Newbs vs. geeks: encouraging creativity in an online learning community

Sophie Nichol* and Katherine Blashki

School of Engineering and Information Technology
Deakin University
221 Burwood Hwy, Burwood, 3125, VIC, Australia
Fax: 03 5227 2028
E-mail: sophiecl@deakin.edu.au
E-mail: kblashki@deakin.edu.au
*Corresponding author

Abstract: This article explores the development and creative practices of an online community within an Australian university. The authors argue that creativity can be enhanced and supported by the development and implementation of purpose-specific learning environments, such as an online learning community. Within such a community the participants are exposed to a number of requisite elements designed to support the exploration of their own learning process and the development of creativity. The following study discusses the establishment of such a community and the social, cultural and learning practices of the student participants.

Keywords: Creativity Support System; CSS; learning; web community; learning environment; games culture.

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Biographical notes: Sophie Nichol is a PhD Candidate at Deakin University. Her research interest is creativity support systems and the current working title of her thesis is 'Creative geeks? Facilitating the creative growth of computer science students using engaging environments'. In addition to research for her thesis she is interested in understanding the next generation of computer users: Generation Y and Z.

Professor (Dr.) Katherine Blashki is the Chair of New Media Technologies at Deakin University. Her research interests include educational applications for games technology, narrative and representation in new media, access and equity in technology, digital performance and her current obsession with motion capture.

1 Introduction

"Creativity doesn't just happen by chance; the prepared environment nourishes it, and chance favours the prepared mind." (Peterson, 2001, p.4)

Creativity has been widely regarded as a highly personal human attribute that potentially functions as a measure of success. It is however, innately difficult to evaluate a person's creativity. Often we assess a person's creativity premised on output. Creativity is facilitated however, via four elements; person, process, product and environment (Ripple, 1989). Whilst these four elements are constantly interacting, much of the focus of research has been on how to better facilitate and nourish creativity within only three of the elements, person, process and product. However, the authors argue that the environment (in particular with the combination of IT) is an equally, yet currently underrated, component of creativity. Blumenthal *et al.* (2003, p.118) suggests that individuals and groups involved with Information Technology and Creative Practices (ITCP) benefit from participating in venues (environments) that support, motivate, and display this type of work (Blumenthal *et al.*, 2003). In this study, the environment under consideration can be defined as both physical and virtual spaces that share the attributes of small scale and scope with a moderately organised collective in an established institution. More precisely, the environment under consideration is a 'purpose built' studio based environment ('games lounge') as well as an online discussion facility that facilitates the learning of games students from Deakin University Victoria, Australia. Collectively known as a learning community, the games students utilise these facilities in addition to their traditional attendance to lectures and practicals. The game students in the community are predominantly generation Y (born between 1979 and 1999), and thus embody attributes such as: high influences from their fellow peers, pragmatic, less materialistic and overall as described earlier and argued by McCrindle (2006) 'global yet tribal'. The games students readily acknowledge that they are considered 'games geeks' and further extend the culture of the *geek* to their influence in the game community. Any person deemed to be not fluent in games *geek speak*, known in the community as the 'socially' correct communication form of 'Leet Speak' or '1337' (Blashki and Nichol, 2005) are labelled as a *newb* (a person new and not yet accepted into the community).

The aim of this research is to demonstrate the ways in which environments, both physical and social, might be purpose-built to facilitate the formation of a community, and thus encourage creative behaviours. A set of Creativity Support System (CSS) dimensions is presented to demonstrate how creativity might be harnessed in other purpose-specific creative environments. A particular objective of this study is to demonstrate the ways in which students utilise online learning facilities to form, and participate within, communities in which they share interests, and the ways in which that participation encourages, not only their technical skills, but in addition enhances creative skills. Thus this study is not merely concerned with computer technologies and how they might assist in the development of student creativity, but also the ways in which technology has enabled new learning paradigms to support learning communities in the cross discipline area of games design and development.

2 What is creativity?

Whilst the subject of much research, the concept of 'creativity' continues to evade definitive explanation, yet maintains an important role in the wider community. Blumenthal *et al.* (2003, p.6) suggest that more successful communities have higher levels and output of 'creativity'. Historically, creativity has been variously determined as the sole domain of the 'artiste', however under the auspices of contemporary business

and management research, 'creativity' has undergone a renaissance of sorts and is now attributed to other domains. Creativity may be exhibited in a number of ways other than the traditional artistic mode, such as; intrinsic motivation (a concern with work and achievement), intuition, self confidence, intellectual and aesthetic values, theoretical thinking, attraction to complexity, independence of judgement, high energy, a wide range of interests, tolerance for ambiguity and the ability to resolve conflicts (Ripple, 1989; Runco and Bahleda, 1989). Creativity occurs in four components: person, process, product and environment. Creativity, by its very nature is difficult to articulate yet, according to Smith *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 if not 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).

3 Games geeks community: a purpose built learning environment

The games students 'play' within an online community facilitated via assimilation within the teaching of the games design and development units offered at Deakin University, Victoria, Australia. In addition to the more traditional forms of learning via lectures and practical classes, the students also use the online discussion forums and the games lounge (Figure 1) as a supplement to their studies. Both the online discussion forum and games lounge provide the learning community described in this article.

Figure 1 Games lounge

Physically, the environment comprises a number of desktop computers as well as a game console playing area. Note boards, desk and whiteboards are also available to ensure students have a place for work as well as play. It is located in a quiet room with sufficient space to accommodate more than 20 people. This environment has its functional and aesthetic roots in the studio environment first described by Blashki (2000) and used to facilitate student-oriented learning in Information Technology students during the 1990s.

Within such an educational setting the studio environment, "provides students with the 'practical' subjects that establish closer connection/links between experience, knowledge and practice" (Blashki, 2000, p.957). In addition to the physical space of the games lounge (Figure 1) which could be described as a face to face practicum, the students also engaged in online discussions enabled by the University's online learning facility: Deakin Studies Online (DSO). The online discussions are described as 'threaded discussions' as contributors on each subject are indicated in a linear order. Boud *et al.* (2001) describe threaded discussions as a system where "there is a record of which contributions have been read and responses can be made as easily as clicking to reply and simply typing a contribution" (p.13). The DSO system utilised in this study is similar to the 'Talk 2 Learn' system discussed by Allen (2005). Allen (2005) describes Talk 2 Learn as a community of staff and students who come together online to share different viewpoints and perspectives on topics. The motive behind participation is not a direct learning outcome, nor in relation to the students, a mark towards their studies. Systems such as DSO and Talk 2 Learn facilitate discussion and debate, and members of the community are encouraged to set their own agenda. Facilitators (or staff) provide the scaffolding for discussions by students, particularly in the early stages of development, however it is predominantly the students who are responsible for the running of the community and the creation of new topics of discussion. Whilst the online environment used by the games students is the focus of this study, the physical environment of the games lounge is an important support for the games students and therefore requires some discussion. The purpose built environment of this study (both online and face to face) embody dimensions of creativity as well as collaboration, peer learning, conversational communities and reflection (as described in Schőn's (1987) work on 'reflective practicum's').

4 Games geeks community: a reflective practicum

The game students' community, as described, is essentially a learning environment, specifically embodying the following essential four dimensions, as first defined by Blashki (2004):

1 Immersion – the active involvement of physical, emotional and cognitive processes and concentration.

2 Engagement – the ability to attract and sustain the user's prolonged interest.

3 Risk/Creativity – the ability to move beyond the expected and experiential boundaries of stasis and safety required in order to overcome habits.

4 Agency – the user's active control over the learning and playing process.

Thus the games students' learning community is a tangible form of that which Schőn (1987) defines as a reflective practicum. During the process of their learning the students participate, and continually evaluate that participation, within a context that aims to approximate a practice-based work world. Through a combination of learning with peers, interaction with staff and industry specialists and the addition of the student's experiential learning they bring with them, that which Schőn describes as 'background learning', the games students learn to negotiate their way through the creative world that they will face

at the end of their degree. Significantly, the reflective practicum of the games students is only successful due to the collaborative nature of the student's interaction in the community. Bruffee (1999, p.12) best describes the version of collaboration within this community of games students as a 'conversational community'. A conversational community defines its members as having:

> "A willingness to become members of communities we have not belonged before, by engaging in constructive conversation with others whose background and needs are similar to our own but also different." (Bruffee, 1999)

Collaboration within the games students' online community was perceived as an interaction between staff, students and industry with little to no hierarchical or authoritative leadership directing the community's overall structure and organisation. The learning elements of immersion, engagement, risk/creativity and agency, are present in this learning community of the games students as it is located within an expressly educational milieu. Whilst the examples presented in this article directly relate to the learning community of the games students, the creativity dimensions addressed next may be usefully applied to any environment for creative activities and behaviours.

5 Games geeks community: a creativity support system

Creativity, in conjunction with the design and application of Information Technology (IT), is referred to as a CSS or creativity support tool. The IT assists and augments creativity by supporting the user rather than attempting to emulate creativity (the domain of artificial intelligence). It is important to note that the emphasis of this study is firmly placed on the supportive aspects of the CSS, and not the development of software or hardware incorporating creativity, *i.e.*, creativity support tools. The benefit of a computer-based CSS for games students is that they are particularly receptive to online communication and subsequent development of an online community. The learning community, with its links to peers, mentors, and teachers, is enhanced by the games students' recreational affinity to online communications. Being students from the technically oriented study of game is an influence, however a contributor to the games student affinity for the online medium is that they are Generation Y. Generation Y are considered to be not only avid contributors but also perceive communication via this medium as 'natural' and an extension of their everyday recreational behaviours and activities. In addition to online discussions Generation Y also communicate via SMS, e-mail, face to face, telephone and even through games. Their communication medium may change from synchronous to asynchronous many times a day.

In determining the level of support for creative skills and development in the game students' CSS, the following 16 dimensions have emerged, grouped under four factors. These 16 dimensions developed out of a number of works such as: Ekvall (1999), Prather and Gundry (2003), Lauer (1994), Peterson (2001), Bruffee (1999) and our own research into CSS Nichol and Blashki (2005). Current research fails to encompass all these dimensions, and in particular the social dimensions have not been previously documented.

Resources

1 Idea time

Sufficient time to dwell and elaborate on creative ideas to assess their value, importance and novelty is vital to the support of creativity. Idea time focuses on providing the time to think, without the constraints of time pressures and routine. This factor is closely related to idea support and freedom.

2 Idea support

This factor is concerned with the level and amount of support that new ideas receive when introduced to others in the community. In a supportive environment, peers and teachers will be receptive to ideas and suggestions in an attentive and professional way.

3 Challenge and involvement

Essential elements in any CSS (Peterson, 2001). Challenge and involvement refer to the degree to which people are involved in daily operations, long term goals and visions for the community. Challenge and involvement within a community is also expressed as enthusiasm and joy evoked from participation. Challenge and involvement is closely related to motivation.

4 Sufficient resources

Sufficient resources in addition to access to such resources are vital to the success of a CSS. This includes not only technical resources such as computers, game consoles and online discussions, but also sufficient space ('rooms') available to house all the members of the community. Sufficient access to resources also refers to adequate access to information, via digital libraries, *etc.* Other resources include contact with teachers and representatives from industry.

Personal motivation

5 Interdependence

The ability of each member of the community to act on their own and have an individual presence within the community. Interdependence is the willingness to learn the elements of new language and gain expertise. Furthermore, it is also the ability of each member to submit to the authority of other members, in other words accept criticism and acknowledgement from other community members.

6 Trust and openness

The perception of emotional safety amongst members of the community. Trust and openness must be mutual amongst all members of the community for creativity to flourish. This dimension is particularly important and contributes to the success of all the other dimensions.

7 Tolerance for uncertainty and ambiguity

This defines the adaptability and acceptance of the students to change, and of each other's participation within the community. This dimension is also related to risk taking, and the level of risk each member is willing to take.

8 Playfulness and humour

These attributes contribute to a relaxed environment that can potentially increase the spontaneity of creative ideas.

9 Conflict

This dimension refers to the level of personal and emotional tension (as opposed to intellectual and/or stimulating tensions) that exists within the community. Whilst it is important to minimise interpersonal conflict, the skills required to remediate such conflicts positively contribute to the learning process.

Exploration

10 Risk taking

A willingness to take a risk and not always rely on the safe, the comfortable, and the traditional, is important to the success of a CSS. This dimension also relates to tolerance for uncertainty and ambiguity, as a person requires tolerance for uncertainty and ambiguity to even consider taking a risk.

11 Debate

An environment of active debate is essential for creative ideas to progress. Encounters and disagreements with members of the community are essential for different viewpoints, ideas, experiences and knowledge to be shared.

12 Freedom

A climate characterised by freedom enables the participants with the autonomy to define much of their own work. In the games students' community this autonomy took the form of control of the social structure and membership. Freedom is closely related to independence with freedom being defined by Prather and Gundry (2003) as the degree of independent behaviour.

13 Reflection

Refers to the ability of each member to reflect upon ideas, decisions and behaviours during and after their occurrence. The dimension also relates to teamwork. For example as Boud *et al.* (2001) argue "peer learning helps students to become life long learners, as well as helping them to develop *reflective practice and critical self awareness*".

Social

14 Supervisory arrangements

To assist in the facilitation of the dimensions discussed there needs to be some element of supervisory arrangements. In the online community of this study the teaching staff, in particular a professor, are the facilitators of the community. Significantly, however they do not moderate the community. Facilitators are active participants in the community. It is merely the presence of someone of authority whom assists in the formulation of a successful community.

15 Work group supports

As Boud *et al.* (2001, p.1) states "for most of the things we need in our working and personal lives we find enough information and guidance from friends and colleagues". A high level of interaction with peers within a community is influential for creativity, particularly when Generation Y students are concerned. They will seek authority from their peers before consulting supervisors.

16 Team work (collaboration)

This final dimension relates to the ability of members of the community to work with each other, to collaborate, on projects. In addition, to have work group supports, teamwork refers to the ability to work with others on the same project, rather than socialising together over a similar topic.

The authors argue that by encouraging and supporting creative activities and behaviours in the form of a purpose built learning community, students will be better equipped to, not simply 'get through' but rather *thrive*, in the creatively challenging cross discipline study of games design. For this study the combination of the online discussion forum and the games lounge comprise the purpose built learning environments and are collectively known as the creativity support system.

The methodology used in this study is action research. Action research is important in this study as it determines the approach the researchers should be using when studying the learning community of the games students.

6 Methodology

Research into university education is not proceeding along the paradigmatic framework of the social philosophy of knowledge generation through action and experimentation (with an emphasis on participative democracy), but rather by separating reflection from praxis and segregating method from application (Levin and Greenwood, 2001). In particular, such a one-size-fits-all solution is inappropriate for the learning community of the games students in this study. As students compelled to converge the technical knowledge of computer systems, the sociological and psychological knowledge of people and play, with the design knowledge of visual communication, these young people are the first in a new generation of creative digital practitioners. The methodological approach used in this study comprised of action research as it was deemed the appropriate way to support and observe the creativity support system currently used by the games students. Action research was chosen for the methodology as the researchers were required to be involved in the research as participants, rather than observers. Furthermore action research was deemed an appropriate methodological choice due to the necessity for change to practices and social structures within the learning community of the games students. As Carr and Kemmis suggest:

> "Action research recognises that thoughts and action arise from practices in particular situations, and that situations themselves can be transformed by transforming the practices that constitute them and the understandings that make them meaningful." (Carr and Kemmis, 1986, p.182)

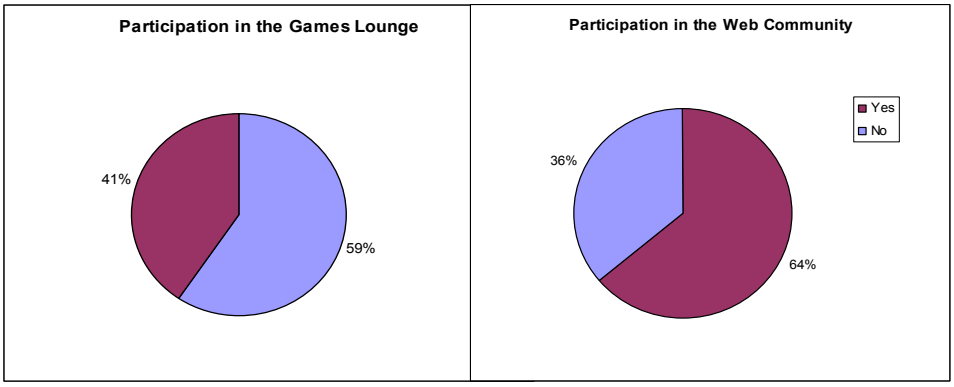
Action research assists in constituting change in the students as well as the staff of the study. Action research is a cyclic process that involves many phases to instigate change within a research environment. Carr and Kemmis (1986) describe the process of action research as a spiral of cycles that enable action under programmatic control. The first step of action in the project is incorporated into the self-reflective framework of the first cycle. The first cycle is then incorporated into a spiral of similar cycles and the process changes within the educational practices, understandings, and situations (Carr and Kemmis, 1986). The data collected in action research can comprise of both qualitative and quantitative data, and examples of both are presented in this study. The action research process employed in this study is currently in its second of many cycles. The results and discussion presented in this study were derived from these two cycles. The first cycle encompassed an investigation in the current learning environment of the games students. The second cycle involved changes to the learning environment of the games student, in the form of personal (facilitators of the environment) and resources. The results from these cycles are presented next.

7 Games geeks community: results

> "Employers now want graduates who possess a broader range of skills and abilities to communicate effectively beyond their specialisation, and so course are now expected to develop in students what are variously termed transferable skills, key competencies, generic attributes or capabilities." (Boud *et al.*, 2001, p.5)

To nurture and support the variously termed *transferable skills* of the games students their CSS must facilitate the 16 dimensions discussed above. Participation in the web community was much higher than in the face-to-face community of the games lounge as shown in Figure 2. This participation shows high attrition and motivation in the games students web community.

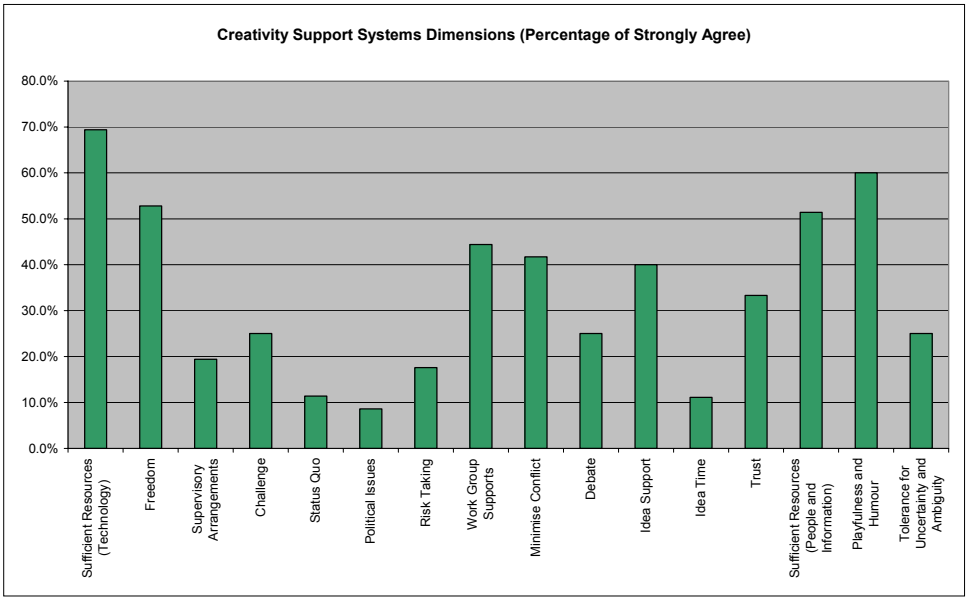
Figure 2 Participation levels in the games students community



In addition to the observational data collection during the researchers' participation within the learning community of the games students, we also surveyed 36 games students in an attempt to ascertain what they thought were the most important dimensions that should be available in their community. Figure 3 outlines the 'strongly agree'

percentages as indicated by the students when asked their opinion of what dimensions were needed in the environment. A sample question posed to students was: *The environment surrounding you when you are doing university work should provide a sense of challenge (a sense of having to work hard on challenging tasks and important projects).*

Figure 3 Strongly agree percentage for each dimension



Sixty-nine percent of the 36 games students surveyed 'strongly agreed' that they like having available technology (sufficient resources) to them. The web community provided this for the students. In addition 60% of the students 'strongly agreed' that playfulness and humour were important in their environment. The authors believe his attribute to be particularly high because of the study group predominantly comprised of young Australian males.

8 How is creativity encouraged in the game geeks online community: discussion

In addition to the data indicated in Figure 3, conversational excerpts from the current games students' CSS, focusing on the online community, are offered in the following discussion in an attempt to illustrate the various ways in which some of the 16 dimensions have been facilitated and thus supported creativity. Some CSS dimensions are more obvious than others in direct observation and participation of the online community however the dimensions occur in different levels within each individual member of the community. This adds to the complexity of studying creativity. The following highlights the dimensions of social (work group supports, supervisory arrangement and team work), freedom, playfulness and humour, idea time/support, and sufficient resources, not only

because they have a higher percentage of 'strongly agree' (as indicated in Figure 2) but also because these dimensions figured predominantly in the opinions proffered in the survey, as well as observation in the environments.

8.1 Social dimension

Generation Y are influenced by their peers and value friendship as of particular importance in their life (McCrindle, 2006). Such camaraderie was immediately evident to the researchers from their assimilation into the online community of the games students. In addition the survey responses (Figure 3) suggest that the supervisory arrangement and work group support were agreed to be significant with percentages of 20% and 44% respectively. Thus one of the more important dimensions that the CSS needed to facilitate for the games students was the *social* dimension. An additional complexity for the researchers was the games students' use of language as they negotiate their way through the social structures of their community. The following is an excerpt from one of the games students:

> Student: "*noob chris.*
> *i wanna pwn ur paly with my mage*
> *<3*
> *lol*"

Translation into more formal English is best achieved by providing a few definitions of Leet speak (Blashki and Nichol, 2005) Words such as *paly* and *mage* have specific definitions that are often related to features present in computer games. For example:

> *Noob: similar to newb, meaning new person or someone lesser stance in the community.*
> *pwn: To beat someone at a game, or be better than someone.*
> *Paly: Short form for Paladin. Used often in Blizzard games. Such as Diablo II (Urban-Dictionary, 2006). More formally a Paladin is a class of Warrior that is fully devoted to kindness and ridding the Universe of Evil.*
> *Mage: A skilled magic user who, unlike wizards and sorcerers, needs no staff as an outlet of his magic, but instead uses his hands (Urban-Dictionary, 2006).*
> *<3: Love heart on the side.*
> *Lol: Laughing out loud.*

Thus the comment by the student can be interpreted as "Chris I am better than you. I am going to beat your Paladin with my Skilled Magic. Just kidding". The prodigious use of this language in the online communities added to the formation of the social structure, by indicating who was really a *geek* and who was just a *newb*.

The social CSS factor of supervisory arrangement, work group supports and teamwork is particularly important to the game students. In particular their 'work group support' of other students. As discussed earlier, the game student community is comprised of many factions of 'us and them', and a games student's bond with their fellow students is strong. Even staff playing the supervisory role within the community often received comments to exclude them from the game students community. For example this student was responding to the researcher's (Katherine's) attempt at making a joke:

> Student: "*Holy crap I worry about your level of maturity Kathy*".

The student did not comment on jokes made by the other students. This excerpt implicitly defines the boundaries between the games students as the 'real' community members with the *newb* Professor not yet accepted as a *geek* within the community. Essentially, the Professor occupies marginal status in the social structure of the online community. This type of incident in the online community demonstrates that with Generation Y games students, irrespective of the 'outside' authority level a member of the community may possess, they are still required to establish themselves as a worthwhile contributing member of the community. The technology of an online discussion board allows each member of the community to clearly view the contributions of others. Levels of authority are not indicated in the online discussions. The implicit social behaviours readily adhered to in the classroom and lecture theatre are not acknowledged by the online discussion forum and therefore each member of the community has to work hard to become a social actor within the community. The key to offering each member the opportunity to be a social actor within the online community requires the harnessing of the dimension of freedom and/or the learning element of agency in an educational setting.

8.2 Freedom

Boud *et al.* (2001) suggests that integral to the success of online communities is the mutually supportive environment that learners themselves construct, and in which they feel free to express opinions, test ideas and ask for, or offer, help when required (Boud *et al.*, 2001). When asked about the importance of freedom the games students strongly agreed (52%) that it was an important pre-requisite to their learning community. Freedom is also related to the learning element of agency. As with creativity, it is difficult to articulate the ways in which freedom might be achieved in an online community. Contributing factors to how freedom is facilitated in this study however include the way in which the community was established and initial norms and values accepted and valued by the community. The establishment of the games students' community was implemented through Deakin University's online learning facility (DSO). Whilst the games students had previous experience with the online discussion forums on DSO via enrolment in other subjects, such interactions were invariably facilitated by staff and for the express purpose of discussions about unit related content only. As all online discussions were implemented on DSO they were readily available to the game students via enrolment in specific games units. Thus, each student enrolled in the games unit automatically became a member of the community. A potential problem with automatic participation is that the students may assume that they are required to participate in the community as a compulsory part of their studies. However the teaching staff clearly indicated the intentions of the online discussions early on, with the students very quickly catching onto the premise of the discussions. For example:

> "Feel free to use this area to your advantage to discuss various games, present your views on the construction and quality and how they might be improved. We will not be moderating the discussions, but hopefully contributing, if you all let us!"

Successfully facilitating the dimension of freedom in a web community is a difficult task however has a strong flow on effect within the other dimensions that create a Creativity Support System (CSS). Interestingly, a contributing dimension to the continued facilitation of freedom, is playfulness and humour.

8.3 Playfulness and humour

Playfulness and humour was the second highest attribute most strongly agreed to be important, (Figure 3) with a value of 60%. On many occasions the researchers, staff and students of the games units used humour and playful behaviours in the online discussions. On one occasion a student started a thread parodying academic titles, including a gentle 'dig' at one of the lecturers, during semester two, beginning with, 'Dr > Professor'.

> "Imagine this… your [sic] sitting in a theatre enjoying your favourite opera…and then the leading lady drops…and someone yells out…Is there a Doctor in the house. Dr. Hobbs rushes to the stage and performs his magic and she is saved. Now imagine a scenario where they call for a doctor and Professor Blashki runs on the stage…The woman dies…Professors should not perform surgery."

The joke receives a reply from the Professor (about whom the joke was parodying) relating a humorous story designed to entertain the thread participants even further. Interestingly, some students did not initially accept the Professor's contribution, others provided mocking replies to the joke:

> Student: "*Hahahahaha…….. :blink: :*".

Conversely, one student revelled in the relaxed and fun contributions made by their professor:

> Student: "*LOL Kathy – that made my day. Doctowned!!*"

The statement *doctowned* can be translated to Doct-owned meaning the Professor (Dr) provided a good joke and essentially won this round in providing a better joke than anyone else. In other instances, after staff have been assimilated into the online community, they were vigorously defended by the students for their actions. For example in one discussion a student initiated a thread pointing out the spelling mistakes made by a staff member in a number of lecture presentations. Another student stepped in before the staff member could retort, saying:

> Student: *lveae him anole his a gemar! (Translation: Leave him alone he is a gamer!)*

The relationship between staff and students, on all other occasions where humour was not involved, was treated with respect. The games students thrived on the enthusiasm and commitment demonstrated by the staff within the community (once they were past the *newb* status), and thus engaged more deeply with the learning content.

8.4 Idea time and idea support

Idea time and idea support are two dimensions more closely associated with the term creativity. In the survey the respondents strongly agreed that idea time (11%) and idea support (40%) were important to them. Importantly members of the community indicated that support for each other's ideas was a significant factor in contributing to creativity. An example from the online discussions illustrates a student initiated active debate regarding the new gaming console Xbox 360. As the debate moves through varied, and often heated viewpoints, the students involved would clearly acknowledge each other as valid contributors:

Student 1: *Well put John, my only problem is…..*

Student 2: *Yeah you're right Brendan. All the hardware companies…*

As the discussion is facilitated online, the students have access to the community at anytime, anyplace and can easily continue the debate. This anytime, anyplace scenario is highly conducive to the spontaneity of emergent ideas.

8.5 Sufficient resources (technology)

Sufficient resources are an essential element in all CSS dimensions. Without access to the technology of the online community, in addition to the games lounge, the benefits of the intergration of the CSS dimensions would not have been effected. The availability of the technology at all times during the year resulted in the peculiarities of the formation of the membership. Students were not under a time pressure to participate in the community, as it was available all the time. In addition, as previously mentioned, membership to the online community was automatic at the beginning of each semester, when a student enrolled in a relevant games unit. Aside from this feature resulting in no exclusions from the community, it also resulted in members of the community only frequenting the online discussions briefly. The roles within the community soon became apparent. Who were serious, avid contributors and those who were more inclined to lurk, and contribute minimally. In addition, there were community members who were inclined to simply read the online discussions without contribution. For example, a student responded to the survey question *Can you tell me what drew you into using the discussions on DSO?*:

> Student: "*I have not submitted to any discussions on DSO because I am shy. I have found discussions on student talk very helpful / interesting throughout my studies at Deakin*."

It was not a requirement for students to contribute all the time. Indeed, the entry and exit of members added to the social construction of the community and also maintained the dimension of *motivation* within the community, as new members provided a fresh perspective in the community and stopped it from becoming stagnant.

9 Conclusion

This study has discussed the establishment of an online community and the social, cultural and learning practices of the student participants. As Boud *et al.* (2001, p.4) emphasise, online learning communities are "not a substitute for teaching and activities designed and conducted by staff members, but an important addition to the repertoire of teaching and learning activities that can enhance the quality of education".

The authors have argued that creativity can be enhanced and supported by the development and implementation of purpose-specific learning environments, such as an online learning community and a games lounge. Using the specific example of an implementation of such a community in Deakin University, Australia, the authors illustrate the ways in which such a community becomes creative via a combination of 16 factors. Within this community the participants were exposed to a number of requisite

elements designed to support the exploration of their own learning process and the development of creativity, and as Boud *et al.* (2001, p.12) suggest, "much of the value of these strategies for learners comes from exploration and the sense of discovery".

Future work in this study includes a larger quantitative analysis of the creativity dimensions in an environment. The setting of the environment is not integral, however the quantitative analysis would require a longitude study of a number of years.

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