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Games Geeks in Context: Developing the Environment to Engage Creative Expression

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Abstract: This paper explores the importance of purpose built combined technological and social collaborative environments in supporting the development of creativity in a cohort of students not generally associated with creative abilities. A supportive and nurturing environment provides these university students with a community where they can share knowledge and ideas, and subsequently engage in creative activities and behaviours. Such an environment directly impacts on the levels of engagement with which students' participate in their learning process. The authors draw on findings derived from a study of first year computer science students enrolled in a games design and development unit at an Australian university. This paper will focus on the ways in which the participants negotiate and regulate the exercise of power and control in the environment in order to enhance their own creative expression.

Introduction

This study investigates the function and significance of environment in engaging the, often latent, creativity of games design and development students enrolled at a tertiary institution. Specifically, the focus of this study is to explore the role of technological and social collaborative environments developed for, and by, the participants, in nurturing and supporting the creativity of those whom have been traditionally marginalised as “geeky” and “anti-social”: games students (herein referred to as ‘game geeks’ – with their permission!). The creative digital industries are increasingly demanding graduates equipped with a convergent skill set combining traditional technology studies with the creative arts. Establishing purpose built collaborative learning environments that encompass both technological and social aspects have the potential to support and nurture the required creativity skills of game geeks in readiness for work in that highly competitive industry. The creative skills noted in the literature include: innovation, intrinsic motivation, self confidence, independence of judgement, a wide range of interest and tolerance for ambiguity (Bahleda & Runco, 1989; Ripple, 1989). Creativity is a particularly rich research domain and increasingly when it comes to designing information technology (IT) to aid a person's creativity. Known as creativity support systems (CSS), the IT aids creativity by supporting the user not emulating creativity (i.e. artificial intelligence). Creativity typically manifests in four components: person, process, product and the environment (Mace, 1997). Of these four, the creative environment in conjunction with the use of information technology is the focus of this research, as combined they have the potential to engage the latent creativity of the students. The environments under consideration in this study incorporate two purpose built immersive learning studios and an collaborative online facility. As Blashki (2002) suggests, such environments not only nurture creative skills but “signif[y] supporting the students as they contemplate, articulate, design and construct their own intellectual structures drawing upon their surrounding environment and their experientially gained knowledge”. Ironically, considering the apparent myth of the games student or “geek” who is perceived as a particularly anti-social creature, such a nurturing environment that support creativity is the result of a social collaboration between the creative person and peers, mentors and teachers.

What is Creativity?

The relationship between these four components is both highly interactive and interdependent. Creativity, by its very nature is difficult to articulate yet, according to Paradise et al. (2000), simple to recognise when it occurs in each of

the components of person, process, product and environment. Whilst definitions of creativity abound in the literature such explanations are inevitably imbued with a domain specific focus. Furthermore some research reveals a scepticism regarding the occurrence of creativity it is on an eminent level such as that evident in Einstein or Freud (Gardner, 1993). Rather than perceiving creativity as the sole domain of the “artiste”, this study defines creativity as the exploration and resolution of problems of rather less heroic proportions, that enable us to negotiate our way through daily life more effectively (Ripple, 1989). Referred to as everyday creativity, it occurs on a smaller, more personal level. Piirto (2004) offers a definition of everyday creativity that is closely allied to the premise of this study:

“Creativity is in the personality, the process and the product within a domain in interaction with genetic influences and with optimal environmental influences of home, school, community and culture, gender, and chance. Creativity is a basic human need to make new”. (Piirto, 2004 pp. 37)

Creativity is, as Urban (1996 pg. 7) states “essentially human and potentially relevant for nearly all fields of human activity”. As Piirto (2004) similarly suggests, creativity is a human need to make new and to make sense of situations, importantly however, as Urban (1996) point out, any creative ideas should not be pursued without thought for moral and ethical implications. Basically not all creative ideas are good, and also not all creative ideas produce fruitful results. However creativity is also about growth and further development of skills, thus the need to facilitate is essential (Piirto, 2004). Creativity is defined in relation to this research as a learned process, rather than a spiritual process, where individuals are bestowed creative talent from birth, nor is creativity seen as the sole domain of the “artiste”. Our study best supports Urban (1996 pg. 8) componential approach to creativity, that sees the components of person, process, product and environment working in interaction, and includes cognitive skills such as divergent thinking. Many everyday creative activities produce results that are neither original nor novel, however the focus is not on outcome that fulfils the criteria for originality or novelty but rather, on the development and emergence of ideas. Furthermore a person’s potential for creativity in the production of novel and original ideas is influenced by environmental factors such as; society, culture, family, friends, mentors and peers. A survey of the literature reveals that previous research has tended to focus on aspects of creativity such as person, process and product, yet appear to neglect the substantial and significant role of the environment. This study is specifically focused on the development of creative ‘environments’, with specific emphasis on online collaborative environments, as an active facilitator in nurturing the creative person. The creative environment is defined as both physical features (equipment, rooms, computer tool) to social features (peers, mentors, teachers and family). Computers are key to facilitation of creativity within the environment under consideration in this study (refer to research inquiry section) and is called a Creativity Support Systems (CSS). Csikszentmihalyi (1996, Pg. 1) acknowledges the significance of the environment in creativity:

“It is easier to enhance creativity by changing conditions in the environment than by trying to make people think more creatively.”

What is a Creativity Support System (CSS)?

A CSS may be described as a tool or system designed with the express purpose of supporting creative endeavour. Whilst the participants in this study often descry their perceived lack of creativity, the design and development of the CSS in this study emerged from a desire to encourage the recognition of latent or previously unappreciated creativity. The integration of computer systems with creative endeavour has only recently been the subject of concerted research effort (Candy & Edmonds, 2002). Much of the focus in this area is concerned with the ways in which computers might emulate creativity (artificial intelligence)(Boden, 2004). This study however is resolutely concentrated on *supporting* creativity rather than attempting to model it. The authors acknowledge however, the important function computers have as a tool or system in the support of creative endeavour. Current literature offers a modest focus on the creative environment, yet there is a distinct paucity of investigation into the convergence of electronic and physical environments in developing and sustaining creative activities and behaviours. Researchers such as Csikszentmihalyi (1996), have emphasised the importance of social collaboration in a CSS to aid an individual’s creativity. Shneiderman (2000) and Candy and Edmonds (2002) similarly suggest that CSS should enable collaboration with peers, mentors and teachers. From the work by Ekvall (1999), Prather and Gundry (2003) and (Lauer, 1994) and our own research into CSS (Blashki & Nichol, 2005) the following factors have emerged as, determinates of the support of creative skills in the environment and are grouped into four categories:

1. *Resources* (Idea time, Idea support, challenge and involvement, Sufficient resources (tools and information)

2. *Personal Motivation* (Trust and openness, Tolerance for uncertainty and ambiguity, Playfulness and Humour, Absence of interpersonal conflicts)
3. *Exploration* (Risk taking, Debate about the issues, Freedom, Reflection)
4. *Social* (Supervisory Arrangements, Work Group Supports, Team work (collaboration))

Research Inquiry

Environment 1: 'Games Room': The games room (figure 1) is a physical learning space/environment defined by its difference from a "classroom" and in which students are encouraged to "play" co-operatively and participate in collaborative learning and in particular the design and implementation of their learning process. Used by the participants of the games design and development stream, the room currently houses a variety of game playing equipment such as: play station 2, Xbox, televisions, computers and surround sound speakers.



Figure 1: Games Room of the Games Students

Environment 2: 'Online Discussions': Online discussions involve the collaboration of the game students using the University's online facility. Typically utilised as a facilitator of unit related learning, the online facility was modified for the games units. The participants determined and adopted an approach of open and non-hierarchical discussion between peers and staff. This is an important part of making online discussions a creative environment, and is emphasised in our methodological approach of participatory design. In the online discussion the students were enrolled in the units of: Games fundamentals and Audio Visual elements of games. Various opportunities for discussions were given to students in this online environment.

Environment 3: 'The Studio': The studio is also a physical learning environment in which students are encouraged to actively participate in the collaborative development of their own learning environment. The studio comprises a number of computers (Macintosh and Windows machines) that are used for the students work in the degree. Furthermore, the studio is significantly larger than the games room and also encompasses additional rooms such as: Play station lounge, kitchenette and bathroom facilities. In this space, students from a number of discipline areas including dance, drama, fine arts, engineering and the computer science students who are the focus of this study, all work together on project based tasks. Such an environment is specifically designed to assist in the convergence of traditionally divergent skills. In addition, the projects are community based and involve direct interaction with communities outside of the University. We anticipated that such a combination of learning environments would facilitate competent, independent and more importantly *creative* interaction with the curriculum content. A significant corollary was the concomitant establishment of a unique learning environment characterised by "play". Such learning environments are distinguished from traditional classroom environments by the four key elements of successful interactive learning; *immersion* (the active involvement of physical, emotional and cognitive processes and concentration), *engagement* (the ability to attract and sustain the user's prolonged interest), *risk/creativity* (the ability to move beyond the expected and experiential boundaries of stasis and safety required in order to overcome habits) and *agency* (the user's active control over the learning and playing process) (Blashki 2004).

Methodological Approach

The methodological approach used in this study was carefully selected to reinforce the pedagogic philosophy within the games units being taught. It can be described as what Checkland (1999) calls action research where the researchers themselves interact with students as part of the research. Overall the methodological perspective is qualitative however, it was imperative that the researchers shared the power of the knowledge production with the game students being researched. Equal value was accorded to the opinions and posting of all participants whether

student or staff. As Checkland (1999 pg. 152) defines “the researcher becomes a participant in the action, and the process of change itself becomes the subject of the research”. Blashki (2001 pg. 23) argues that studio environments, such as those described above, aid students “to acquire the methodology necessary for reasoning and research, learn to reflect on accepted, and traditionally authoritative, practice and gain admittance to a realm of knowledge and understanding that transcends the narrow parameters of the immediate subject content being studied”. Within such a methodological framework, emphasis is not simply on the description, understanding and explanation of the group behaviour, nor on the knowledge produced or the methodology employed in gathering the data but rather, on who determines, designs and implements the discussion agenda in the first place (Blashki & Nichol, 2005). Such a methodology thus advocates the replacement of existing forms of social organization within a University environment.

Games Geeks in context: Engagement of their creative skills

An environment within a university as those mentioned above is essentially a learning environment. Further the environments presented in this paper facilitate creativity for the games students. The following discussion displays how creativity is facilitated in the purpose built learning environment. In addition, the correlation between a purpose built learning environment, such as ‘the studio’ (environment 3), and the 12 factors of a CSS is discussed. Figure 2 displays the association between learning environment elements and CSS factors at the centre of this study. Blashki (2000) argues that a learning environment facilitating risk taking creates an atmosphere where ideas are supported within a safe, secure and carefully supervised ‘comfort zone’. This directly relates to the CSS factors of idea support, tolerance for uncertainty and ambiguity, and trust and openness. The facilitation of risk in the environment involves the integration of social links (as shown in figure 2). This includes interaction and discussion with peers, mentors and teachers. This is seminal within an environment striving for enhanced creativity (Blashki, 2002; Candy & Edmonds, 2002; Csikszentmihalyi, 1996; Schön, 1987). Ekvall (1999) refers to this interaction as ‘supervisory arrangements’ and ‘work group supports’. Blashki (2002 pg 958) argues that students who work within the familiar environment of the University and with teaching staff they know to test their ideas and practices without fear, and be able to take risks, then a successful learning and creative environment is established.

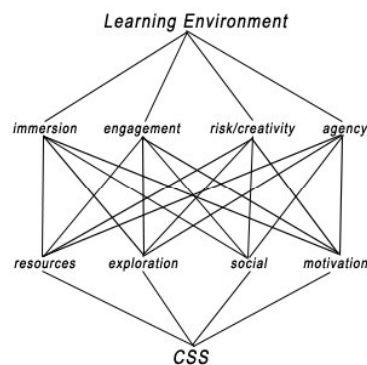


Figure 2. Association between learning environment elements and CSS

The presence of supervisory arrangements for the students within the games units produced a supportive and encouraging atmosphere that resulted in students volunteering feedback, both positive and negative. For example:

*“Student 1: Well that was a good exam...Thanks K***** and M***. Was a lot less daunting that I had expected...although the Myst section threw me by surprise.”*

“Student 2: Exam was pretty good.. Thoroughly enjoyed this subject.”

*“Student 3: I didn’t mind the exam however there were a few things...*student goes on to mention issues that he thinks would warrant attention and alteration in the next iteration of the unit.”*

Further to the supervisory arrangements a contributor to creativity in this study was the degree of agency given to the students in the environment, in particular in the online environment (environment 2). For example the CSS factor of freedom provided agency for the games students. The agenda of the environment is set by the students (to a degree) and thus results in avid communication and collaboration between students. This was undertaken largely in

the online environment with students initiating their own discussion on games topics that were thus supported by staff. For example:

“Just curious as to which game everyone is going to choose for assignment 1? I’m most likely going to go for World of Warcraft, for the simple reason, I wouldn’t be able to stop playing it enough to be able to play another game for a long enough time to analyse. LOL. What about everyone else?”

From this initial post, students discussed their selection of topics for an assignment task, supporting and acknowledging the difficulties encountered by each other and directly benefiting from the debate by refining the scope of their assignments. Supplementary to the agency and supervisory arrangements, the element of engagement was also highly shown in the games units. For example Figure 3 shows the level of participation in games fundamentals, with figure 4 showing the level of participation in audio and visual elements of games online discussions. Further to the participation of the students in the online environment, the resources available to the students in the online environment, in particular the CSS factor of idea time and idea support, also facilitates

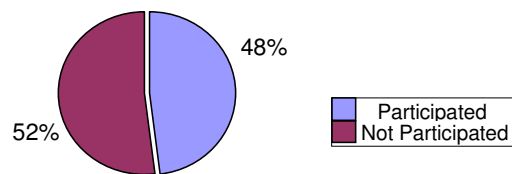


Figure 3. Participation in Games Fundamentals

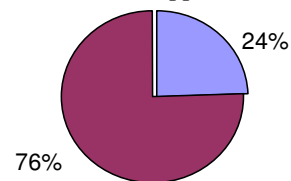


Figure 4. Participation in Audio Visual Elements

engagement in the students. At the moments when ideas are rife, the environment’s ability to engage student and staff discussion and testing of those ideas is integral (Ekvall, 1999). In the online environment, idea time and idea support occurred on many occasions and often without staff intervention.

Students would post their thoughts, and finish with a call to other students for their thoughts. These informal, relaxed and importantly non-assessed, student-initiated discussions resulted in the engagement of higher level cognitive thinking skills:

“Lets perhaps do some critical thinking of the games we play at the moment, for example for me I reckon the professional system in WoW should be more variable in the way you can play the game...”

Immersion in idea time given by the environment at times was demonstrated in the games units, with a degree of playfulness/ humour. This occurred not only in the physical environment of the games room and the studio, were students regularly interacted in a relaxed playful manner, quite often over games, but also in the online environment. For example:

Student 1: “Check this out. <http://www.metacafe.com>. It’s amazing, it’s ground breaking and I just cant wait till it becomes available.”

Student 2: “ok, that video was cool, but from what I can figure out its just a really smart version of eye toy, noticing the fact that he has a sensor in his hand. Still cool thou, but that video gives off the impression that they are using holograms, which they aren’t.”

Student 3: “Yeah it was damn cool, the thing in his hand was kind of necessary, it would be hard to manipulate something that doesn’t exist if you don’t have some solid object to manipulate. Also if this is set up combined with a VR head set you can have some serious fun in an empty room, <geeky comment> holodeck anybody? </geeky comment>”

This exchange illustrates the important function of play/humour and idea support/ time in the emergence and enhancement of creativity. Of significance is that the students have clearly established a trust between each other; as for example, student 3 notes their geeky comment. Such playful self-deprecation is a direct result of trust established between the students. Furthermore, playful behaviour is the very foundation of the students’ engagement with the unique games environment (specifically the games room). The examples above show the initiation of exploration from the students in the online environment. Staff did not initiate this discussion, nor does the above example encompass a complete exploration undertaken by the students. However, it does express the potential of the environment to facilitate exploration for the students. This type of facilitation was not experienced before by the students of this study, as in particular the online environment, is hosted by the University, more specifically for teaching related purposes, not as an online game community as used by the authors. Environments are conducive to creativity, not only with supportive components such as immersion, personal motivation or exploration, but also more confrontational factors such as debate and challenge for example, need to be facilitated in the environment. The effect of debate and challenge in the environment can have negative contrasts and be destructive to the learning

and creative enhancing abilities of the environment. In this case the supervisory arrangements within the environment need to apply a degree of control to avoid total chaos in the environment. Contrastingly, debate and challenge within an environment can be quite motivational for both staff and students. This is exhibited in the games stream at the University as students are very involved in the learning content and will opening defend and debate on issues. The participation graphs (figure 3 and 4) are exemplars of this.

Conclusion

The socially marginalised game geek is encouraged to actively participate in creative communication processes when immersed in a supportive and nurturing environment. Furthermore as Blashki (2002) argues “the studio environment epitomises the central tenet of a constructivist approach that is, that we come to know and understand our world, not by the transmission from one (the teacher) to another (the student), but rather by interacting with it and the surrounding environment”. With the examples presented, the key factor present is motivation. The examples given demonstrate the capacity for creativity and increased engagement in the learning process when immersed in effective purpose built environments. However, environments that are not purpose built unlike those described in this study, do still embody learning and facilitate creative skills. However, this is out of the scope of this study.

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