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iPods and Creativity in Learning and Teaching: An Instructional Perspective

Crispin Dale
University of Wolverhampton

Creativity is a term that has many interpretations yet is seen as crucial to the development of students in higher education. As part of a wider research project entitled "Podagogy" at the University of Wolverhampton, a number of individual projects were undertaken within the performing arts subjects. The focus of the projects was to explore the potential use of iPod technologies to support student learning. This article analyzes to what extent the instructors' use of the iPod can nurture creativity in learning and teaching. Using an interpretative approach, the research has found that the iPod is a powerful tool for developing creativity within the learning and teaching environment. In addition to identifying a number of factors that can be associated with the notion of creativity when using the iPod, the study also considers certain conditions that need to prevail in the wider institutional environment if iPods are to be adopted as a learning technology. The study also proposes a number of areas for future research.

It has been widely acknowledged that creativity is a complex concept for which there is no comprehensive definition (Prentice, 2000). Prentice comments on how it has become a buzzword that is deemed as either good for an individual to have who is linked causally to an improvement in the economy. Although, it should be noted that defining the word is seen by some as being irrelevant and obscures the "idea" of what creativity actually is (Cowdray & de Graff, 2005). Even though there is some contention whether creativity can actually be taught (Eagan-Hunter, 1993), the need to develop graduates who demonstrate creativity as opposed to purely knowledge-based skills is seen as crucial to the development of society (Freeman, 2006). It is also argued that creativity results in a deeper understanding among learners (Sawyer, 2004). Therefore, it is widely contended that developing creativity should be an explicit part of the higher education process (Jackson et al., 2006). Indeed, the need to nurture creativity within higher education has gathered much momentum in recent years and this is reflected in the number of university mission statements that have the word creativity embedded within them, the author's own institution being one. The level of debate surrounding creativity has rose to such an extent that a national conference was staged at the University of Wales Institute Cardiff in the UK discussing the creativity agenda (Tyson, 2007). For instructors operating in an increasingly challenging higher education system, finding new ways to develop creativity within students is crucial to their overall development as individuals within society.

New technologies can play an important role in developing the creativity of learners. In analyzing the use of new technologies for developing creativity, Tacchi (2004) contends,

> As notions of creativity are spread more widely, the nature of production and consumption is seen to be changing from mass to networked models … network architectures and the network economy are seen by many to offer opportunities for innovation and creativity along with exponential growth, and new technologies are seen to offer unprecedented freedoms and levels of access. (p. 91)

Indeed, previous research has argued that information technology should be used to foster creativity within education (Ogunleye, 2002). Sutherland et al. (2004) also argue that new technologies can act as part of the creative production of new and innovative teaching and learning practices. Though Grainger et al. (2004) still contend that "teachers need to be convinced that creativity is a critical component in a world dominated by technological innovations" (p. x).

Since 2005, a team of performing arts instructors at the University of Wolverhampton have been engaged in research into the use of iPods as a learning technology. This article intends to analyze how these instructors have perceived the use of the iPod in their subject areas, as a device for developing creativity amongst their students and in their own teaching and learning practices. The performing arts subjects are particularly useful for analysing the concept of creativity as there has often been a strong association between the two areas (Prentice, 2000). Though several studies have investigated the use of iPod technologies with students (Blaisdell, 2006; Duke University, 2004) no studies have reflected on instructors' experiences concerning their use. Gaining an instructor's perspective is crucial; ultimately, the adoption of new technologies, like the iPod, is based upon the receptiveness of instructors to their usefulness in learning and teaching. The article will begin with an initial review of the literature relating to creativity before proceeding to discuss the findings of the empirical research.

The Notion of Creativity

It is useful to acknowledge the different theoretical studies that pertain to an understanding of what creativity is within the context of education. Jeffrey and Craft (2004) note how, in its characterization of creative teaching, the National Advisory Committee on Creative and Cultural Education (NACCCE, 1999) made a distinction between teaching creatively and teaching for creativity. Jeffrey and Craft (2004) state the definitions of both. The former definition as "using imaginative approaches to make learning more interesting and effective" and the latter is defined as "forms of teaching that are intended to develop young people's own creative thinking or behaviour" (p. 89). However, Jeffery and Craft note the danger of polarizing the concept of creativity in this way and argue from the perspective of their own research that the relationship between the two is interrelated. Drawing further on the NACCCE's broad understanding of creativity as an "[i]maginative activity fashioned so as to produce outcomes that are both original and of value" (NACCCE, 1999, p. 29), Prentice (2000) identifies four key areas.

Prentice (2000) notes the first area, imaginative activity, can be developed through a sense of play which has often been regarded as a frivolous activity and not directly related to learning. Second, the production of outcomes and the art of making, Prentice argues, requires a need to tolerate ambiguity and uncertainty as part of the process. Third, originality can be measured when compared to previous efforts, when it is applied to an innovative context and also the extent to which it contributes to knowledge in a given field. Fourth, value is placed upon the outcome of the creative activity which involves a high degree of reflective practice. For creativity to be encouraged, Prentice continues to suggest that learners need to be actively engaged in the process of their own learning and central to this is the acts of enquiry, reflection, and criticism. This requires a combination of time and a supportive learning environment for confidence levels to be raised sufficiently for this to occur. Alternatively and from a psychological perspective, Donnelly (2004) defines creativity within higher education "as putting things that are already together in a different way by being generative, innovative, expressive and imaginative" (p. 156). From a review of the literature, Donnelly notes there is still no consensus as to whether creativity is located in a person, product, or process and identifies three different perspectives on creativity: "Conceptual replication" which involves a variation on a current theme or perspective, "forward incrementation" which concerns the progression of a particular idea to the next stage in its theoretical development, and "reinitiations" which are a radical shift in perspective on a particular problem and how it is perceived.

From a higher education teacher perspective, McGoldrick (as cited in Donnelly, 2004) notes, creativity is viewed in terms of newness, excitement, useful, pleasurable, moral, and hard work. Jackson (2006) also identifies a number of factors that academics associate with the notion of creativity including being imaginative, original, curious with an enquiring disposition, resourceful, able to combine, connect, synthesize, to think critically and analytically, and being able to represent ideas and communicate them to others. However, Cowdray and de Graff (2005) note how taxonomies, such as these and the NACCCE examples, that exist for understanding the idea of creativity often focus on the process of creativity as opposed to the end product in itself. Furthermore, and as mentioned earlier, it is often believed that creativity is associated with the arts; assumptions are then made on how it can be applied to other subject areas (Prentice, 2000). Within the context of the arts, Freeman (2006) contends, "creativity is reliant upon the choices made within a working manipulation of instinct and intelligence" (p. 100). However, as he continues to argue intelligence, due to its quantifiableness, is often given priority over instinct and intuition. In addition, just as "creative moments" (Grainger et al., 2004) may occur, there can also be "points of creative frustration" (Freeman, 2006) where students feel unable to develop creatively and regress to a state of following the norm. This can be further exacerbated by the tensions that can exist within educational contexts and which prohibit the development of creativity.

Creative Tensions

The drive by governments to develop a creative society has often been at odds with the highly administrative and regimented education systems that have been developed (Prentice, 2000). Indeed, it could be argued that the higher education system has created many barriers to developing creativity (Jackson, 2006), including the development of insular cultures and bureaucratic systems (Feldman, 2001). In his analysis of developing a culture of creativity in higher education, Jackson (2006) notes five key problems: (a) creativity is taken for granted, (b) teachers' creativity is rarely celebrated, (c) creativity is rarely an explicit objective for assessing students as part of the learning and teaching process, (d) teachers can lack understanding about what creativity means and how this can be embedded within the subject, and (e) developing more creative approaches can be seen as more work by teachers themselves.

The contemporary higher education arena has many agendas to fulfil, including the need to maximise quality assurance processes, to ensure the research integrity of institutions, to meet the needs of a diverse student body that have higher expectations of their learning experience, and to endeavour to equip students with the necessary employability skills

upon completion of their studies. However, in pursuit of these objectives, Watkins (2006) has argued that the higher education system has become bound up in managerialism and performativity, and there is a need for teachers to reclaim learning. This system has arguably led to poor staff morale and a desire for some to stay within the comfort zone, thus constraining creativity. Furthermore, the "McDonaldisation" of education (Ritzer, 1998) has generated a system of blocks of learning that are tested by learning outcomes. Even though such a system enables the transparency of learning outcomes and assessment procedures and standards, it also prohibits the assessment of creative ability (Cowdray & de Graff, 2005). Indeed, it could be argued that the higher education system has conditioned students to take a passive approach to their learning experience (Donnelly, 2004) and developed "instrumentalist learners" (Dale and McCarthy, 2006; Ottewill, 2003) who have become adept at playing the system, stifling their own creativity in the process.

However, it is commonly argued that employers require individuals who can clearly demonstrate creative ability (Ogunleye, 2002), and, there is often the assumption that once in employment, it is up to the organization to develop individuals' creative energy and not the academic institution from where they have graduated (Gundry & Kickul, 1996). Though, philosophically, van der Veen (2006) contends that the drive to develop creative learning could fuel instrumentalism further within society as organizations desire new products and production methods. Although there is a growing body of knowledge on the importance of developing creativity within the workplace, how this translates to the classroom environment is still at an embryonic stage (Donnelly, 2004). Within learning and teaching, creativity can often be seen as an elusive concept that is rarely prioritized, and when it is, it is often related to the concept of problem solving (Davies, 2006). This has been compounded further by the absence of any accepted criteria for assessing creative ability (Cowdray & de Graff, 2005). The factors that foster the development of creativity, therefore, require closer scrutiny.

Developing Creativity

Acknowledging factors that can influence the development of creativity is important for understanding how it can be further imbued within individuals and the wider learning and teaching environment. It has been argued that people who are creative are intrinsically motivated (Amabile, 1996; Donnelly, 2004; Priest, 2006). Priest (2006) notes how extrinsic rewards can actually act as constraints, as success or failure is often perceived to be external rather than internal. Creative adults have "cultural curiosity" and are self-motivated to learn from given situations (Prentice, 2000). Davies (2006) recognizes that high levels of creativity exist "when an individual moves the boundaries of a domain of knowledge and convinces the field (authorities) who know the rules of their domains and act as gatekeepers to them" (p. 41). Hasse (2001) further argues that creativity is a "dialectical relationship between the human being and his or her social environment" (p. 200). She argues that creative acts cannot be confined merely to an individual but are defined by the social system within which that individual interacts with. As will be discussed, the use of technology and, in particular, the iPod can enable individuals or groups of individuals to develop creative acts that would be difficult to pursue otherwise.

A number of studies have attempted to consider how the learning and teaching environment can influence the development of creativity. For instance, Grainger et al. (2004) identify what they describe as a cocktail of ingredients in developing a creative teaching environment. This cocktail includes a combination of enhancing the session content, teaching styles, and the learning experience. Other techniques for stimulating creativity within the learning and teaching environment have also been suggested. These techniques include preventing groups of friends from working together to circumvent conformity and exclusion, allowing free flowing discussion about ideas and opinions, having a relaxed learning environment, and using humor to parody situations (Grundy & Kickul, 1996; Morrison & Johnston, 2001). Donnelly (2004) argues for a paradigm shift from teaching to learning and that creativity in the curriculum design process is crucial to this. As part of this process, he argues that risks need to be taken.

Technology can be influential in developing creativity amongst learners. In her comprehensive review of the role of information communication technologies (ICT) to support creativity in learning, Loveless (2002) notes six features of technologies that can be used to support creativity: provisionality, interactivity, capacity, range, speed, and automatic functions. Novelty could also be added to this list of features (Allen, 2003). However, Allen notes the assumption that new e-learning technologies can provide better instruction and further comments that actually, new technologies can "expose instructional deficiencies and exacerbate their weaknesses" (p. 196). Nevertheless, Allen further argues that the novelty of technology can draw attention, develop curiosity, and make experiences memorable.

In identifying a number of "damaging dichotomies" when trying to understand creativity, Prentice (2000) suggests that the popular distinctions between work and play are inhibiting and need to be reconsidered. Prentice continues to suggest that information communication technologies have blurred the boundaries between work and non-work and between leisure and learning. Within the context

of this study, the iPod is a device that epitomizes this representation and can be used for work, leisure, and learning while not bound by any fixed location or proximities.

The Podagogy Project

The iPod and other mobile listening devices have become a major feature of popular culture (Sterne, 2006), to the extent where iPod users utilize their music players to control time and space (Bull, 2005). Farnsworth and Austin (2005) recognize these devices as "miniaturized hybrid assemblages" incorporating a combination of audio, image, and text technologies, enabling enhanced flexibility of interaction with different media. Many have acknowledged the contribution iPods can make to the process of lifelong learning (Pownell, 2004). Within a classroom environment, Slykhuis (2006) recognizes that the iPod is useful for playing music, for use as a portable hard drive, for displaying pictures, and for recording audio. iPods have also been viewed as a "disruptive technology" (Berry, 2006) challenging the conventional practices of educators. Indeed, since Duke University successfully piloted the use of iPods with all their first year students during 2004 (Duke University, 2005), a number of other institutions have subsequently followed suit in adopting iPods and podcasting as an educational medium (Blaisdell, 2006).

Podagogy has been defined previously as a portmanteau term to describe the notion of podcasting and pedagogy (Anon, 2006). However, podcasting is just one aspect of being able to support student learning. For the purposes of this article, podagogy is defined more broadly as the use of iPod technologies to develop pedagogical practices in learning and teaching. The research was based around three projects, each of which took a different approach to using the iPod with students. Each of these projects will be explained to offer a context to the research study.

The first project was based within the popular music subject where podcasting and vodcasting was used with second-year students studying for a Bachelor of Arts degree in Popular Music. Each student was given an iPod video at the beginning of the academic year. Teaching sessions were supplemented with enhanced podcasts incorporating visual materials and supplementary resource weblinks with which students could interact. A particular focus was placed on students creating their own collaborative podcasts of popular music bands that could subsequently be shared with others. Students were also encouraged to video their own musical performances and upload these onto the iPod for the purposes of critical reflection.

The second project used the iPod Photo with second-level drama students studying a Scenography module. The students developed a dramatic performance that could be visualized as part of a reconstructed installation. The installation took the form of a shock-like situation where a sequence of disturbing visual images were conveyed to the audience by means of a television screen situated in the corner of a room. The audience would listen to the narrative of the visual images via means of the iPod to convey extra meaning to what was being presented on screen.

The third project used the iPod video with third-level Dance and Performance degree students studying a module called "Dance, Video, and Technology." Students used the iPod video to create three- to four-minute dance performances specifically for the small screen, which could then be compared with their reproduction for the larger screen. The comparison would enable an assessment to be made on whether the relocation of performance to a small portable viewing facility would impact the process of performance-making through dance and video.

Methodology

The notion of creativity is a fluid and, to some extent, an emotive term and is a construction of social realities and meanings that have been associated with it (Bryman, 2004; Robson, 2002). The research has, therefore, taken an interpretative approach in design. This will enable different "ideas" (Cowdray & de Graff, 2005) concerning the meaning of creativity to emerge inductively from the research. As no previous studies have been conducted in this area, the research takes a descriptive approach to the analysis of the data. This will enable the accumulation of knowledge to be generated on this particular field (Anderson, 1998).

So as to generate a rich stream of views and opinions on the research topic, a qualitative approach was chosen for the collection of data. A qualitative approach would enable an analysis of the cross-contextual generalities (Mason, 2002) to emerge from the research projects involved in the use of the iPod as learning technology. Semi-structured interviews were selected as the preferred method of data collection. The semi-structured approach is argued to be the most common form of conducting interviews (Arksey & Knight, 1999) and allows for further exploration of points made by the interviewee(s). This, therefore, allows a more flexible approach to gathering data (Robson, 2002). According to Gray (2004), sampling in qualitative research tends to be purposive rather than random. This was particularly the case for this research, which focused on the three specific projects involved in the research. Semi-structured interviews were conducted with each of the instructors involved in the projects.

As suggested by Bryman (2004), an interview guide was compiled that included a number of question themes, which had emerged from the review of literature. These broad themes included what is

understood by creativity within learning and teaching, the extent to which the iPod promotes creativity within the instructor's respective subject, and issues concerning the conditions required for using the iPod as a learning technology. The interview process followed a series of protocols as outlined by Arksey and Knight (1999). Each instructor was approached beforehand and invited to attend an interview in an informal setting away from any distractions. When conducting interviews, one of the greatest challenges to ensure reliability and validity is the way in which the questions are communicated and received (Anderson, 1999). The interviewer ensured the interviewees were put at ease and the interview topic was introduced with an outline of the topic areas to be investigated. Each interview was allocated a number to allow identification of individual comments and experiences during analysis. However, interviewees were assured that their comments would remain anonymous when writing up the analysis. Once the interview was underway, points made by interviewees were occasionally paraphrased to ensure validity of the intended message (Anderson, 1999). The interviews lasted approximately 30-40 minutes and were recorded using an iPod connected to an iTalk recording device. The unobtrusiveness of the device in the recording environment allowed for comments to be uninhibited by unnecessary distractions (Bryman, 2004). Interviews were subsequently transcribed for data analysis.

To ensure validity of the research approach, methodological triangulation of the research was adopted. This enables multiple methods to be used to ensure validity of the data (Searle, 1999). Focus groups have been regarded as an effective method for triangulating data (Wilson, 1997). Therefore, a focus group interview was conducted which comprised all of the iPod research project leaders and included the overall leader of the podagogy research project. Focus groups, according to Yates (2004), are able to elicit information in ways that allow researchers to find out why an issue is salient as well as what is salient about that issue. As a result, the gap between what people say and what they do can be better understood. This is particularly relevant for this research as any viewpoints made in the focus group can either reinforce or counter those which had been made in the interviews, thus further validating the research process. The focus group took place after all the interviews had been conducted and was based upon the further exploration of issues that had emerged from this data.

An accepted limitation of the research is that the author conducted the interviews. It is important to take note of this association so as to take an "active reflexivity" approach to the researcher's own critical role in the research project (Mason, 2002). Indeed, a sense of trust and rapport had already been developed with the interviewees enabling an openness of views to be gained (Arksey & Knight, 1999). Though conversely, reliability of the data could be compromised due to the closeness of the researcher to the interviewees and thus generating bias in responses (Robson, 2002). However, this was minimized by the researcher acting in a professional and impartial manner so as not to influence the interviewees' responses. As the sample group was relatively small, only certain inferences about the generalizability of the research findings can be made (Arksey & Knight, 1999).

The data has been analyzed using thematic content analysis. This method enables common themes to be generated (Bryman, 2004). However, it needs to be recognized that the manipulation of the data via this process can distort the actual social reality from where it has emerged (Holliday, 2002). Holliday acknowledges that the researcher needs to recognize this fact when analyzing the data and needs to present the data in such a way that reflects a core underpinning argument. The data has been organized so it reflects the themes emanating from the literature review.

Findings and Discussion

Defining Creativity

Though it was generally acknowledged by the instructors that defining creativity is challenging, a common theme that emanated from the research is that creativity is about "trying things out," "being experimental," "being spontaneous," and "playing with ideas." The following instructor comment highlights this point: "They're (students) playing around with ideas and from that playing comes other ideas, challenges and questions."

This confirms Prentice's (2000) notion of play as being a crucial part of the creative learning process. Irrespective of the educational level, a sense of play and spontaneity can be argued to be important for promoting a creative learning experience. Instructors also believed that there are certain limits to the extent to which creativity can be nurtured and working within those limits is, therefore, the creative challenge as the following comment from one of the instructors conveys: "The creative challenge is accepting that there are some limits and trying to work within those limits creatively." Furthermore, within the context of the performing arts, the importance of separating the creativity of the learning process from the creativity of the performance piece itself was also noted as being important, as the following instructor comment reiterates: "That's learning for creative process as opposed to learning through a creative process."

Developing Creativity using the iPod

Instructors viewed the relative newness and "coolness" of the iPod as a key factor for students

wanting to embrace the device as a learning technology. The coolness of the iPod (Reppell et al., 2006) has made them socially acceptable according to Clark and Walsh (as cited in Chan & Lee, 2005) to the youth of today who are often referred to as the "iPod generation." The newness of the device meant that learning how the technology could be used creatively was a reciprocal process between instructor and students. One of the instructors commented, "It's a journey, the students and I are on a level with this in terms of our expertise and knowledge of how we can exploit this thing – we're on the same learning curve and that's great and creative because I'm learning from them."

From a teaching perspective, it empowers instructors to take a fresh perspective to the way in which they conduct their learning and teaching methods. In addition to traditional methods of approaching teaching and learning via, for example, lectures and seminars, all the instructors viewed the iPod as a device that added another level of engagement to the learning experience: "It challenges you to redevelop your curriculum material." Similarly, another of the instructors reflected upon the fact that they "had to think and had to create a new way of using technology that would support student learning and for me it's (the iPod) been really creative."

When analyzing the use of the iPod for the development of creativity, it enables the students to explore their subject in an original way (Prentice, 2000) that goes outside the boundaries of the topic. In doing so, it also allows students to engage in a process of "forward incrementation" (Donnelly, 2004). The iPod technology has enabled the students to explore their subject in a way that previously they would have found it difficult to do: "This technology has allowed them to venture into areas that they wouldn't have gone before in quite the same way."

The device was able to develop a sense of creativity by enabling a more flexible, deep, and personalized approach to learning while also intrinsically motivating the students. The flexibility of the device, in that it can be used "anytime, anyplace, anywhere," enabled students to take a more creative approach to facilitating their own learning experience. A instructor commented that "it gave students access to materials which they could listen to, they could revise they could try out and because they could gain access to it at anytime and anyplace they chose, it promoted that sense of creativity…they think I'll sit at the keyboard, I'll sing, I'll try these ideas out which they can't really do in a lesson or a lecture."

Instructors also acknowledged that the creative use of the iPod promoted a deeper learning experience amongst students confirming the thoughts of Sawyer (2004) and the relationship between creativity and deeper learning. The following comment, based upon the students development of dance performances for the iPod video, illustrates this point: "A different sized screen meant they actually considered they're filmmaking much more deeply perhaps more thoroughly."

Another major factor was the level of motivation that students gained from using the device and which intrinsically motivated them to be creative in their learning processes (Amabile, 1996; Priest, 2006). For example, in the popular music project where students would create their own vodcasts, there was a sense of self-esteem and confidence building by having your creations next to the videos of famous musicians and groups: "With students writing their own material and performing and watching their performances on the iPod. You've got U2 on your iPod then you've got you, it amalgamates your material with those who you aspire to be like and that's quite a motivating factor and there's less this barrier of mega star act and personal material."

This motivation was further enhanced by the personal nature of the device itself and the intimate learning experience that can be had from using the iPod: "Students see it as a very personal interaction because they use it in a very personal way on an iPod." The ability of students to share their creations on the iPod with friends and family, which they may not normally do with other traditional forms of assessment such as essays and reports, was also viewed as another motivating factor. Furthermore, instructors commented on how the use of the iPod within the modules did not feel like work for the students: "Because they had a personal copy of it they were able to show it to other people who would not normally see it…members of their family and friends." Another instructor commented that

> All the feedback I've had from the students the work with the technology doesn't seem like work. Because the students were making work for the iPod, they would upload work onto it and then show it to people who they wouldn't normally share their university work with. Their family and friends for example. They were still thinking about their subject, but it didn't feel like it.

Since the iPod assignments did not feel like work to the students, it was easier to motivate students and draw them into the instructional process.

As mentioned earlier, reflection and self-criticism is argued to be a key part of the creative process (Donnelly, 2004) and instructors noted the effectiveness of the iPod as a tool for enabling reflective practice to occur. Those in the performing arts often "think in qualities" (Prentice, 2000). Dance and drama students are kinaesthetic learners and learn through doing, whereas music students learn through sound. However, the use of the iPod has blurred these boundaries further by students being able to use a variety of senses to reflect upon their creation of

shared learning objects. According to the instructors, students were more able to reflect and critique their performances via the use of the iPod: "It was being used as a creative instrument in that sense it was used to reflect upon what they did." Another of the instructors also stated, "It definitely informed their practice….It seems a really positive thing for them, they were asking whole different layers of questions."

Creative Conditions for using The iPod

A number of conditions were highlighted to ensure that a "culture of creativity" (Jackson, 2006) for using iPods within teaching and learning practices could be successfully achieved. First, the instructors acknowledged that time is a key factor when considering the use of the iPod in learning and teaching. This is due to having to learn how to use the technology itself which must also include the associated programs that support its use (e.g., iTunes, Garageband, Final Cut Pro). In addition, there needs to be sufficient time to think creatively about how the device can be used to support learning and teaching within the respective subjects. Time also needs to be made to actually produce the creative works for the device itself. This includes, for example, the development of podcasts or film footage and sound recordings for the iPod. Second, there needs to be sufficient technical and institutional support to be able to use the iPod and its related programs. Instructors commented on the lack of support institutionally for software programs such as iTunes. When using technological innovations like the iPod, this can act as a major barrier to the development of a creative learning environment. It is often the bureaucratic structures systems of institutions, as noted earlier by Jackson (2006) and Donnelly (2004), that can impede the fostering of creativity. Third, the rate of obsolescence of the technology is an issue for the continual development of its use for promoting creativity within the subject. As others in the field replicate the use of the technology within their own subject, it can become increasingly difficult to sustain the same level of creativity. Therefore, instructors acknowledged that considering ways in which you can further develop creativity is a time consuming process. Finally, it should be recognized that the iPod itself can, in some respects, act as a barrier to the development of creativity. One of the instructors commented on the functionality of the iPod, which can sometimes inhibit the freedom of being able to use the device in a creative way.

Conclusion

The study has explored the notion of creativity within education with a specific focus on how the iPod can be used for developing creativity. Though creativity is extremely difficult to define, the study has found that, when using the iPod as a learning device, creativity can be associated with play, novelty, flexibility, deeper learning experiences, and the desire to be intrinsically motivated. This, to a large extent, confirms previous studies in the area of creative learning (Jackson, 2006; Prentice, 2000). From the perspective of instructional technology and the development of creativity amongst learners, a number of observations can be made. In terms of curricula design, the results indicate that technological innovations, such as the iPod, can be used to deliver a more creative learning and teaching experience (Sutherland, 2004). The adoption of the iPod in the curricula was risky, but, as mentioned previously, taking risks is an important factor for developing a more creative learning environment (Donnelly, 2004). Indeed, the iPod offers instructors a fresh and innovative perspective to their teaching and learning practices. For students, it stimulates their creative processes and does not seem like work, thus motivating them to engage more deeply with the subject matter. However, time is a factor that should be acknowledged as crucial in developing a creative learning environment. A number of further conditions are also necessary for a creative learning environment to occur, many of which focus on the institutional support systems necessary for the successful implementation of the iPod as a learning technology. When these conditions are fulfilled a culture of creativity can be nurtured (Jackson, 2006) and further "creative moments" (Grainger et al., 2004) that have been observed by instructors as part of this research project will continue to occur elsewhere in higher education.

A number of areas are recommended for future research. To triangulate the research further, it would be useful to explore the views and opinions of students on creativity and the use of the iPod. This would discover whether the suggested themes about creativity and the use of the iPod are common to those that may be experienced by students. The research is focused on the performing arts subjects and, therefore, it has to be recognized that the analysis is biased towards this particular view. Further research needs to explore other subjects to see if the themes generated from this research are common or different to other discipline areas. It could be argued that the instructors' experiences of the iPod for developing creativity may be short term. This maybe due to the perceived novelty and newness of the device as referred to earlier in the paper. Therefore, it would be useful to take a longitudinal approach to the research to assess the extent to which creativity using the iPod is developed over the long term.

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References

Allen, M. W. (2003). *Michael Allen's guide to elearning*. Hoboken, NJ: John Wiley and Sons.

Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview Press.

Arksey, H., & Knight, P. (1999). *Interviewing for social scientists*. London: Sage.

Anderson, G., & Arsenault, N. (1998). *Fundamentals of educational research* (2nd ed.). London: Falmer Press.

Meredith, R. (2006). *About Podagogy.com*. Retrieved April 1, 2007, from http://blog.podagogy.com/?page_id=48

Berry, R. (2006). Will the iPod kill the radio star? Profiling podcasting as radio *Convergence, 12*(2), 143-162.

Blaisdell, M. (2006, March). Academic MP3s: Is it time yet? [Electronic version]. *Campus Technology*. Retrieved February 1, 2007, from http://campustechnology.com/article.asp?id=18001

Bryman, A. (2004). *Social research methods*. Oxford: Oxford University Press.

Bull, M. (2005). No dead air! The iPod and the culture of mobile listening. *Leisure Studies, 24*(4), 343-355.

Chan, A., & Lee, M. (2005). An MP3 a day keeps the worries away - Exploring the use of podcasting to address preconceptions and alleviate pre-class anxiety amongst undergraduate information technology students. *Student Experience Conference*, Charles Sturt University, 59-71. Retrieved November 1, 2006, from http://www.csu.edu.au/division/studserv/sec/papers/chan.pdf

Cowdroy, R., & de Graff, E. (2005). Assessing highly-creative ability. *Assessment & Evaluation in Higher Education, 30*(5), 507–518.

Dale, C., & McCarthy, P. (2006). I like your style: The learning approaches of leisure, tourism and hospitality students studying generic modules. *Journal of Hospitality, Leisure, Sport and Tourism Education, 5*(2), 48-58.

Davies, T. (2006). Creative teaching and learning in Europe: Promoting a new paradigm. *The Curriculum Journal, 17*(1), 37-57.

Donnelly, R. (2004). Fostering of creativity within an imaginative curriculum in higher education. *The Curriculum Journal, 15*(2), 155-166.

Duke University. (2005). *Duke digital initiative*. Retrieved November 1, 2006, from http://www.duke.edu/ddi/

Eagan-Hunter, B. (1993). Fostering creativity: Ensuring quality in education. *NASSP Bulletin, 77*, 104.

Farnsworth, J., & Austin, T. (2005). Mobile social networks assembling portable talk and mobile worlds: Sound technologies and mobile social networks. *Convergence, 11*(2), 14-22.

Feldman, J. M. (2001). Agents towards the post-university: Centres of higher learning and creative spaces as economic development and social change agents. *Economic and Industrial Democracy, 22*(1), 99-142.

Freeman, J. (2006). Fostering creativity in university performance. *Arts and Humanities in Higher Education, 5*(1), 91–103.

Grainger, T., Barnes, J., & Scoffham, S. (2004). A creative cocktail: Creative teaching in initial teacher education. *Journal of Education for Teaching, 30*(3), 243-253.

Gray, D. E. (2004). *Doing research in the real world.* London. Sage.

Gundry, L., & Kickul, J. (1996). Flights of imagination: Fostering creativity through experiential learning. *Simulation and Gaming, 27*(3), 334-349.

Hasse. C. (2001). Institutional creativity: The relational zone of proximal development. *Culture & Psychology, 7*(2), 199–221.

Holliday, A. (2002). *Doing and writing qualitative research*. London: Sage.

Jackson, N. (2006). *Creativity in higher education: Creating tipping points for cultural change*. Surrey Centre for Excellence in Professional Training and Education, University of Surrey. Retrieved December 1, 2006, from http://portal.surrey.ac.uk/pls/portal/docs/PAGE/SCEPTRE/RS/PAPER%203%20DEVELOPING%20CREATIVITY%20IN%20TERTIARY%20EDUCATION.DOC

Jackson, N. J., Martin, O., Shaw, M., & Wisdom, J. (Eds.). (2006). *Developing creativity in higher education: An imaginative curriculum.* London: Routledge-Falmer.

Jeffrey, B., & Craft, A. (2004). Teaching creatively and teaching for creativity: Distinctions and relationships. *Educational Studies, 30*(1), 78-87.

Loveless, A. M. (2002). Report 4: *Literature review in creativity, new technologies and learning.* Futurelab. Retrieved Jan 10, 2007, from www.futurelab.org.uk/resources/documents/lit_reviews/Creativity_Review.pdf

Mason, J. (2002). *Qualitative researching* (2nd ed.). London: Sage.

Morrison, A., & Johnston, B. (2001). Personal creativity for entrepreneurship: Teaching and learning strategies for learning and teaching in higher education. *Active Learning in Higher Education, 4*(2), 145–158.

National Advisory Committee on Creative and Cultural Education. (1999). All our futures: Creativity, culture and education. *Report of the National Advisory Committee on Creative and Cultural Education*. Sudbury: DfEE.

Ogunleye, J. (2002). Creative approaches to raising

achievement of adult learners in English further education. *Journal of Further and Higher Education*, *26*(2), 173-181.

Ottewill, R. (2003). What's wrong with instrumental learning? The case of business and management. *Education and Training*, *45*(4), 189-196.

Pownell, D. (2004). iListen, iLearn, iPod: Life-long learning with mobile audio. In C. Crawford, D. A. Willis, R. Carlsen, I. Gibson, K. McFerrin, J. Price, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2004* (pp. 1830-1831). Chesapeake, VA: Association for the Advancement of Computing in Education.

Prentice, R. (2000). Creativity: A reaffirmation of its place in early childhood education. *The Curriculum Journal*, *11*(2), 145–158.

Priest, T. (2006). Self-evaluation, creativity, and musical achievement. *Psychology of Music*, *34*(1), 47-61.

Reppell, A. E., Szmigin, I., & Gruber, T. (2006). The iPod phenomenon: Identifying a market leader's secrets through qualitative marketing research. *Journal of Product and Brand Management*, *15*(4), 239-249.

Robson, C. (2002). *Real world research* (2nd ed,). Oxford: Blackwell.

Ritzer, G. (1998). *The McDonaldisation Thesis.* Beverly Hills, CA: Sage.

Sawyer, R. K. (2004). Creative teaching: Collaborative discussion as disciplined improvisation. *Educational Researcher*, *33*(2), 12–20.

Searle, C. (1999). *The quality of qualitative research.* London: Sage.

Slykhuis, D. (2006). Have an iPod? Then you need to know this about how to use it in your classroom. In C. Crawford, D. A. Willis, R. Carlsen, I. Gibson, K. McFerrin, J. Price, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2004* (pp. 2416-2417). Chesapeake, VA: Association for the Advancement of Computing in Education.

Sterne, J. (2006). The mp3 as cultural artifact. *New Media Society*, *8*(5), 825-842.

Sutherland, R., Armstrong, V., Barnes, S., Brawn, R., Breeze, N., Gall, M., et al. (2004). Transforming teaching and learning: Embedding ICT into everyday classroom practices. *Journal of Computer Assisted Learning*, *20*, 13–425.

Tacchi, J. (2004). Researching creative applications of new information and communication technologies. *International Journal of Cultural Studies*, *7*(1), 91-103.

Tyson, T. (2007, January 12). Creativity campaign to attack red tape. *Times Higher Education Supplement*, pp. 1.

van der Veen, R. (2006). Communication and creativity: Methodological shifts in adult education. *International Journal of Lifelong Learning*, *25*(3), 231–240.

Watkins, C. (2006). *When teachers reclaim learning*. *FORUM*, *48*(2), 121-129.

Wilson, F. (1997). Focus groups: A useful qualitative method for educational research? *British Educational Research Journal*, *23*(2), 209-224.

Yates, S. J. (2004). *Doing social science research*. London: The Open University/SAGE.

CRISPIN DALE is a Principal Lecturer in Learning and Teaching (Technology Supported Learning) in the School of Sport, Performing Arts, and Leisure at the University of Wolverhampton. His current research interests focus on exploring the use of iPod technologies to support student learning.