if John does not think too highly of his own academic ability, he will attach a low probability to his performing well.

One possible payoff function that could be used for modelling this particular situation would be $\pi(H)=2-q$, $\pi(L)=3-3q$, where $\pi(H)$, $\pi(L)$ are John's payoffs from choosing H and L respectively, and q is the probability with which John believes he will choose H (i.e. q is John's intrapersonal belief about his own action). It is easy to check that if $q<0.5$ (which would mean that John is not very confident in himself) then $\pi(H)<\pi(L)$, which means that John will choose to put low effort (as his payoff will then be greater). Conversely, if $q>0.5$ (indicating a quite self-confident student), then $\pi(H)>\pi(L)$, and therefore John chooses H.

The particular numbers used for John's payoff function could have been otherwise and were only used as an example. What is important here is the key assumption that John's belief (i.e. the probability with which he thinks he will perform well) will have an impact on whether he chooses H or L: if John is confident enough, then he is bound to choose to put high effort, because he would not want to disappoint himself and upset his high self-image. On the other hand, if John is not very confident in his own skills, he might choose to put low effort because he would not want to suffer the discomfort of working hard if this is not very likely to translate to good marks.

Conventional economic theory would view John's dilemma whether to put high or low effort as an individual choice problem (as opposed to a game), because John does not interact with anybody else. Nevertheless, from the moment that John's beliefs about himself affect his choice, a game may still be defined even if there is no one interacting with John in this example. John, as a decision maker, is only affected by his own self-concept. This means that it is possible to view John as made up of two 'partitions' or 'sub-selves': the first partition relates to John's actual behaviour and the decision making process, and the second partition comprises John's intrapersonal beliefs, which affect his decisions. Therefore, it is possible

to define a game, the players being the individual's two 'sub-selves' (Patokos, 2013).

The concept of the multiplicity of the self traces back to at least the 4th century BC, where Plato's *Republic* asserts that the human soul cannot be seen as a homogeneous entity, but rather as having three divisions: 'reason', 'spirit' and 'appetite'. The most renowned view, of course, is that of Sigmund Freud, who developed a structural theory of personality, comprising the 'id', the 'ego' and the 'superego' (Freud, 1960). More contemporary contributions include Rogers (1961), who distinguishes between who an individual really is and who (s)he aims or would like to be, Festinger's theory of cognitive dissonance that studies what happens when the individual's expectations or beliefs are disconfirmed (Festinger, 1957), Bem's self-perception theory (Bem, 1972) or Bandura's theory of self-efficacy (Bandura, 1986), whose relevance to pedagogy will be discussed in the next section.

It is important to note here that the only assumption that needs to be made before John's dilemma can be viewed as a game is a separation between the decision making part of the individual and his/her belief system. This partitioning, however, might as well be conjectured as a manner of speaking – as opposed to holding on a literal level. In other words, the paper does not (necessarily) argue for viewing the individual as a collection of multiple selves; it only asserts that someone's intrapersonal beliefs and actual behaviour are distinct entities, but interacting with each other. This view, while unconventional for mainstream economics and standard game theory, is taken for granted in psychiatry or psychology.

Accepting that intrapersonal beliefs may influence behaviour permits the study of individual choice problems (such as John's) as games. These games, however, are not one-off games, but repeated ones. In the context of John's example, John does not only have to decide between putting high or low effort just once, but in a multitude of instances during his studies. Now, when there are multiple periods, it is apparent that except for beliefs affecting behaviour, behaviour affects beliefs too: if John performed well in previous assessments his self-confidence will be

higher in subsequent instances of the dilemma whether to put high or low effort. By the same token, poor performance in the past is likely to make him think less of his academic worth. Therefore, behaviour and self-perceptions are interweaved: what John believes now affects his current decision of how much to study; but the outcome of his current behaviour will affect what he will believe about himself the next time he has to make a similar decision. Figure 1 provides a visual of this interplay between beliefs and action.

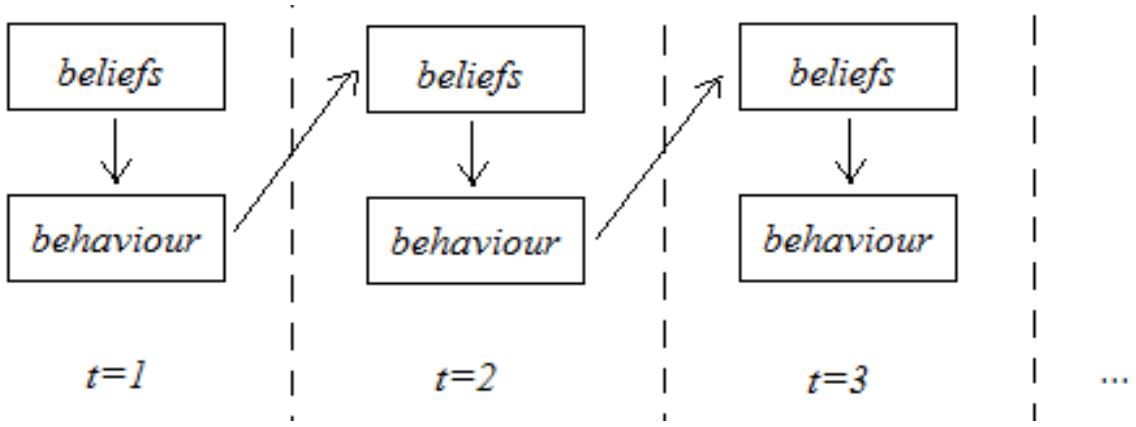

Figure 1: *The intertemporal game between intrapersonal beliefs and action; current beliefs about oneself affect current behaviour, and current behaviour shapes future beliefs.*

If dilemmas of this sort are indeed analysed as repeated games, game theory may offer interesting insights on what the outcome will be and as to how the student's behaviour and beliefs will evolve as time passes. Before some of these insights are presented in Section 4, Section 3 will establish the necessary links of this framework with pedagogic theory, in order to put the discussion in the appropriate context.

elf-efficacy in the education literature and the role of feedback

In psychology the term 'self-efficacy' is used to refer to the beliefs or the expectations that an individual nurtures about whether (s)he will behave in a certain way. According to Bandura's theory of self-efficacy that was briefly mentioned

in the previous section, intrapersonal beliefs may have a significant impact on the individual's actions; in Bandura's own words:

'*People act on their efficacy beliefs in ways that bring about those performances. Those who strongly believe that they can produce desired effects by their actions approach difficult tasks as challenges to be mastered rather than as threats to be avoided*. […] *In contrast, people who doubt their capabilities shy away from difficult tasks, which they view as personal threats. They have low aspirations and weak commitment to the goals they choose to pursue*'.

(Bandura, 1996: p.328)

The concept of self-efficacy and its relevance to student engagement and academic performance is not new to the pedagogic literature. The field of educational psychology has acknowledged its significance, and a multitude of researchers have been testing the validity of the theory with empirical data and experiments: self-efficacy beliefs are consistently shown to be important predictors of academic performance (for example, Gore, 2006; Caprara *et al*., 2008, or Bresó *et al*., 2010), while Fazey and Fazey (2001) show that self-confident students remain motivated even after facing short-term failure. Kaplan et al. (2002) provide experimental data showing that students with lower confidence in their academic abilities tend to prepare less for exams, as they anticipate their own unsuccessful performance. Similarly, Llorens *et al*. (2007) mention a 'positive gain spiral', as they describe how self-efficacy reinforces engagement, and in turn engagement reinforces self-efficacy – which is a full analogy of the repeated game described at the end of the previous section.

Given researchers' consensus on the importance of self-efficacy beliefs on performance and engagement, the implication is straightforward: higher education professionals may enhance academic performance by trying to increase the students' self-confidence (as this would, in turn, promote self-efficacy). This is indeed the first among ten proposals for action that Zepke and Leach (2010) recommend in order to improve student engagement (without, however being specific about how

this could be done). The obvious way with which a tutor may affect the way a student sees himself or herself would be through assessment and feedback. This does not imply that feedback should necessarily be positive: changing the students' self-efficacy beliefs is not about trying to please them, but making them more self-confident. This means that the feedback should convey a clear message that will enhance the student's self-perceptions on his or her academic worth, and regardless of whether the feedback on the work being assessed per se is positive or not.

There is a significant body of research about how feedback impacts on self-efficacy beliefs: Schunk and Swartz (1993) describe experiments showing that learners whose progress is assessed regularly maintain a more positive self-image relative to those who do not receive feedback. Likewise, McColskey and Leary (1985) and Chan and Lam (2007) find that self-referenced feedback (i.e. mapping performance to the student's own skills) is more beneficial than norm-referenced feedback (i.e. comparing performance to that of other students), as the former results in smaller decrease in self-confidence following failure in an assessment. In a review article, Dochy *et al*. (2006) examine and compare a variety of assessment methods as to their impact on self-efficacy and other aspects relating to students' development.

One way with which feedback may be effective in enhancing the students' self-concept is by communicating high expectations. Recognised as a principle of good practice (Chickering and Gamson, 1987) and as a condition under which assessment supports learning (Gibbs and Simpson, 2004; Nicol and Macfarlane-Dick, 2007), the communication of high expectations may have at least two positive implications: firstly, students might try to live up to these expectations in order to not disappoint the tutor. But on another level, the set expectations are likely to operate on the students' self-efficacy beliefs; therefore, the students engage more not only because they do not wish to disappoint the tutor, but also because they do not wish to disappoint themselves (by disconfirming their self-efficacy beliefs). When Chickering and Gamson mention '[e]*xpect more and you will get more*', they make no explicit references to students'

self-confidence, but this principle clearly complements the research that relates assessment and feedback to self-efficacy beliefs.

For a simple example, assume that Mary assesses her own ability regarding a particular course at 55% (which could be interpreted as the mark she expects to receive at the end of the semester). Now, if the tutor conveys the message that (s)he expects Mary to attain at least 70%, this is bound to alter Mary's expectations of her own performance (as, from Mary's point of view, the tutor is in a better position to appreciate how well she can perform). Depending on her trust in the tutor, she will update her self-belief of 55% to a higher percentage (not necessarily 70%). And given that this intrapersonal belief impacts on her behaviour (i.e. her decision on how much effort to put), Mary's performance is now likely to be closer to 70% indeed, for the very reason that the tutor said (s)he expected so.

Communicating high expectations is a recurrent theme in the pedagogic literature: Scott and Tobe (1995) argue in favour of university-wide policies to instigate students' external encouragement, while the view that the tutor's encouraging feedback is one of the factors that determines students' success appears to be unanimously shared across researchers (for example, Schunk, 2001, or Kuh *et al*., 2010). Smith-Maddock and Wheelock (1995) describe the merits of communicating high expectations in a very effective manner by arguing that it helps closing the gap between aspirations (what the students would like to achieve) and expectations (what the students believe they can achieve). This brings in mind the 'dual-self' of the individual and the separation between behaviour and beliefs that was mentioned in the previous section. The benefits of considering this conceptual 'dual-self' model are explored in the next section.

Benefits from using game theory and the link to practice

The game-theoretical framework offered in Section 2 is entirely consistent with the pedagogic literature that claims self-efficacy beliefs may reinforce performance. When the student chooses how much effort to put (for example, for an exam or an assignment), (s)he is affected by his/her beliefs about himself/herself, which in

turn depend on past behaviour. In this sense, the game modelled in Section 2, (the players being the student as a decision-maker and this student's belief system), is a rephrasing of pedagogic research on self-efficacy in game-theoretical language. Nevertheless, use of game theory in this context may offer more than just a supportive theoretical model that fits the experimental evidence on students' self-perception and academic performance.

In fact, if the game is modelled as a repeated game whereby beliefs affect current behaviour and current behaviour affects future beliefs, it is possible to obtain a wealth of interesting theoretical findings: one such result is that overconfident students (i.e. students who overestimate their academic ability) are likely to start performing better and eventually end up confirming their own beliefs even when their performance is initially very weak. This is not common sense, because in a case like this, one might expect that the poor performance in the early stages would affect self-efficacy beliefs negatively, which would then lead to even poorer performance in later periods. Nevertheless, if self-confidence is sufficiently high (and depending on the specific payoffs used to model the game), high engagement and good performance are likely to be achieved even by students who make a very weak beginning to Level 4. The link to practice is then obvious: the tutor needs to be aware that weak performance may improve by an attempt to make the student confident, even when there is not much evidence to justify this confidence. Personalised and encouraging feedback (by communicating high expectations as mentioned in the previous section) can potentially make a big impact by turning under-performers into 'late bloomers'.

Conversely, the game-theoretical framework can show that a competent student with very low self-confidence is likely to experience a performance dip, not due to lack of academic skill. Like the previous case, this is a theoretical possibility that might be missed, because it is counter-intuitive: one would anticipate that good performance in the early periods would translate to a reinforcement of self-efficacy beliefs, which in turn would ensure that performance would remain to a high standard. If, however, the student does not see himself/herself as very skilled (for any reason), then it is probable that these beliefs persist, even after the student

achieves good marks in his/her first assessments. The tutor's presence is once more crucial, as (s)he would need to operate on the student's beliefs by providing the appropriate feedback. In this particular case, the tutor would need to align the student's self-perceptions with reality (as opposed to the previous case where the tutor would want to create some dissonance between what the student achieves and what (s)he believes (s)he is capable of achieving).

The bigger picture appears to be that the tutor should be in a position to 'direct' the students' mind games. This claim might sound dramatic, but if one thinks of the learning process in game-theoretical terms, this is exactly what this is about. Every time the student is about to make a decision that relates to his/her studies, the amount of effort (s)he will put depends to some extent on his/her efficacy beliefs. Some students might perhaps feel comfortable in the role of the underachiever, as this does not raise the bar too high for them. The game then, is in the tutor's hands, because, quite simply, the tutor may change the game by trying to instill self-confidence in students, even if this will have to mean that some students will initially be 'deluded' regarding their current academic ability. The game theoretical framework and the empirical data suggest that this cognitive dissonance might eventually become self-fulfilling, as the higher aspirations are bound to bring about good performance.

Conclusion

One of the aims of this paper has been to give a flavour of how game theory may inform the pedagogic literature. The discussion of the previous section indicates that use of game-theoretical language to model interactions (be it the 'conventional' type, or the intrapersonal games described here) is likely to lead to interesting conclusions that have concrete implications for practice. If game theorists pride themselves that game theory is the theoretical umbrella that unifies the social sciences (Aumann and Hart, 1992), it is somewhat surprising that game theoretical concepts do not appear more frequently in the pedagogic literature. It is already taken for granted that being an expert in one's discipline does not necessarily make one a good educator, as the professional standards involve

several additional dimensions other than expertise (HEA, 2011). If the learning process is viewed through the prism of game theory, the tutor's role is now enriched with a strategic character, as the tutor becomes aware of how (s)he may intervene constructively in the games between students and their own beliefs, in an attempt to enhance the students' personal development.

Finally, a critical note: the claim that overconfidence is bound to lead to greater engagement should not be treated as an axiom, but as a regularity that is confirmed by experimental data, but might not apply to all students. Similarly, the assertion that feedback targeted at enhancing the students' self-confidence will improve performance might not apply to some students (for example, there is the risk that a student becomes too confident and 'rests on his/her laurels' instead of engaging more). Indeed, for some students, there might be an optimal level of self-confidence, which, if exceeded, might have adverse effects on performance as suggested by 'Inverted U' Theory of Arousal developed by Yerkes and Dodson (1908). From the point of view presented in this paper, such limitations indicate that the intrapersonal game described in Section 2 is not always the same across students. The implication for practice is that the educator would need to have some knowledge about the student's personality before (s)he can use feedback that will try to operate on the student's self-efficacy beliefs.

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Blogs in Higher Education: encouraging self-reflective learning in group assessments for Business Students

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Abstract

This article analyses and assesses the inclusion of blogs in higher education learning and teaching, and its use as an enabler for reflective learning, particularly in the context of group work.

The research reports on findings from existing literature and from an isolated observation of a class of 130 business students at undergraduate level. Two main areas for discussion have been defined: the impact of blogs on group work and the impact of blogs on student engagement. It has been found that the use of blogs in teaching and assessment deepens students' individual learning experience and increases group performance through the application of Kolb's Learning Cycle. Kolb's theory has been used as guidance in tailoring blog tasks and activities.

Overall, blog activities have minimised issues between group members and allowed for a more flexible and positive learning experience throughout the duration of group work; it was also found that students engaged in blog writing were able to motivate their peers to write on their own blogs too. Moreover, a relation between blog writing and better overall achievement in learning has been found.

However, there were problems and risks associated with blog use (i.e. privacy concerns, cyber-bullying, and harassment) which could have been minimised by setting some ground rules at the start of the task. The success of the student experience relies heavily on an active tutor, who is required to monitor and motivate

student participation. It has been established that the positives outweigh the negatives. This has demonstrated that the use of blogs in Higher Education can impact students' learning by exposing them to elements of self-reflection, contributing towards higher levels of student engagement and group work participation.

Introduction

With so many valuable electronic tools available to the modern student, it has become imperative that universities implement some of these tools to complement traditional teaching techniques and activities. However, it may be difficult to choose which tools to use, the variety is immense and not all tools suit all teaching environments and styles. Group work, for example, seems to be the least preferred method of assessment for students. During group work, cultural clashes, lack of common availability and problematic group relations can occur (HEA, 2013).

Nevertheless, using electronic tools in teaching has become a priority for most universities and their teaching staff. According to the Community Research and Development Information Service (CORDIS), the education sector is following the footsteps of businesses and private homes across the world by 'going electronic' (CORDIS, 2013). It is not surprising, considering many students already arrive at the University with 'advanced skills and practices with regard to electronic learning and communication' (Smirnova, 2008). New technologies can therefore be seen by modern schools and universities as a necessary (and perhaps indispensable) practice, in particular if they wish to remain competitive.

It is also widely acknowledged that students learn in different ways and styles (Bloom, 1956; Kolb, 1984) and that their learning can be deeply affected by factors such as poor teaching facilities (Schneider, 2003) and inappropriate teaching methods (Schroeder, 2004). Although traditional teaching is a valid and generally accepted way to disseminate information to large cohorts, the advantages of these electronic tools to support and supplement existing methods of teaching (and even

replace them altogether, whether they are web-based or digital) generate heated debate, dividing academics and practitioners. Some argue that electronic tools can aid in teaching and learning by reversing low levels of student engagement and collaboration (Chan, K. K., & Ridgway, J., 2004; Duffy, Peter D. and Bruns, Axel, 2006; Mynard, Jo, 2007); others argue that these new technologies prepare students to meet the expectations of their prospective employers (Latzer, 2009). There is obviously much interest around these tools, even if 'there is no consistent evidence that the adoption of these new technologies enhances learning' (Chan & Ridgway, 2004:3). It may be pertinent to note, though, that most of these studies were published over a decade ago and do not consider the recent changes in academic practice or a new generation that is now very technology aware.

This article aims to demonstrate that the use of electronic tools in Higher Education can impact students' learning, by exposing them to elements of self-reflection. This will be explained through an adaptation of Kolb's Learning Cycle model applied to blog use, in an attempt to establish that the use of blogs in teaching and assessment deepens students' individual learning experience and increases group performance.

Blogs as a tool for reflective learning

Reflection is an important part of the learning process. It consists of recapturing 'experiences, think about *(sic)* it, mull it over and evaluate *(sic)* it.' (Boud et al, 1983:19). The Higher Education Academy (HEA) reiterates this by establishing reflective learning as an important aid in 'develop(ing) critical thinking, self-awareness and analytical skills' (HEA, 2009). As educators, we are constantly encouraged to reflect on our individual practice. However, students are not as encouraged to reflect on their learning as they should be, except perhaps when they are engaged in typical work placement activities (Smirnova, 2008). Incorporating web-based tools - such as blogs - into teaching can ensure the student is exposed to valid and relevant elements of reflection throughout the course of their learning.

Blogs (a contraction of the term 'web logs') have become extremely powerful communication tools 'attracting a large and dedicated readership' (Boulos, 2006)

across the globe (Gurak et Al., 2004; Moon, 2005). Blogs enhance the ability for students to 'demonstrate critical thinking, take creative risks, and make sophisticated use of language and design elements'. (Duffy and Bruns, 2006: 33). Chan & Ridgway (2004) also defend blog use by declaring they 'support student reflection' and keep motivation levels high, depending on student perceptions and subject area. Nevertheless, it is their unique set of characteristics that make them so appealing to the academic community. Their 'form and function' (Gurak et Al., 2004) may be their most important features: blog posts follow an ascending chronological order, a structure deemed to be 'governed by spontaneity and novelty' (Gurak et Al., 2004). Time-stamp features provide students with an opportunity to question, assess and revisit their experience time and time again, but also to identify patterns and levels of personal development. This type of 'adaptive learning' can be linked to Kolb's (1984) studies on learning styles.

Kolb's Learning Cycle (Figure 1) assumes that learning is an on-going reflective process (Moon, 2005) whereby students constantly analyse, evaluate and assess an experience so as to draw conclusions and decisions which may or may not affect their future learning and actions. Application of Kolb's learning cycle to practice may explain (and even help) understand the mechanisms involved in human learning, but Moon (2005) rightly points out that this theory may be more about teaching than learning. When students go through the

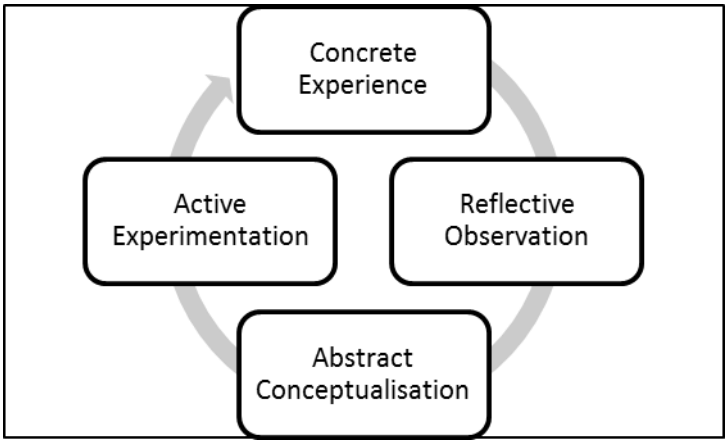

Figure 1 - *Kolb's Learning Cycle (Simplified)*

different stages of the cycle, there is not much self-awareness of the learning *per se*. This is because Kolb has focused heavily on 'process' and 'instruction' (Moon, 2005:5). Students tend to do what they are told without giving much thought to it. Considering 'reflection is a form of response of the learner to experience' (Boud et al, 1983:18), it is important to bring student consciousness into their own learning process.

Method

The main aim for this project was to analyse and assess blog integration as an enabler for reflective learning, particularly in the context of group work.

A Marketing Planning class of undergraduate business students were asked to keep a group blog during the preparation and writing up of a 2,000-words group report (Kolb's concrete experience). Students were also required to write an individual reflection of 500 words as part of that same assignment.

They were allocated to group areas using the University's virtual learning environment (VLE): Studynet. These group areas allow students to post files, create news, contact their members, create a wiki, and keep a blog – all within the same electronic page. Each individual group area can only be accessed by their respective group members. Other group members cannot access these areas but, for moderation purposes, all tutors can access all group areas.

In total, thirty (30) groups were created, each of which had between 4 to 5 group members. Students were asked to write on their blogs every day throughout the duration of their group work experience (Kolb's reflective observation). No word count was imposed for this but they were encouraged to discuss things such as group dynamics, experiences with research and application of theory, group issues and learning concerns. The structure of the tasks set allowed for students to write up their experience throughout the duration of their coursework, revisit that experience (Kolb's abstract conceptualisation), and later use their insights to write up a reflective evaluation of their learning. The result of these

exercises aimed to create in the student a mental action plan of 'dos' and 'do nots' (Kolb's active experimentation).

The research for this paper has also considered feedback received by 'StudentViewPoint', a tool used by the Hertfordshire Business School (University of Hertfordshire), to collect student satisfaction levels and feedback across all modules and disciplines.

Findings

Blogs' Impact on Group Work

Many years of experience have taught me that group work is particularly hard on students. They must engage with one another and find some common ground before even defining their roles within their groups (Shank, 2007; Schellens & Valcke, 2006). Disputes are inevitable, mostly because perceptions of contribution (or, most frequently, of non-contribution) are in fact quite different between group members. In the past, similar self-reflective exercises resulted in students spending more time debating about their group-related difficulties than on their actual learning.

For most groups, writing a blog during coursework has triggered participation of all the elements of the team (See Fig.2 for an example of this). Consequently, the number of disputes flagged by unhappy group members dropped 20% when compared to the previous academic year. In 2004, very similar research (Williams & Jacobs, 2004) led to comparable results whereby MBA students (rather than undergraduates) had to engage in blogging as part of their assessment work. The conclusion to that experience accepted the potential of blogs as 'truly transformational technology in that they provide students with a high level of autonomy while simultaneously providing opportunity for greater interaction with peers.' (Williams & Jacobs, 2004).

To note, a 'high level of autonomy' is always assumed, not necessarily experienced - in order to achieve effective student engagement in blog writing exercises, tutors must provide important guidance as well as clear guidelines

and rules of engagement (Williams and Jacobs, 2004). Moreover, students' progress must be monitored by a tutor who is ready to intervene if there is a deviation from the learning outcomes set for that particular task, experience or assessment.

Blogs' Impact on Student Engagement

Overall, only 10% of groups did not fully engage with the blogging task. Using blogs was not compulsory, nor did they account as an assessed element of their work – they were a mean to achieve an end. These factors may have been the underlying reason behind students' apathy towards this task, a trend that was also experienced in Williams and Jacobs (2004).

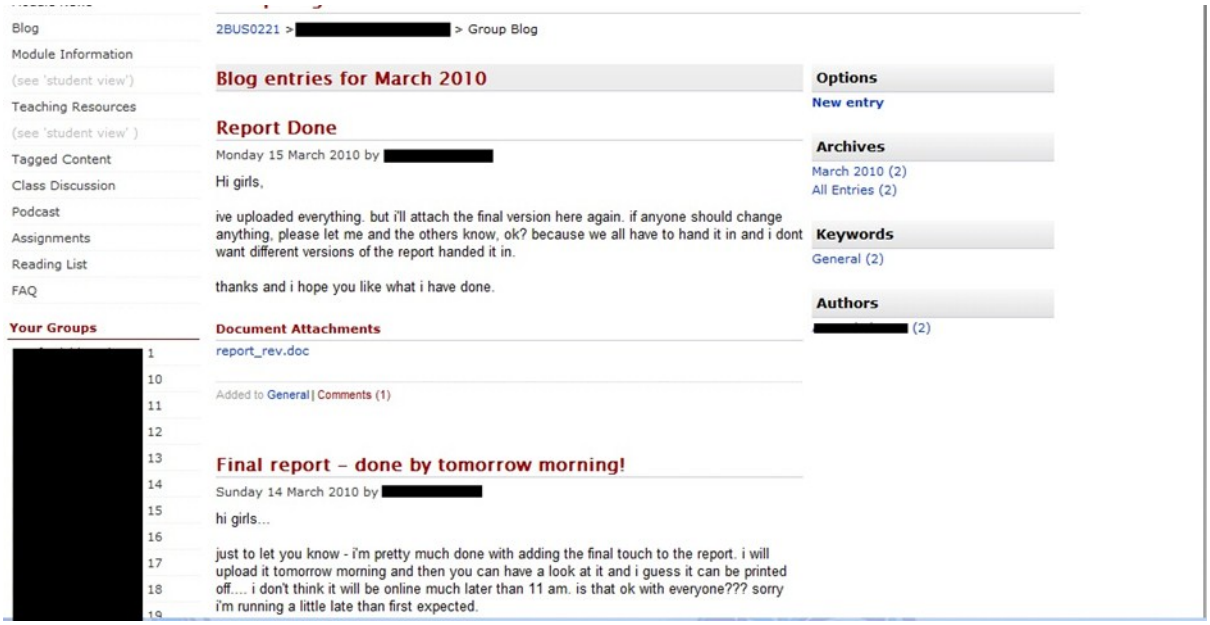

***Figure 2** - Example of a group blog used by a group of students, and which was used as base of inspiration for their self-evaluation.*

In Figure 2 (above) students are seen engaging with one another. Although the conversation is not exactly 'self-reflective', these students were able to review their communication records later in the semester to produce their self-reflection activity. Going back to their writing allowed the students to analyse, review and assess some of their interactions, and link them effectively to lessons learned and

actions for the future. As a group, this was a valuable task and has prevented some of the common problems that characterise group work: lack of communication and lack of motivation to contribute towards the work developed by the group. Surprisingly, the number of students using blogs was high.

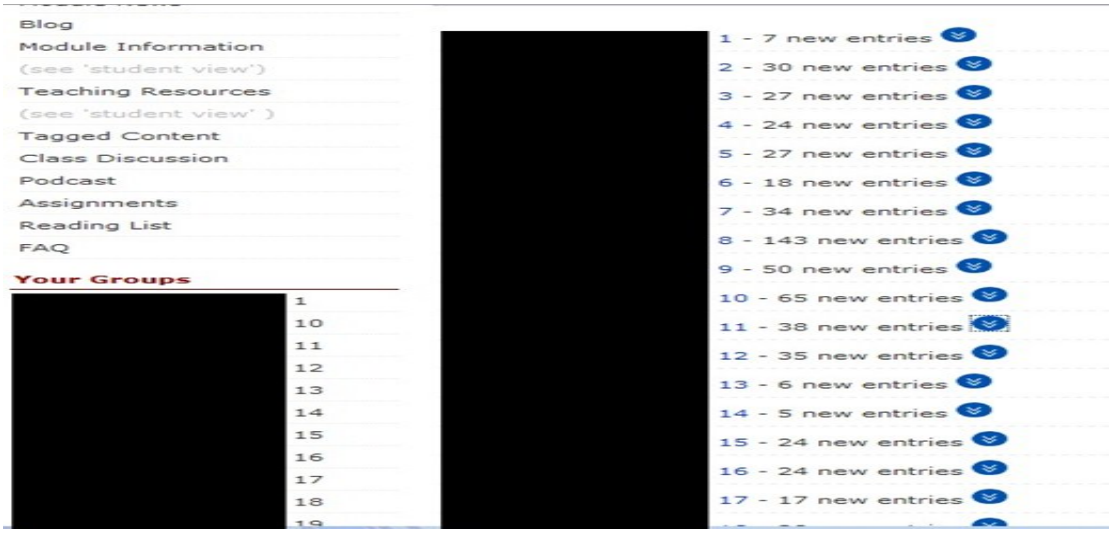

Figure 3 - *Number of entries created in each group's page on the University's VLE.*

Figure 3 (above) shows the number of entries registered in the students' group page - around 20% of the highest entry numbers were blog posts.

Discussion

Overall, Blog use has improved some of the students' abilities to reflect upon their work and write a more detailed self-assessment than they would normally. One can only assume that the use of blogs in this particular instance has had a cause-effect in student performance and learning experience, corroborating the above theories and previous experiences.

When marks were released, those who had used the groups' blog to record their experiences, thoughts and ideas (52% of the overall students) had achieved much better results on their self-reflective assessment than those who did not participate

as often. The on-going academic support resulted in nil fails for that particular piece of work, something that may have largely contributed for nil referrals at the end of the semester. The nine (9) most participative groups (which accounted for 30% of the students enrolled in that module) were also the ones achieving better results at the individual assignment that followed. This reinforces the idea that blogs may help in reflective thinking.

Blogs should therefore, be used as part of an 'assessment that promotes, or at least allows, personal pursuits and expression' (Nelson, 2006) – such as a self-reflection exercise. The results of such commitment and dedication were very positive in terms of student achievement. Davi et al. (2007) research concluded that blogging not only 'help(s) students develop their critical-thinking skills and reasoning skills', it also prepares students for class discussions, contributing towards the achievement of good 'written and oral communication skills' (Davi et al, 2007). This was certainly the case with these students.

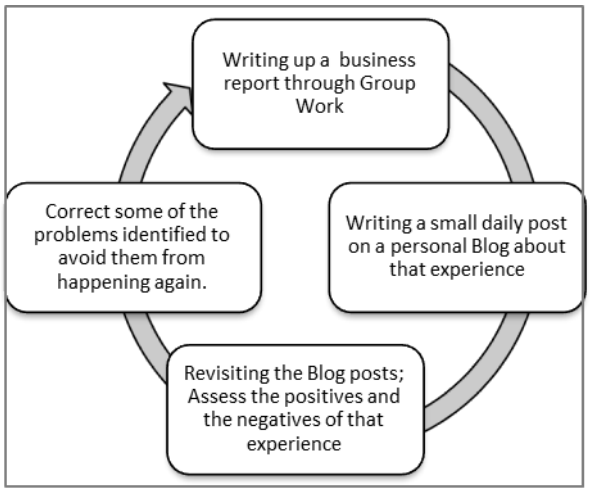

Figure 4 - *Kolb's Cycle applied to Blogs used for reflective learning purposes*

On another note, blogs are also an important feedback tool, as they allow monitoring 'projects in real time, thus indicating improvements before it is too late for the students to incorporate them'. (Luján-Mora and Juana-Espinosa, 2007). Students were able to peer-review their group members' work, and they also received comments from their tutor. Considering Chickering and Gamson's 7 principles for good practice in undergraduate education (1987), this exercise was

intended to contribute towards a more valuable and complete learning experience for individual students.

It has been found that using a blog as part of a learning task (or experience) may reinforce, complement and support Kolb's Learning Cycle as illustrated in Figure 4. In spite of some challenging academic arguments, it was found overall that students who contributed to a blog were much more conscious of their learning processes: they could revisit previous posts, make annotations on previous comments and consider actions for the future. This eliminates the argument that Kolb's learning cycle 'does not help … to uncover the elements of reflection itself' (Boud et al, 1983:13), and reinforces the idea that blogs can contribute towards a 'deeper level of learning' (Henderson et al, 2004).

Issues Encountered

Marking a blog (or several blogs) can be a problematic issue, particularly where student participation and resources are concerned. One must take into account indicators such as 'group grading, individual posting, quality of posts, etc., as well as subjectivity vs. qualitative appreciations.' (Luján-Mora and Juana-Espinosa, 2007)

Unfortunately, this can be time-consuming, particularly if there are many students, many groups and many blogs to care for. It took over one hour a day to read most new entries, and over two hours just to keep students engaged and motivated – something that may have happened because they knew I was watching their work frequently.

Another issue identified by this research is linked to the safety of blogs. Lecturers and educators in general must always make a careful consideration of the risks before setting up a blog as a learning tool, even though the majority of the students in class seemed to be very aware of the issues arising from the use of social media/ new technology tools, i.e. privacy issues, cyber-bullying, harassment, etc.

When the risk outweighs advantages, then a blog may not be justifiable, because

they are 'still a public forum, even in the gated environment of a password-protected class account' (Deubel, 2007). Consequently, they are open to public interpretation and analysis, as well as public engagement and free content publishing – with little or no control over any of these. In the blogosphere, 'misrepresenting opinion as fact, plagiarism, conflicts of interest, and newer trends, such as word of mouth marketing' (Kuhn, 2005:5) are just some of the real risks students and educators must be aware of.

These risks can be minimised by ensuring bloggers and blog owners interact under a code of conduct (Kuhn, 2005), reinforcing the idea that, in order to be used effectively and safely, blogs need to follow strict guidelines. This may be seen negatively by student bloggers, who already have to adhere to strict guidelines during exam times and/or whilst working on their coursework.

Another issue to consider is the lack of technology know-how. It is understood that not all students are 'technology geeks' and may not feel comfortable with the use of technology in general. Although it has been previously stated many students are now more technology-savvy than ever before, there's also the possibility that, by requesting students to set up their blogs, or to inform students solely through a blog, may actually lead to the alienation of those who are less 'technology aware' (Luján-Mora and Juana-Espinosa, 2007). Just because a blog is a tool reasonably easy to set up and manage, one must not assume that all students (or all educators) can manage the tool efficiently and appropriately. Again, by reinforcing strict guidelines, as well as providing the appropriate initial training, such issues can be overcome.

Conclusion

According to the feedback received through the Student Viewpoint at the end of the semester, students felt that using blogs was a positive experience. Secondary research supports the use of blogs in education because they are convenient tools that are generally easy to use. Blogs also seem to help students engage with technology, allowing for them to learn at their own pace by giving them some

responsibility (autonomy and consciousness) over their learning. The application of Kolb's learning cycle to learning activities linked to blog use supports and explains the effectiveness of blogs in achieving self-reflective learning, whereby students are exposed to four co-dependent stages involving a great deal of individual review. Students engaged in blogging often outperform students that are not involved with blogs – something particularly true in assessments that include reflective tasks. This may mean that blog use can impact positively students' performance and learning experience.

In group work, students use blogs to communicate with their group members, and get the message across to their peers or *vice-versa*. Although this is a positive characteristic (enhancing communication in group work is key for successful student experiences), addressing their classmates or close peers through a blog may lead to an unintended lack of awareness of the privacy risks implied (or the personal boundaries and limitations imposed) by these channels (i.e. Plagiarism, collusion, or even cyber-bullying are just some of the 'perks' that come with the implementation of blog use in class). Although rare, there are also problems about lack of computer knowledge and/or know-how that could lead to a student's sense of alienation from the rest of the class, especially if there is compulsory use of a blog as part of their learning. These difficulties can be easily managed through appropriate training and also by providing students with clear guidelines, and a code of conduct.

Studynet, for example, allows students to set up their own personal blog, which they can use to document their own experiences: personal, academic or professional. A module's homepage also has a blog facility - if activated by the module leader, students will be able to post and comment as well as the tutors and lecturers involved in the module. The tools are already available for immediate consumption on the University's VLE (Virtual Learning Environment, Studynet).

Blogs are valuable communication tools that help students collaborate with their peers in a group work context, and engage with their course materials through self -reflective considerations about their individual learning style, skills and abilities. These tools also engage the educators with their students' work, allowing for a

close monitoring of students' understanding and allowing for knowledge reinforcement through pertinent and will timed interactions.

For all these reasons, educators must continue documenting their experiences, and the best ways to approach, implement and include blogs in their teaching. It is important to say that no matter what end they serve (personal, academic or professional), or whichever use we give to them, blogs have been created to aid communication; and communication is the basis for a good learning and teaching experience.

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Simulation Learning in Nurse Education

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Abstract

Simulation within nurse education is generally accepted as an effective teaching and learning tool. It is being incorporated into nurse education at a variety of levels with the drivers for this being patient safety, increased learner interaction and the ethics of practicing 'disasters'. Within this paper an examination of learning theories associated with simulation, the drivers for implementing simulation into nurse education and the importance of an effective de-brief will be used to demonstrate simulation's value. In the author's experience, this value lies in the facilitator having a good understanding of learning theories, their application in practice and how to derive value from this understanding. Through effective de-briefing and ensuring tight learning outcomes are established prior to commencement of a scenario, a facilitator can maximise the learning and influence its value. In other words, by planning rather than relying on hoping what may be achieved and taking time to extract the best from a simulated scenario, the most can be gained from it. Ensuring that an ad-hoc approach isn't taken is vital for simulation's continued success. It is the author's view that careful, planned de-briefing in simulation will have a positive impact on nursing education however there is more work to be done to establish this as accepted practice. References to simulation in the author's practice relate to those carried out in clinical nurse education within a tertiary hospital caring for children with complex congenital heart disease. An example of a scenario prepared for use within the clinical setting and a summary of the de-brief are attached (See Appendix A).

Introduction

When considering educational theories linked to the use of simulation and nursing education as a whole, there is conflict as to where each 'sit'. Murphy et al (2010) describe a need for nursing educators to understand the pedagogies influencing their own practice and recommend that from this teaching is planned rather than relying on ad-hoc events to guide education. In considering theories and approaches to learning, Kolb's (1984) experiential learning theory; knowledge or skill development resulting from learning that is gained through experience, is regularly referred to within nursing educational literature as there is a clear link between the two (Quinn and Hughes 2007, Goppe 2011, Howard 2009). It is logical that by experiencing something within a simulation, a created event to supplement a taught idea, learning will be derived from it. Whilst acknowledging this link, the focus of this paper will be on behaviourism, constructivism and humanism. It has been the author's experience that, in the context of simulation in nurse education, these theories in isolation and in combination offer a broader sense of current practice.

What is learning?

Howard (2009, p.8) cites Saljo's (1979) description of what students understand by learning; acquiring information thus to increase knowledge; learning to memory, to 'swot up' for an exam; learning for the 'as and when' to be retained and used as necessary and learning in the abstract, being able to apply this knowledge in a variety of ways including the real world and learning as an understanding of reality. Within the context of nurse education, this classification of a learner's understanding of learning is highly applicable. There are many instances when each may apply; the recollection of blood values and identification of an abnormality, the implications of the abnormality, an understanding of the pathophysiological process around the abnormality and how this is affecting the patient. In many respects this analogy reflects Benner's (1984) description of Novice to Expert in nursing care; moving from beginners in nursing right through to experts within their field of of nursing and the variable interpretations of situations relating to each individual (Benner 1984, cited in Quinn and Hughes, 2007).

Moving on from this, being able to recognise the abnormality may suffice, as long as some action is taken, but understanding in depth the rationale for the action may not be required at the time. In itself this reflects some value in a surface approach to learning (Quinn and Hughes, 2007). The surface approach is often enough for the learner to be able to carry out a skill or demonstrate it under observation; for example knowing that by applying oxygen to the patient the oxygen saturation levels within the blood will improve which in an emergency is ample, it would not be appropriate in this context to spend time thinking about how oxygen is taken up or transported around the body at this time.

Simulation in nurse education

Simulation in nurse education is well established (Cant and Cooper 2010, Moule 2011, Murphy et al 2010, Quinn and Hughes, 2007). Moule (2011) cites Hyland and Hawkins (2009) in stating that life size manikins were first used to support learning in 1911, becoming more popular in the 1950s. Within paediatric nurse education the use of simulation is increasing. The driver for this appears to be an educator's personal interest in the method and a belief in its effectiveness for both teaching and assessing. Within the literature there are several reasons cited for the use of simulation; the student centeredness of this approach (Bland et al, 2011; Hope et al, 2011), student engagement, i.e. active learning and patient safety (Hope et al, 2011; McCaughey and Traynor, 2010 and Perkins, 2007). McCaughey and Traynor (2010) describe simulation as ".. a teaching strategy that complements traditional training with actual patients and enables students and health professionals to learn in ways that eliminate risks to patients,"(p.827).

The safe aspect of this type of learning makes it attractive, as mistakes can and do happen without a truly negative outcome. Murphy et al (2010) describe the ability of an educator via simulation to magnify aspects of clinical practice which, whilst rare, are important to understand and manage. By simulating such events learners are given the opportunity to learn and then practice key skills safely. Murphy et al's (2010) paper describing the inherent value of simulation and its benefit to the wider curricula for nurse education reflects the author's view,

that simulation is a highly valuable mechanism for safely creating critical events on a repeated basis to reduce fear of the unknown, hone skills and develop self-awareness.

The traditional method of skill acquisition in healthcare, 'Sees one, does one, teaches one' is no longer accepted as ethical or effective (Perkins, 2007). Letting mistakes happen within a scenario inherently provides useful learning opportunities, in that the educators can opt to let the scenario continue incorporating the mistakes to illustrate the impact of a decision or intervention. This is a powerful means of linking theory to practice, a continuing theme in nurse education, and if managed well can teach more to students than many hours of classroom time. Ziv et al (2000) described the drivers for the use of simulation as 'a general concern for increased patient safety, cost reduction due to human errors, and ethical issues related to training.' Its use in health care training is increasing rapidly and questions about suitability and effectiveness have been posed for at least the last decade (Ailiner and Hunt, 2004).

Bland et al (2011) describe the history of simulation in nurse education being based in experiential and situation learning describing it as 'an established pedagogy for teaching clinical nursing skills'. They describe simulation as an active learning strategy that it is learner centred lead by a facilitator resulting in the student demonstrating greater self-motivation and direction and the promotion of understanding and application of the cognitive and psychomotor skills required for future professional function (Bland et al, 2011). Bland et al (2011) also refer to a limitation of simulation being the anxiety caused by being within the simulated environment; they discuss the possible value of this anxiety. It is not clear whether the anxiety is as a result of 'being watched', the clinical event or both. In clinical practice when a patient does become critically ill the event can be fast, feel out of control and is highly stressful, in many ways similar to a simulated event. For a student, or any practitioner, to gain insight into their own behaviour during an event or in response to being observed, a common method of assessment in nurse education, may prove very helpful in adapting their practice to improve or change within a critical emergency. Bland et al's (2011) description reflects the experience of the author, in particular the facilitative and active nature of .

simulation and the marriage of several learning theories. Increasingly the simulation scenarios used in nurse education are complex, employing a variety of factors to be 'tested' with defined learning outcomes, whether technical or behavioural (Boston Simulation Course, 2012). There are two main types of simulation, high fidelity and low fidelity. High fidelity simulation is computer driven using complex mathematical and modelling algorithms including physiological and pharmacological thus giving the learners "physical" responses to actions. These responses can be changes in pulse, breath and heart sounds, pupillary responses and urine output. They may also include loudspeakers in the manikins to recreate the patent's voice to add realism. Low fidelity simulation is much less complex. It has either no or very limited physiological outputs and the learners are reliant on the instructor giving verbal feedback about other physiological variables (Perkins 2007).

Within paediatric cardiothoracic care there is a drive to use high fidelity simulation. As educators we are encouraged to develop our own abilities in the use and management of simulation to make better use of the technology available and as such it is being incorporated into the educational vision of the organisation. By having a good understanding of the learning theories that surround simulation nurse educators can positively influence the use of this technology. Using this knowledge and taking a measured approach in planning events and de-briefing will help to ensure that simulation is a positive tool and not the stressful process it could become. Murphy et al (2010) and Parker and Myrick (2009) both place value in examining the pedagogy influencing educators and their own practice. Parker and Myrick (2009) examined the pedagogic basis for incorporating simulation into nursing curricula, stating "nursing students require pedagogy based on collaboration, familiarity with the process of learning, an increased participation in their own learning, and increasingly realistic immersion and that this generation prefers learning experiences that incorporate teamwork." It is their assertion that with the proliferation of high fidelity simulation, a greater understanding of educational philosophies is essential and they are concerned that the excitement of new technology may be overwhelming the benefit to the learner, in other words teachers are employing this method without understanding the impact it will have on their

students and the benefits to be gained (or lost). This concern reflects my own; in a tertiary centre managing complex cases and employing highly skilled staff to care for these very sick children, being able to offer cutting edge technology to support their education is tempting, and yet moving this forward without structure can be as harmful as it is useful.

Learning theories and simulation

Nurse education and the use of simulation have been aligned with a variety of learning theories; both Howard (2009) and Quinn and Hughes (2007) offer a summary of learning styles and theories and an example of how each may apply to nurse education. Whilst this broad view is useful in understanding learning theories it is difficult to appreciate their absolute view; perhaps this is reflective of nurse education as a whole; the individuality of learners, their motivation to learn and other influencing factors, what Fanning and Gaba (2007) refer to as “frames”; knowledge, assumptions and feelings that influence the decision making of most adults.

Cohen (1999) describes behaviourism as when learners acquire and remember responses leading to satisfying after effects. Within nurse education this could be a variety of things; a patient responding well to treatment, successful implementation of a technical skill or simply working cohesively as a team if that is the learning objective. Howard’s (2009) negative description of behaviourism is of a dependent means of learning, that the learner is reliant on the teacher or provider of stimuli to elicit the response. Considering nursing more broadly this negative view makes sense however within simulation, where the teacher controls the learning environment, this can be positive as it is an effective means of demonstrating cause and effect; for example, giving a medication can have an immediately positive effect on the infant, by not administering the same medication the outcome may be poor. The ethics of this are clear and, in the author’s experience, simulation is a powerful means of emphasising taught theory. Using simulation as a means of acquiring skills reflects behavioural theory; implementing skills and expertise and eliciting a positive response from the manikin. This can be a highly effective means of developing skills however the learning outcomes must be clear

before the scenario commences. In other words, if the scenario is not focussed and supervision isn't effective the learner could develop other less desirable skills with the circumstance and environment reinforcing these poor skills.

For simple skills acquisition and testing of clinical skills a preferred method is the Observed Structured Clinical Examination (OSCE) which reflects Kolb's learning cycle (Kolb,1984, cited in Quinn and Hughes, 2007). Alinier et al (2004) studied the effectiveness of simulation to prepare students for their OSCE and found that based on their results, simulation could be shown to be effective in preparing nursing students for their technical (clinical) exams. Their research demonstrated that students were able to improve their OSCE marks by 6% through increased exposure to the simulated setting. This positive response relied on increased familiarity with the simulation setting rather than improved clinical skills so cannot be relied upon to support the argument for increased use of simulation in clinical practice but does demonstrate an improvement in clinical skills relating to increased, controlled practice. This is a clear demonstration of behaviourism in practice and shows its appropriateness, if skills acquisition not necessarily steeped in deep knowledge is required and appropriate. Within a complex environment, using simulation to repeatedly practice complex skills may be warranted from a safety perspective, however this study, whilst informative does not demonstrate how this type of learning translates into real clinical practice and the reactions of the students when faced with live patients presenting similarly. We can take the value of repetition from this however and hope that, as a result of this repetition, skills may become innate therefore when faced with a real version of the event the innate knowledge may direct the nurse's actions. This is the basis of Basic Life Support updates which are mandatory for clinical staff ensuring that when faced with the scenario the Airway Breathing Circulation (ABC) approach is drilled so deeply within us as practitioners that a systematic approach to managing the situation is taken (Allen et al, 2013).

Cohen (1999) describes constructivism as the learner actively constructing his or her own understandings of reality through interaction with objects, events, and people in the environment, and reflecting on this interaction. In other words,

interpreting patterns and making relationships between what is being observed and therefore learned (Stewart, 2013). Parker and Myrick (2009) state that, within the context of simulation as an educational tool, *"*knowledge transmission is not inertly passed from teacher to learner but, rather, is created by individual learners, or in some cases groups of learners, by processing experiences and interactions with their environment." (p.322)

By working as team to manage a patient within a simulation the learners can safely share their knowledge, challenge and adapt practice all whilst feeling assured that, when it is over there is no chance of harm coming to a patient. Based on Parker and Myrck's (2009) description, it could be argued that simulation as an educational tool is based in constructivism. The value of this use would come with an effective and well managed de-brief as it is during an effective de-brief that much of the acknowledged learning takes place (Boston Simulation Instructor Course, 2012). This also reflects Bandura's description of Social Learned Theory (1977, cited in Stewart, 2013) that a learner observes others and adapts their own behaviour to the group's. This could be a positive or negative result of group simulation; the result would rely heavily on the influence of the group and how well managed the scenario was by the facilitator thus ensuring that only acceptable practice is incorporated unless the poor practice itself is viewed as the 'learning tool'.

Humanistic learning theories are centred around the notion that the learner needs to be within an environment of encouragement, facilitation and that this nurturing will lead the learner towards understanding of what is to be learnt (Stewart, 2013). Stewart (2013 p.18) describes "the professed abhorrence of spoon-feeding" of some academics who lean towards more didactic methods of teaching, however in an environment where the act of doing can be as important as the theory underpinning the intervention, it is difficult to view guidance and facilitation as negative.

The implication of this type of learning theory, in the author's experience, is that by guiding a learner though a difficult task, making your mental and physical availability very clear, more is gained from the experience. Whilst this moves

slightly away from simulation, in that the teacher is less likely to intervene to reduce the number of incorrect skills for the safety of the manikin, intervention and guidance will always be warranted. Clapper's (2010p. e7) description of two types of nurse educator refers to the use of active learning by differentiating between the teacher and facilitator. He describes how "the facilitator of learning will ensure selected strategies that will allow the learners to become actively engaged with the construction of their learning and not be a passive tool of teaching." Jeffries (2007) supports this positive view of simulation as an active learning tool, "Simulation is considered to be more learner centred and students become active learners, abandoning memorisation for accessing knowledge and thinking and applying learning in context rather than providing answers to fact-based tests" ((Jeffries, 2007,p. ix) Bland et al, 2011).It is the experience of the author that using simulation in this way is effective in skill acquisition. This is influenced by the variety of learners, their individuality and what this brings to the process as discussed by Chickering and Gamson (1987) and it is hoped that a greater value will be placed on not only content to be understood but also the best way for the learner to gain this knowledge.

Conclusion

Learning theories associated with nursing education are plentiful. Reflecting on several years as a clinical educator and many years in clinical practice, it is the author's view that simulation is based predominantly with three theories of learning; behaviourism, constructivism, humanism and sometimes a blend of all three. The value of clinical nurse education that is aligned to a variety of learning theories and adapting practice, or rather labelling practice three ways demonstrates the innate value of simulation as an educational and learning tool. By taking care in the planning and implementation of simulations and ensuring the de-brief is controlled and carefully facilitated, simulation can continue to be an effective tool in the on-going development of nurses. In conclusion, simulation is as adaptable and flexible as the educator controlling it with the scope for significant developments in clinical learning derived from simulation bound to be ever increasing. By taking time to consider the learner's needs and what can be gained from the simulation through tight learning outcomes, simulation is an

effective, established tool in nurse education.

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Appendix 1

Clinical Simulation Scenario Title: **Heart Failure**

Patient's Name: Sally Smith **Age:** 11 months **Weight: 10.0 kg**

Background story given to candidates: **Sally was diagnosed antenatally AVSD and Down's Syndrome. Sally has been managing well at home on diuretics and NG feeds however she has been admitted to the ward for pre-operative management of her increasing respiratory and cardiac failure.**

Vital candidate interventions	**Notes**
1. **Review charts and complete full set of obs** 2. **Recognise detirioration and escalate**	

Learning Objectives

1. **Recognise abnormalities within obs and have a working understanding of the signs and symptoms of heart failure in an infant.**
2. **Recognise the fraility of these babies and prioritise actions.**
3. **scalate care and carry out instructions developing an understanding of each step of**

Faculty Roles

Switch board (EA), Cardiology Registrar (RB)

Manikin and Room Set-Up (Tick boxes required)

Chest Drain □ CVL □ N/OGT □ Infusions □

Monitoring

Sa02 Attached X Available □ ECG Attached X Available □

NIBP Attached □ Available X Other Attached □ Available □

Props Required

Blood Gases X 12 lead ECG □ Blood Results X Echo Report X A/CXR □X

1st Blood Gas: Cap X Ven □Art □				**2nd Blood Gas**: Cap □ Ven □ Art□ Ph	
pH	7.31	Hb		Hb	
pCO2	7.8	WCC		pCO2	WCC
pO2	6.4	Plts		pO2	Plts
Sa02%	81%	Na++		Sa02%	Na++
Bicarb	18	K+		Bicarb	K+
B E	3	Gluc		B E	Gluc

Clinical Simulation Scenario Title

Start Settings	First Change	First Change	First Change
HR 172	HR	HR	HR
Rhythm NSR	Rhythm	Rhythm	Rhythm
RR 62	RR	RR	RR
Air Entry	Air Entry	Air Entry	Air Entry
bilat 'wet' sounds	Chest Movement	Chest Movement	Chest Movement
Chest Movement	NIBP	NIBP	NIBP

Candidate Interventions

1. Full set of obs and call colleague for help

2. Complete assessment and SBARD handover to SHO, escalate to Reg/CICU for help

3. Implement Reg instructions and begin to prepare for CICU transfer

4. Hand over to CICU nurse and transfer

The use of Wikis in Education - a review of the literature

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Abstract

This paper reviews the literature surrounding the use of Web 2.0 in education. It examines various perspectives of what Web 2.0 means, and how Web 2.0 can support a constructivist pedagogy. Case studies involving Wikis are examined and the problems experienced are considered from both a technological and a group-working perspective. The paper concludes that although Wikis have the potential to support social-constructivism the differences between artificially constructed learning groups (formal learning) and self-forming and emergent social groups (informal learning) result in a requirement for greater attention to the theories on group working when creating group tasks using Wikis for learning purposes. Wikis are a tool and do not, by themselves, result in satisfactory collaboration.

Introduction

The World-Wide-Web has revolutionised the way humans interact with each other and with information. Since the dot-com crash of 2001, a new model of the web has emerged with even greater potential for collaborative working. The ability to create and share information electronically affords new opportunities to education, and these are being increasingly used in schools and universities across the world. This review seeks to understand how pedagogical theory and management practices match the Web 2.0 tasks that are being set in formal learning

environments.

The "Dot.Com" crash

The late 1990s saw rapid growth in internet based businesses. The new

technology was seen as exciting and innovating and the demand for shares in dot.com businesses surged – despite very few of them actually making any profits (Schifferes, 2007).

Businesses on the world wide web became vastly overvalued on the stock markets because of the allure of the technology and not the profitability of the business conducted or the soundness of their business plans. This state of affairs could not be sustained, and the effects of the market crash in 2000 are still being felt today. Indicative of this is that as of writing in 2013, the FTSE share index has still not regained its peak of December 1999.

The lesson is that technology is a means to an end, and alone should not be expected to deliver results. This could be true for educational uses too.

What is Web 2.0?

The term "Web 2.0" has no simple meaning. It was first used at a media conference to distinguish between web-based businesses that had failed in the dot-com crash of 2000, and those that had, to the contrary, flourished and made the world wide web "more important than ever" (O'Reilly 2005). In their analysis they concluded that Web 2.0 sites could be described as services that exhibited key characteristics, including:

- Continual improvement and development
- The harnessing of collective intelligence
- The importance of large quantities of data
- The presentation of a rich user experience

Examples of Web 2.0 interfaces

Google is an example of such a service. The Google search interface evolves with the addition of new features. As you type keywords Google tries to predict which keywords or websites the user wants from a list of popular searches and results and, with the user having revealed their current interests, targeted advertising can be supplied as well.

Google also combines data from its search engine with its mapping data and aerial photography. This is now further combined with street-level photography (Google “StreetView”); and it is all accessed through their website which provides an interactive and dynamic interface that responds to individual keystrokes and mouse movements as the user is working. This contrasts with the original message-response paradigm which presented web pages as complete units.
Technology plays a key role in delivering these services, and authors with a technological perspective can equate Web 2.0 to the presence or use of specified technologies such as blogs or wikis (Anderson 2007, p5).

Blogs are personal “web-logs” or diaries in which users can post their thoughts, reflections and ideas over time which form a sequential record. Other users can subscribe to blogs and be kept informed of new entries which they can read and comment upon. Where two or more users subscribe to each others' blogs, a channel for communication is formed. This need no longer be solely a plain text communication, as multimedia "blog" services, such as Flickr, are now available.

A wiki is set of web pages that can be edited by a group of users. One user can create a new page, other users can edit, add to, or delete the text on that page. The wiki keeps a history of all changes, and contributors can add comments to the history as to what changes they have made and why. Wikis can become very large repositories of collective knowledge. *Wikipedia* (http://en.wikipedia.org/wiki/Main_Page) is a large wiki of nearly thirty million web pages (four million English pages) that is maintained by nearly 19 million contributors across the world (Source: http://en.wikipedia.org/wiki/Wikipedia:About). Not everyone contributes to every page - using a Marxist philosophy: each author contributes content to the best of their ability to those areas that are within their talent and knowledge. The outstanding success of Wikipedia provides an example of what can be achieved collaboratively.

This ability to read and write information to the web in multiple media has allowed the phenomenon of social-networking to arise. Facebook is a social-networking

site that allows users to create a profile of themselves, post a blog (now known as their "timeline"), post and manage photographs and videos. More importantly, the ability to create links to other Facebook users through the "friend" option creates social groups in which users can interact with each others' timelines - creating web -based conversations and socialisation.

The two-way passage of data to and from the web has led to it being called the "read/write" web - and it is this ability, together with the opportunities for communication, collaboration, and working in social groups, on sites such as Facebook, that has raised the interest of educators. As Anderson points out :*"Ultimately, the label Web 2.0 is far less important that the concepts, projects, and practices included in its scope" (Anderson 2006).*

For example, Huang and Nakazawa (2009), describe how blogs, wikis and multi-media-sharing utilities create collaborative learning opportunities; Karasavvidis (2009) consider blogs, wikis, podcasts, social bookmarking, photo sharing and instant messaging as Web 2.0 tools which lead to a "proliferation of possibilities for communication and collaboration".

The pedagogical theory behind this interest is social-constructivism.

Constructivist Pedagogy

Cognitive constructivism involves learners creating their own knowledge and understanding from their own observations, perceptions and reasoning capability (Holmes & Gardner 2006, p83). Learning occurs in stages, with a learner able to progress from a prevailing level of knowledge to new levels that are within reach (what Vygotsky (1978) calls the "Zone of Proximal Development") . This often occurs under the guidance of a "more knowledgeable other" that provides metaphorical "scaffolding" to support the learner's knowledge building.

It is the need of the "more knowledgeable other" that extends cognitive constructivism by introducing another need for the learner - i.e. people - and this has become known as "social constructivism" (Holmes & Gardner 2006, p84).

The "other" can be a learner or a tutor, but the theory proposes that learning takes place in an authentic situation which provides purpose and motivation to the learner. According to Holmes & Gardner (2006, p84) the main elements of social-constructivism are that it is:

- Social
- Reflective
- authentic
- scaffolded
- progressive
- experiential
- situated (i.e. contextualised)

Hazari et al (2009) note that the Chickering &Gamson (1987) principles of good practice can be covered by wiki technology. By design, learning activities using wikis are active and develop reciprocity and cooperation among students, with emphasis on time-on-task. Furthermore, with suitable management of the activities they can also communicate high expectations and exploit the diverse talents and ways of learning of the group members. These principles are consistent with the social-constructive pedagogy.

Based on social-constructivism, Gunawardena et al (1997) outline a five-phase model for a socially mediated knowledge construction process (Figure 1). It should be the intention of a Web 2.0 task to facilitate this development.

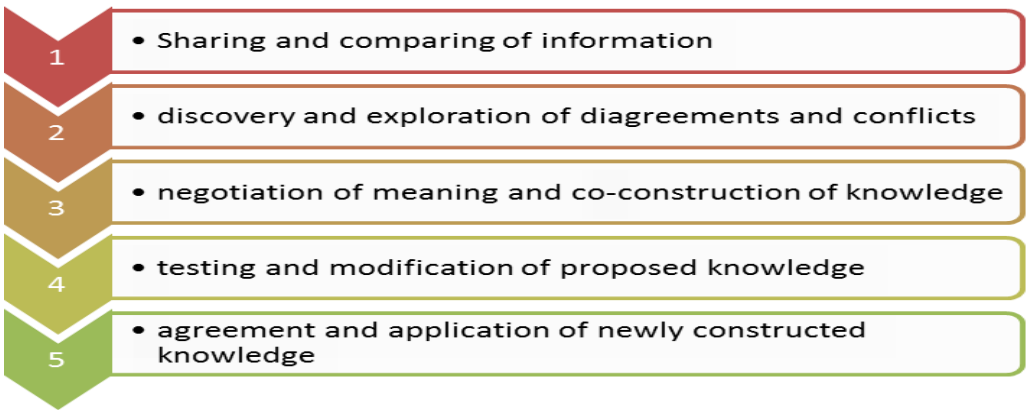

Figure 1 *Mediated Knowledge Construction (Gunawardena, 1997)*

Wikis in practice

Wikis and blogs are among the most used Web 2.0 services in learning activities in higher-education, with wikis in particular being used to encourage collaboration and teamwork, and to share ideas and information (Abedin 2011). Wikis are a popular choice for a tool (Karasavvidis 2010) because:

- they enable collaborative creation of website content
- they are readily available with no hardware/software dependencies
- they are easy to use
- they provide management facilities such as tracking changes

Their effectiveness though has been mixed; Paulus (2007) described the general trend on computer-mediated communications as bearing "disappointing results" often not progressing beyond phase 1 of Gunawardena's model. Cheng &Chau (2011) found that empirical evidence about the use of wikis as a collaborative tool is inconclusive.

Some case studies into the use of Wikis in the literature reveal :

Literature - Case Study 1

Grant (2007) conducted a case study of a Wiki project in a UK secondary school on students aged 13-14 and divided into groups of between six and nine. Training was supplied on the technical aspects of using a wiki, but the students' were deliberately allowed to organise their own collaboration and use of the wiki. Grant concluded that instead of collaborative learning and knowledge creation taking place, there was:

- a strong assertion of content ownership
- a reluctance to edit others' work
- a failure to see the ability to edit others' work as useful or desirable
- little evidence of a knowledge building network

Grant found no evidence of the social and cultural practices of collaborative working. For students to care about the overall product and not just their own contribution they should have perceived the whole exercise to be an "authentic, relevant and worthwhile" one. However as they thought they were being individually assessed on their work by their teacher, they did not appear perceive the exercise in this light.

In can be argued that the students' youth and inexperience in collaboration could result in a lack of knowledge or confidence in editing others' work – even though the technology was available for them to do so.

Literature - Case Study 2

Karasavvidis (2010) conducted a case study in to uses of Wikis in higher education and found that although the wiki task was designed and intended to elicit collaboration, the students did not collaborate on knowledge creation but cooperated on artefact creation instead.

The students complained that:

- the task took too much time and effort compared with other assignments
- copy and paste strategies emerged
- the opportunities for communication were limited and not used
- competition between students undermined collaboration
- there was reluctance to edit the work of other students.

Karasavvidis concluded that the user participation which creates the constructivist value of group-work using wikis cannot be taken for granted. It represented a new way of working for the students which they did not find comfortable - in particular they were not used to a sense of shared ownership and responsibility for the task presented.

Literature - Case Study 3

Huang and Nakazawa (2010) conducted a 10 week Masters level course in which the students were divided into small groups of 3 or 4 and were required, over the

duration of the course. To collaboratively construct a Wiki that covered the course content. The researchers found that the motivation to develop the Wiki declined over the duration of the course. Both the number of new entries and the number of reviews/revisions dropped, suggesting that the instructors need to "purposefully encourage and sustain" the activities of the learners.

Computer criticism

Seymour Papert, the inventor of "Logo", in response to claims that the programming language was not helping students learn and understand geometry claimed that "the context for human development is always a culture, never an isolated technology" (Papert 1987). By asking a similar question, "Do hammers and saws make good furniture?" he demonstrated the problems inherent in trying to judge a technology in isolation from the human aspect of using the tool - the effectiveness of the tool often depends how the tool is used more than the qualities of the tool itself. This is reminiscent of the lesson of the dot.com crash of 2000.

It is therefore prudent to examine the human context in which Wikis are used before reaching a conclusion as to their effectiveness.

Communication

The primary medium used to communicate in Wikis is written text used asynchronously. Asynchronous communications mean that the writing of a message and the subsequent reading are not connected in real time. This is unlike speech where the message is received a determinable (usually very short) time after it is spoken.

Such a mode has drawbacks: conversations may be lengthy and time-consuming to read, and are generally conducted more slowly perhaps involving hours or days of "lag time" between messages which might make it difficult for participants to remain engaged (Paulus 2007). In a multi-participant situation, learners may join in the conversation at different times, further adding to delays and confusion (Wang & Woo, 2007). It might also make it difficult for the task to be completed on time. In the case studies reviewed, the learners were unfamiliar with the wiki technology

and therefore used other means to organise their work. Email and face-to-face conversations were popular choices.

However, written communications do have some advantages over face-to-face communications (Wang & Woo 2007). Because the process is written and slower, they do facilitate responses that are more reflective and considered, and this can lead to more critical thinking which enhances constructive learning. Furthermore, people who are more introverted or have language difficulties may find Wikis are more comfortable environment in which to participate.

In terms of social-constructivism, the nature of communication itself should develop. Salmon (2002) (Figure 2) shows a five-stage framework in which initial communications based on introducing and organising the task should develop into sharing information about the topic - thereby sharing information and co-constructing knowledge. None of the case studies reviewed demonstrated this development occurring. However, this might be due to the short-term nature of a wiki project where participants don't have the time necessary to establish a social environment for working.

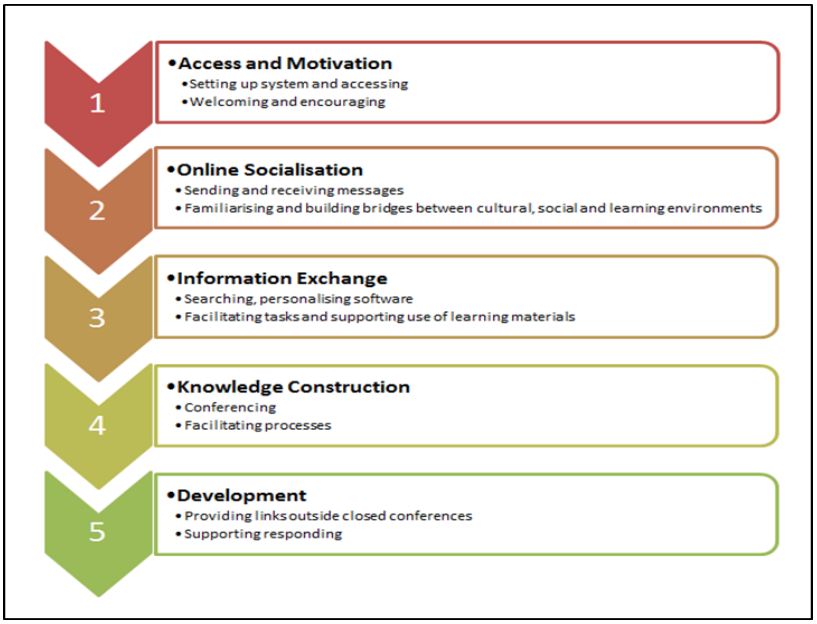

Figure 2. Model of teaching and learning online through online networking (based on Salmon 2002, p11)

Working in Groups

When using Wikis for group-work in learning activities, there appears to be an assumption that *social groups* which form through social networking sites such as Facebook and have been very successful, and *learning groups* which are set up in the class, will produce the same level of communication and collaboration among their participants.

This does not appear to the case. Social groups emerge and evolve over time - people join and contribute to social groups voluntarily because they want to - there is an intrinsic motivation to participate. Learning groups in contrast are artificially constructed by the teacher and the motivation of student is extrinsic - it needs to be created and developed.

The difference between social groups and learning groups is reflected in the "blurring line" between formal learning and informal learning. The social groups, their conversations, and the information exchanged and subsequent learning is informal and unstructured (Lim et al, 2010). In other words, in an informal learning situation the learning outcomes are largely unspecified and emergent. This is not a desirable situation for higher education, where learning outcomes are specified and communicated early in the learning activity. The nature of the conversations in a formal learning situation therefore needs to be different.

Walker & McPherson (2007) claim that it cannot be assumed that learners will automatically engage in Web 2.0 conversations, nor that any conversations will be productive in terms of learning. They note that three aspects of computer-mediated communication (CMC) are necessary for discussions to take place that are at the higher levels of the Salmon framework. These are

- **management** - controlling the discussion, making sure that it stays on topic, that participants all share in the workload, that potentially disruptive activities (such as dominating the conversation) are discouraged.
- **community building** - making sure that participants are welcome and feel able to contribute in a safe discussion where their contributions are respect-fully received

- **argumentation** - these skills allow and encourage the topic to be critically explored and analysed. They include challenging viewpoints and requesting justification, requesting clarification and developing counter-arguments or opposing opinions.

Where these three aspects are not developed, the situation can be impaired. The sense of an authentic team task may be lacking which leads to the separation of the task where each learner concentrates on their own assigned sub-task.

Furthermore, if the learners in the group are not familiar with each other and do not make the effort to build a community, then this may provide a reason why learners seem unwilling to edit other learners' contributions, preferring to adopt a non-confrontational role and focussing on their own portion of the task.

Building a team and developing a group-working culture requires effort. Jacques & Salmon (2007) describe a range of activities needed to develop this "positive group culture" as including:

- Understanding group dynamics and using them to create a climate that is welcoming, supportive and inclusive.
- Making sure people know each other
- Making sure everyone will benefit from being in the group and that individual needs are met.
- Using the varied skills of team members where they can deliver their best effect
- Creating an atmosphere where people are confident to contribute, that they are encouraged and supported to do so, and counterproductive behaviours are discouraged.
- Having a meeting that is fun and enjoyable.
- Allowing non-productive members to leave the group gracefully.

However, these kind of group-building activities appear to be absent in the Wiki studies examined.

There are two possible reasons for this:

> (1) The group was not clear on the goal, or lacked a collective commitment to the goal. This impedes group formation. (Paulus 2007)
>
> (2) Text based communications lack the non-verbal communication that is present in a face-to-face conversation. Emoticons and abbreviations (such as LOL) are used as substitutes but these are not necessarily as effective in creating the rapport needed to build a friendly working relationship. (Walker & McPherson 2007), (Wang & Woo 2007).

Using Web 2.0 technologies alone is not sufficient to create a successful eLearning environment (Lim et al 2010). The formation and development of a group in a formal learning situation should be a deliberate processes, not an informal one.

Hazari et al (2009) state that group formation can raise several questions:

- How to select groups? (by last name, randomly, self-selection, by learning styles, etc)
- How to manage teams with different backgrounds or cultures?
- How to foster teamwork?
- If and how to assign students their roles in the group?

This is not a trivial exercise. Social groups form and emerge naturally with ease. Formal learning groups require management that cannot be taken for granted.

Personal Experiences

The author has used wikis as a student on several occasions, on courses in education at the University of Leeds and at the University of Hertfordshire, where I found the experiences match those described in the literature.

In all cases, the intention was to create a collaborative work, but there was very little communication between participants other than to organise "who does what". This led to the wikis being a congregation of disjoint pieces of work, with little cohesion to the group thinking or the resulting text.

In one instance, an "editor" role was assigned to one member of the group, and their task was to review the proposed text and rewrite parts where necessary to ensure a consistent flow, structure and style to the text. This was achieved but, being done by one person alone, cannot be conceived as group-work in any form.

Neither I, nor colleagues with whom I discussed the work afterwards, felt that any group working benefit had been achieved - the wiki was simply a task to be done. It stimulated cooperation (sometimes reluctantly and resentfully) rather than collaboration, and certainly did not produce socially-constructivist learning.

Conclusions

Wikis are a tool that can be used for collaborative creation of knowledge. This can be exploited in an educational context, but the learning activities need to take account of group formation processes.

The spontaneous emergence of cohesive groups such as the social groups in Facebook cannot be expected to occur among people that are unfamiliar with each other and do not normally communicate at a social level - formal groups need to be established and developed in accordance with the models of group processes.

The learning tasks need to be explicitly designed to assist community building within the group so that it can develop. This may include communication other than via the wiki so that rapport is developed and the group can organise itself in a time-efficient manner.

The Wiki is a tool that can be used to support collaborative and constructive learning, but it cannot by itself ensure that these will take place. As with most tools, including other Web 2.0 ones, how the tool is used and exploited is a critical factor in its success or otherwise.

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Introducing 'formative' assessment quizzes as a pedagogical approach to enhance the learning process of students.

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Abstract

Within the sphere of Higher Education tutors are constantly being reminded to reflect on the pedagogical needs of students and to consider new ways of facilitating the learning process. The following paper therefore explores the positive attributes of introducing a 'formative' assessment process into a learning environment. It describes the pedagogical challenges the author experienced and why there is a need for such an approach to achieve maximum learning, within a time limited framework, using the relevant literature to reinforce the intended learning outcomes. The findings of the paper clearly show a beneficial outcome of the learning process by introducing quizzes within a teaching activity as part of a 'formative' assessment process.

Background

The author has been involved in the development and delivery of training for health care professionals within the National Health Service (NHS) for the past 20 years and more recently as a visiting lecturer to several local Universities. Whilst undertaking further professional development (Continuing Professional Academic Course: Post Grad. Cert. in Higher Education) the author has been reflecting on previous experiences of developing and delivering training and recent experiences as a student as described by Kolb (1984).

Introduction

Kolb (1984) describes the learning process of reflection as having four main components: Concrete Experiences, Reflective Observations, Abstract

Conceptualisation and Active Experimentation. The author chose this model on the basis that it was considered to be the most appropriate taking cognisance of past and present experiences within the 'Concrete Experiences' process, analysis and judgments of their past and present experiences through the 'Reflection Observations' process, their present learning within the 'Abstract Conceptualisation' process, and finally through the development of implementing their learning within the teaching environment within the 'Active Experimentation' process. The author acknowledges that by using this model it was a proactive way of measuring the effectiveness of bridging the theory / practice divide as described by Albert et al (2010).

Context for Reflection

Currently the author is responsible for delivering an in-house training programme provided to multi-professional disciplines. It consists of three foundation modules ranging from one to five days, and refresher modules which have to be undertaken annually following completion of the identified foundation training ranging from half to two days training; the actual training being dependant on where individuals are employed within the Trust.

The programme has two elements: 'theoretical' and 'practical' and has to be academically sound in meeting both National Standards and learner outcomes as described by the Security Management Services (2005) although an academic level has not been assigned to the programme. The target audience of the programme encompasses all staff who work within the Trust. The training is mandatory for all staff irrespective of their roles and responsibilities and is part of the NHS Litigation Authority (NHSLA) Risk Management Standards 2012-13 as described by the NHSLA (2012).

Learners are informed electronically in advance; of the background of the training as described above, the start time, available facilities and location, including a map to minimise any anxiety the learners may be feeling due to the nature of the programme or travelling to a new area. The pre-course information pack also includes a section about identifying learners specific needs e.g. dyslexia, hearing

impairment, etc and encourages the students to approach the course leads prior to attendance so that reasonable adjustments can be made in line with the Equality Act (2010).

Literature Review

Haggis (2006) describes diverse cohorts in terms of having a range of working and academic backgrounds and this is visible in the participants on this programme, hence meeting their individual learning needs can be very challenging within a mixed group setting. From previous experiences the author has found the use of discussions as a good way of firstly checking preconceived ideas and values towards the subject matter being presented, as well as checking that learning has actually taken place; thus engaging the audience as suggested by Chickering and Gamson (1987). This ensures that all learners are able to participate in the learning activities in a safe and supported manner and are not reliant on the need for learners to be able to decipher and understand written material. By undertaking this approach many learners, especially English as a Second Other Language (ESOL) learners as described by Baynham (2007), benefit from these discussions through both learning and engaging in the subject matter and by continued development of the use of English as a second language.

Being mindful that this may be the first contact with a learning environment the learners may have had since leaving school, this process provides an excellent opportunity to raise participants awareness that educational providers have changed their approach to teaching through the development of pedagogic research and innovative methods as publicised by the Higher Education Academy (HEA) (2011) and others.

Due to the pedagogical needs of the students the author identified the need for awareness of whether learning was taking place on a day to day basis within the week long foundation course opposed to a final summative assessment. The main motivating factors for this were: the complexity of the curriculum components and the limited time constraint involving the manner in which the programme is

is delivered, (see Appendix A for programme). Therefore when considering a new teaching activity it is vital as an educator that one considers the whole learning experience of the student and ensures that the Vygotsky (1978) pedagogical approaches are appropriate. Vygotsky advocates the importance of grades or scaffolding within the zone of proximal development. Indeed Barber and Mourshead (2007) describe effective teachers as being able to identify and overcome student difficulties by initiating appropriate interventions to ensure students are engaged and challenged in achieving their maximum learning.

Mindful of the above identified challenges the author believed it was necessary to re-evaluate the learning process and to facilitate the learners in engaging with the subject matter through the introduction of a 'formative' assessment process in order to maximise their learning potential.

Black and William (1998) describe the process of 'formative' assessments as 'all those activities undertaken by teachers, and/or by students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged'. Nicol and Macfarlane-Dick (2006) further develop this theme by suggesting that 'formative' assessments 'aid learning by generating feedback information that is of benefit to students and to teachers'. This process further enables 'students to restructure their understanding / skills and build more powerful ideas and capabilities'.

Development Process

A review of the literature exposed a plethora of 'informative' assessment approaches to identify whether learning has taken place e.g. Problem Based Learning, Virtual Learning Environments, Reflection Practice, Group Work, Written Assessments etc. as described by Higgins et al (2010).

Taking cognisance of his experiences the author recognised the significance of discussion work within the foundation course. Therefore he considered it was appropriate to stay with this theme and proceeded to develop a 'formative' quiz to be

delivered at the commencement of day's two to five involving topics that had been previously explored in the days before. Not being content on just delivering a quiz the author recognised that many of the positive attributes of teaching, as discussed by Chickering and Gamson (1987) and later the HEA (2011), could be achieved by developing a process whereby the students could take ownership of their learning and development through group work and peer review as described by Hoffman et al. (2008) through this formalised process.

Method

At the beginning of the week long foundation course the students were divided into three / four groups depending on class size (Maximum class size sixteen). They were then made aware that these are their groups for the remainder of the week. The students were made fully aware at the commencement of day one how the course was assessed using both 'formative' and 'summative' assessments as described by Higgins et al. (2010).

At the start of the second to fifth day a 45 minute 'formative' quiz took place and the students were encouraged to give feedback and award each other marks for correct and potentially correct answers following exploration and discussion. The formative quizzes provided feedback to the educator regarding whether learning had taken place and importantly provided regulatory feedback to the individual learners so they were aware of how much they had understood. The questions were based on the course content from the previous day(s) and were presented using power point presentation and read out by the course tutor. The questions were open in nature and answers were then written down as a group collective. Example question being: What are the three dimensions of managing aggression within the workplace? Each of the groups then marked another group's answer sheet, awarding points to each answer based on interpretation and correctness. Points were then totalled and final scores were awarded to all groups in order of achievement. This process promoted the students to interact both within their own groups and also facilitated the process of interaction within the other teams through discussion and the challenging of each other's answers. Many of the positive attributes of teaching and learning were achieved as discussed within the

literature. The feedback from the quizzes then informed what areas of subject matter the author needed to reinforce etc throughout the day. However time constraints and new learning had to take precedence in order to ensure learners continued to be challenged as described by Vygotsky (1987).

The students were then made aware that at the end of the week the winning team would be awarded with a novelty silver cup and other students would be given novelty medals for individual achievements. Through this process many of the barriers to learning can be broken down as described by Black and William (1998).

Black and William (1998) further suggest that through the process of giving feedback to students using 'medals, missions and clear goals' can effectively enhance the learning experience of students. Thus the approach of introducing quizzes to assess whether teaching and learning has taken place ensures that this three step process is achieved. Rewarding students through achieving points and bonus points when they do well is achieved within the 'medals' process, highlighting areas of development are included within the 'mission' process and the rationale for the quiz is achieved within the 'clear goals' process.

Rationalisation of 'formative' assessment approach

Dunn & Mulvenon (2009) suggest that 'formative' assessments can improve pedagogical approaches and outcomes. However the approach has to be 'fit for purpose, efficient and is task manageable' as described by Brown (2005:81). With this in mind it was essential that whatever task was developed it had to be appropriate in meeting the needs of the students in enhancing the learning process as "Formative evaluation also informs policy, which then affects future evaluation practices, teachers, and students." (Dunn & Mulvenon 2009:3)

The author had previous experiences of student feedback regarding the way in which they felt learning best takes place. Indeed two positive areas identified by previous students attending courses were 'discussion work' and 'peer feedback'. This is further identified within the literature as a desirable attribute within the learning environment by encouraging learners to be supportive towards each other and "develop reciprocity and cooperation among students"

(Chickering and Gamson 1987:2). Indeed Biggs (2003) suggests that learner to learner interface can enrich the learning outcomes. This approach is not only an excellent way of engaging with the learners but is also an essential process in ensuring that learning has taken place as described by Brown and Knight (2004). Incorporating the feedback from previous students has allowed them to assist in shaping future curriculum design by assessing what learning has taken place and by modifying any areas of teaching which needs to be developed to meet the learning objectives as suggested by Hearle and Cogger (2011). Coincidently, some of the negative feedback from previous courses prior to the implementation of the quizzes was the amount of knowledge being revealed to students was considered to be excessive with little or no time being given to revisit and explore it in order to learn within the time frame of the course.

"Effective pedagogy recognises the significance of informal learning to developing specific expertise." (Teaching & Learning Research Programme, 2010:15). The process of a quiz encouraged all students to participate within the teaching exercise as suggested by Zepke and Leach (2010). The process further promoted and encouraged students to be actively involved in their own education by taking ownership of their development as described by Hoffman et al. (2008). The educator was also able to reflect on the appropriateness of their teaching methods, determining if they enhanced the learners' experience as described by Brown (2005).

This approach to teaching and learning facilitates and reinforces the 'six powerful forces in education; Activity, Cooperation, Diversity, Expectations, Interaction and Responsibility' (Gamson & Chickering, 1987:3). The quiz was developed to incorporate the principles of VARK: Visual, Auditory, Read / Write and Kinaesthetic as described by Flemming and Mills (1992), and through this process it best meets many of the individual learning styles of students as described by Honey and Mumford (1982).

The progression of promoting learning through this process in turn allows the next level of development of the course material to be delivered and explored as described by Bruner (1986) 'constructivist' theory. (Appendix B)

Bruner (1966) suggests that learning is an active process whereby learners construct new ideas and concepts through past and current knowledge. They further suggest four criteria for the theory of instruction:

1. "It should specify the experiences which most effectively implant in the individual a predisposition toward learning.
2. It must specify the ways in which a body of knowledge should be constructed so that it can be most readily grasped by the learner.
3. It should specify the most effective sequences in which to present the materials to be learned.
4. It should specify the nature and pacing of rewards and punishments in the process of learning and teaching."

(Bruner 1966:40-41)

The author recognised the positive attributes of this approach and by developing the programme with these four criteria in mind has led to the natural inclusion of many of the concepts of Vygotsky (1987) and Black and William (1998) as described above within the developmental, delivery and evaluation processes of the curriculum.

Student evaluation of quizzes

Following the introduction of the quizzes three foundation courses have been completed, and on conclusion of each course students were asked to complete an evaluation form anonymously. This process was not compulsory however all the students chose to complete an evaluation form. The process of evaluation is as important as the task itself, and indeed the Educational Testing Service (2003) suggests that evaluation of the results can screen out tasks which have little or no

benefit to the learning process.

As previously mentioned the quizzes meet the HEA (2011:3) 'Areas of activities' and incorporate the '7 Principles for good practice in undergraduate education' (Gamson & Chickering, 1987:2) and also meet many of the 'pedagogical needs' of the learners identified previously (Haggis, 2006). Of the 48 evaluation forms completed the following demographics demonstrated that:

- 12 students had previously attended the course but due to a number of factors, including non-adherence to refresher training compliance, re-deployment, long-term sickness, had to repeat the course again.
- 32 of the students said English was a second language
- Student professions included Nursing, Doctors, Occupational Therapists, Psychologists, Drama Therapist and a Music Therapist.

The following questions were specifically asked regarding the quizzes:

- Did you find the quizzes useful?
- Did the quizzes help you to understand / retain the subject matter being presented?
- Do you think the quizzes promote further exploration / clarification of the subject matter?
- Any other comments?

The answers were graded in the following manner:

- A lot
- Some
- A little
- No

Of the 48 students; 100% of the student felt the quizzes were useful; 46 of students felt the quizzes helped to understand and retain the subject matter 'a lot'; and 2 said 'some'. Regarding the exploration and clarification of the subject matter 47 of the students responded 'a lot'; and only 1 said 'some'. From the results the quizzes were positively received by all the students highlighting that they improve

learning outcomes as described by Dunn & Mulvenon (2009) and are therefore 'fit'for purpose' as described by Brown (2005:81).

From the 'any other comments' section the following points were raised by the students:

- "I found the quizzes a very useful way of checking what I could remember!....I really liked the competitiveness of the quizzes…..Our team was very competitive and just wanted to win, win, win!"
- "I discovered that I was taking notes within a training session? I haven't done that before, I usually just wait for the hand-outs!"
- "Going home and checking things out on Google to see if I could catch the Tutors out was great fun!.. XX & XX took it really well and were both up for the challenge! Perhaps Quiz against Quiz next time?"
- "Having done this course before I was surprised how different the course felt with the introduction of the quizzes, I was surprised how much I had forgotten, a very useful task"
- "A week studying for a plastic silver cup! Was it really worth it?….YOU BET! Well Done XX & XX"
- "A very clever way of bringing the group together in a competitive but friendly manner to learn"
- "I found myself going home and reading my notes just to make sure I knew the answers for the following day"

One really positive outcome of the quizzes noticed by the author and other tutors who were involved in the courses was the level of note taking being undertaken within the training sessions by the students. This was a phenomenon which was not considered as an outcome as note taking on previous courses was not the norm. This was further reflected within the 'any other comments section' above. This process quite clearly demonstrates that the quizzes encouraged the students to take ownership of their learning as described by Hoffman et al. (2008).

This process of facilitation and enhancing the student learning experiences

encourages the students to begin their professional development through the

'5 levels of learning' and in becoming an expert within their own right as described by Benner (1982).

Overall the author noted how positively quizzes were received from the evaluation undertaken by the students. The introduction of a novel approach to gaining a reward at the end of the week, provided further motivation for the students to learn using a novel / fun approach. The author felt that students may have found this process puerile without considering the positive benefit of this pedagogical approach; however this has not been evidenced to date.

The author recognises that the above points are no in way absolute and recognises the lack of 'rigour' with their methodology. However they do suggest that from their findings the use of 'formative' assessments have a positive influence on the pedagogical approaches employed to enhance the learning environment.

Future considerations

The author recognises that there are many other approaches which could be used to develop this idea further to enhance both the 'formative' and 'summative' assessment process. The use of technology may augment the pedagogical approach such as Electronic Voting Systems (EVS). By introducing EVS, students would be able to undertake the quizzes as individuals rather than as part of group which would give a much more person-centred reflection of what learning has taking place. The use of EVS may be more appropriate as part of the 'Summative' assessment processes as described by Higgins et al. (2010) at the end of the course thus giving individual feedback on whether they have successfully achieved all the learning objectives.

Conclusion

The literature indicates that effective pedagogy significantly influences the learning process which in turn is dependent on a few key factors:

- The teaching task needs to be firstly 'fit for purpose, efficient and is task manageable' as described by Brown (2005:81). This is an essential pedagogical consideration.
- The importance of Tutors / Teachers developing approaches that encourage students to participate with teaching exercises greatly enhances the learning process as suggested by Zepke and Leach (2010).
- Teaching tasks that encourage students to take ownership of their learning will improve learning outcomes for students as suggested by Hoffman et al. (2008)
- Teaching tasks which encourage / facilitate the students professional development through the '5 levels of learning' in becoming an expert within their own right as described by Benner (1982) may positively influence the theory / practice gap as described by Albert et al. (2010).

As such the author has identified through the use of the literature that the introduction of 'formative' quizzes has contributed towards the key factors above within the foundation programme.

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Appendix A

Hertfordshire Partnership NHS

as one

RELATING TO PEOPLE
Managing difficult situations

About our Programme

Relating to People is a customer care project. The model upon which it is based is transferable to other health care settings.

The programme is part of the response to supporting and developing staff. It is aimed at all staff, to help them develop and refresh their communication skills so that they can communicate with service user's more effectively, keep themselves and others safe in difficult situations and, where it is necessary, manage violent situations. Staff attend one or more modules according to their need, determined jointly by themselves and their manager during their annual appraisal.

Module 4 is five days aimed at staff where disentanglement is not always acceptable and where active intervention may be needed. This is aimed, for example, at staff in the Acute Mental Health service. Sixteen people attend. This module is known as RESPECT®.

The philosophy underpinning the modules is to use psycho social interactions and make use of non aversive physical interventions to prevent injury. This is a therapeutic approach to managing violent behaviour, philosophically completely different to the old control and restraint methods.

Day One

- Communication Exercise
- Introduction & Ground Rules
- Individual Aims & Objectives
- Managing Conflict in Mental Health & Learning Disability Services
- Philosophy of RESPECT®
- Definitions of Anger, Aggression, Violence & Challenging Behaviour
- Restraint Related Deaths & Delivering Equality
- Physical Interventions – Defensive
- Close

Day Two

- Review of Day One
- Why be Aggressive?
- Physical Interventions - Protective
- Communications
- Recognising Aggression - The Signs
- Physical Intervention Review
- Acute Behavioural Disturbances (RT)
- Close

Day Three

- Review of Day Two
- Seclusion
- Physical interventions - Defensive
- Risk Assessment
- Physical Interventions - Protective
- Managing Conflict
- Physical Intervention - Restrictive
- Close

Day Four

- Review of Day Three
- Physical Interventions - Defensive
- Staff Support & Incident Review
- Physical Interventions - Protective
- Restraint & Legal/ Human Rights
- Physical Interventions - Restrictive
- Physical Interventions - Protective to Restrictive
- Close

Day Five

- Review of Day Four
- Practice Physical Interventions
- Recording Physical Interventions
- Practice Physical Interventions
- Action Plan - What Now?
- Assessment of Physical Interventions
- Review of Aims/ Objectives
- Certificates
- Close

RESPECT®

Is accredited by the
British Institute of Learning Disabilities

For further information contact:

Prevention & Management of Aggression & Violence
Hertfordshire Partnership NHS Foundation Trust

Simon White

T:
M:

Hertfordshire Partnership NHS Foundation Trust

as One

RESPECT®

Relating to People

Module 4
Accredited to:
British Institute of
Learning Disabilities

Appendix B

Foundation Course Mapped Using Bruner's Constructive Theory
Day One
Day Two
Day Three
Day Four
Day Five
Pre-Course Learning Agreement
Formative Assessment
Formative Assessment
Formative Assessment
Formative Assessment Summative Assessment
DATIX
Legal Framework 5 Principles & Capacity
Practical Communication Skills
Seclusion
Managing Conflict
Communication Reporting Untoward Incidents
Rapid Tranquilisation
Recognising the sign of Aggression
Communication Staff Support & Incident Review
Summative Assessment Physical Interventions
Restraint Related Risks & Bennett Inquiry: ILS, BME, Leadership, 3 Minute Prone
Why Be Aggressive
Communication Models: Assault Cycle PERFECT Conflict Resolution Styles
Protective / Restrictive Physical Intervention
Protective / Restrictive Physical Intervention
Communication: Anger, Aggression, Violence Challenging Behaviour
Communication Models: TA, LEAPS, SOLER
Restrictive Physical Interventions
Restrictive Physical Interventions
Restrictive Physical Interventions
Communication Exercise Colton Model 3 Dimensional Model
Protective Physical Interventions
Protective Physical Interventions
Protective Physical Interventions
Protective Physical Interventions
Defensive Physical Interventions
Defensive Physical Interventions
Defensive Physical Interventions
Defensive Physical Interventions
Defensive Physical Interventions

Technological wind of change blows through the University

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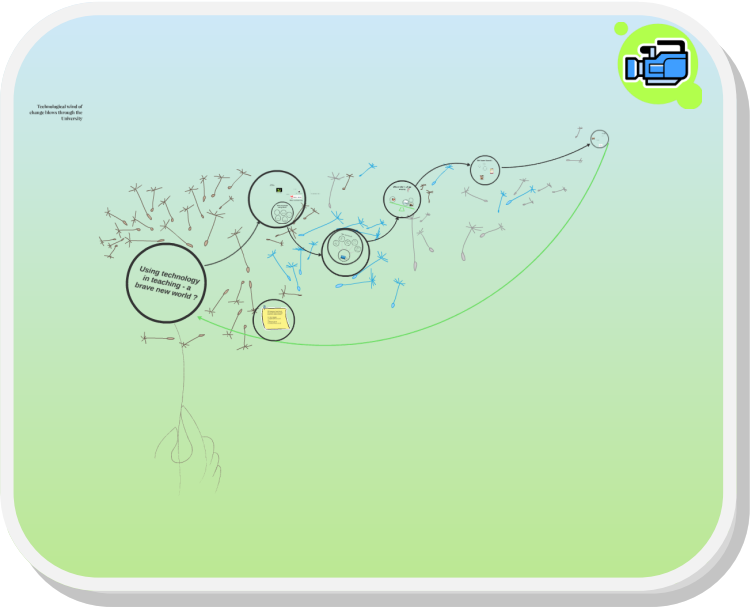
The Prezi describes how a range of technologies are used to support and enhance student learning. These comprise Video Conferencing with Adobe Connect, Web Based Assessment using QuestionMark Perception, Electronic Voting Systems, Screen Capture Videos using Camtasia, and the use of Social Media. There are short interviews with members of the University of Hertfordshire on how they use these technologies for teaching and communicating with students. The Prezi looks at when you might want to use such technologies and maps them to principles of good practice in learning and teaching. Furthermore it looks at some of the pitfalls that people adopting these technologies have encountered and suggest some ways to overcome these.



Learning and Teaching Institute Placement Student

Ashlesha Shukla

I am pursuing my degree at the University of Hertfordshire, studying BA in Human Resources and Management Honours. I am currently on my placement as a Marketing and Communication Coordinator at the Learning and Teaching Institute within the University of Hertfordshire.

I believe Learning is an on-going process – with this belief I decided to take a placement year. Work placements help me to put into practice the skills I've learned in the classroom. It's a great opportunity to get a feel of the professional world and I have an opportunity to meet and work with experienced people in the field.

Within the LTI, my role is a mixture of staff support, Communication, Coordination and Marketing activities. I help organise and assist at workshops and events which promote high quality teaching for academics and help professional development. I am involved in Higher Education Academy (HEA) workshops, the Continuing Professional Academic Development (CPAD) programme, and I provide technological support to the staff. This also includes one to one sessions with staff. Marketing activities include producing our e-journal, booklets, leaflets and editing and publishing the final editions.

I am enhancing my skills through various activities while pursuing my degree and I am developing skills within the work placement. The staff are extremely helpful and supportive. This placement has helped me to build a clear picture for my final year and graduate jobs.

I truly believe in excellence and give my utmost to achieve it. I also helped to produce this edition of BLIP , I hope you enjoy reading it.

Ashlesha Shukla

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