Using Online Environments to Provoke Student-Enquiry

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This paper is intended for researchers and practitioners interested in using online environments to provoke student enquiry in any discipline in higher education. Using a Community of Enquiry model that tackles the pedagogical weaknesses in constructivism, we explain why online environments are so effective in engaging students actively in a learning process that meets the requirements of an academic context. From this perspective, we are able to offer concrete advice on how to design an online environment that will provoke student-enquiry. We explain why a social presence is important in the establishment of a Community of Enquiry and we also align particular web technologies to the various stages in the enquiry process and the students' achievement of a unit's learning outcomes. The reader will develop a better understanding of community of enquiry in higher education, and how to use web technologies to provoke enquiry in an online environment.

Keywords: online Community of Enquiry, higher education, constructivism

"Learning for the future" is a refrain that defines the purpose of higher education for most students; higher education institutions prepare students to engage productively in professional work and community service opportunities that presently do not even exist. "Digital media literacy continues its rise in importance as a key skill in every discipline and profession" and constitutes a "top challenge" for tertiary education (Johnson, Adams, & Cummins, 2012, p.3). This is coupled with increasing desire for flexibility in education: "people expect to be able to work, learn and study whenever and wherever they want" (Johnson, Adams, & Cummins, 2012, p.3). Sustainable and pedagogically sound educational models enable the provision of flexible learning environments that both reflect and prepare students for their future professions and community commitment in the digital age. Creating collaborative online communities of enquiry that engage, challenge and support students, is a means of meeting the expectations of students for flexible learning environments, while prioritising the pedagogical requirements of the academic context. This paper explores the practicalities of designing and facilitating an effective online community of enquiry.

The Online Community of Enquiry Model

Enquiry based learning is "a broad spectrum of pedagogical approaches that ground the learning experience in a process of self-directed scholarly investigation and research" (McKinney & Levy, 2006). In online educational research, there is an influential Community of Inquiry (COI) model which "embraces a constructivist orientation in which the emphasis is on how we construct knowledge" (Akyol, Garrison, & Ozden, 2009, p.15). The learners are defined as "collaborative knowledge builders" in their online COI (Akyol, et al., , 2009, p.78). This emphasis on the students' construction of knowledge can be problematic in higher education. In response, we are proposing a new model, the Re-constructivist Online Community of Enquiry (ROCE) that strives to address the pedagogical deficits of the constructivist approach for the higher education learning context. Constructivist online COI tend to focus on the students' generation of meaning and knowledge that is relative to them and their specific learning community rather than relative to the history of ideas in the academic discipline. Re-constructivism reasserts the centrality of the existing, disciplinary body of knowledge and focuses on engaging students in a robust process of presenting and testing knowledge claims within the online community of enquiry.

Similar to other online models, the ROCE enables students (and their teachers) to engage in learning processes that are asynchronous, student-driven and flexible. In order to participate actively in the ROCE, students must be prepared to engage in academic research, communicate their understanding and interpretation of the literature, defend their analysis in an argumentative, evidence-based discourse, reconsider and extend their arguments in the context of the voices in their community and finally produce a knowledge artefact that has been tested by their peers. Having participated effectively in this robust and challenging learning environment, students will have explored the disciplinary content in ways that equip them to progress in their program of study and ultimately enhance their potential to advance research and knowledge in their future professions.

The ROCE model is applicable to any content area and this paper demonstrates how the various stages in the enquiry process can be supported in an online environment. Design, Cognition and Knowledge are the three

core elements in the ROCE model - design and cognition drive the pursuit of knowledge. The design of the unit and the learning space enable cognition based on community-led enquiry, which results in knowledge embodied in the community discourse and digital artefacts.
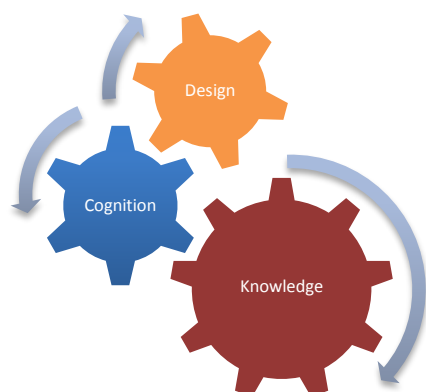

Figure 1: The Re-Constructivist Online Community of Enquiry model

Designing the unit and learning space to provoke enquiry

When implementing the ROCE model, designing the learning space requires considering which technologies can best assist students in participating actively in the enquiry process. The enquiry process involves several levels of understanding such as identifying, describing, comparing, contrasting, explaining causes, analyzing, relating, applying, theorising, generalising, hypothesising and reflecting (Biggs, 2003, p.48). "The ability to carry out a rigorous, systematic process of inquiry and the capacity to apply the skills so acquired in a range of different contexts," is important for students completing their higher education (Brew, 2003, p.16). If students have participated in an enquiry process in which they are required to define and express their own evidence-based voice in their academic community, they will be well equipped to contribute to and ultimately move beyond this community of enquiry. Web technologies such as forums, databases, videos, blogs and wikis can be used at various stages of the enquiry process to support students in their learning and to initiate, sustain and provoke further enquiry. These web technologies are readily available and compatible with most learning management systems. We also suggest including digital artefacts as assessment tasks to ensure a strong alignment between the learning process and measurement of students' achievement of the unit outcomes. As Biggs (2003) argues, "different formats [for assessments] get students doing different things… some being much more aligned to the unit objectives than others"(p172). If students are working online, wiki pages or blogs may be a more appropriate knowledge artefact than the traditional academic essay. In fact, "using Web 2.0 formats …it is possible to assess and support the development of a much wider range of knowledge, skills and attitudes than in the past" (Nicol, 2008).

Establishing Community to facilitate Cognition

Most online communities of enquiry emphasize the need for a strong social presence in order to support students in their academic pursuits. According to Garrison and Arbaugh (2007), the purpose of social presence is "to create the conditions for inquiry and quality interaction… to achieve worthwhile educational goals collaboratively" (p.161). In fact, social presence is an essential precursor to cognitive development because it provides the "groundwork for higher level discourse" (Arbaugh, 2007, p.74). When development is driven by discourse, the community is able to take the required risks and engage fully in their quest for knowledge.

A standard introductory discussion forum can be enhanced by encouraging students to embed short videos of themselves. This video web mail can help establish a sense of community quickly and effectively. Asynchronous video has been found to "deliver the verbal and non-verbal signals necessary in developing positive levels of immediacy and social presence" (Griffiths and Graham, 2009, p.22).

Setting up expectations about the community of enquiry and the students' role in driving the learning process are keys to the success of the pedagogy. It is important to start the unit (after a social presence has been established in a non-threatening way), with a robust discussion encouraging students to embrace the online community as their central enquiry arena and to accept the various technologies that will be used to support the enquiry processes of the community. The voice of the teacher is probably loudest at this time. An informal video recording of the lecturer explaining the rationale of the online community in a relaxed setting can be very useful as students tend to relate well to this more intimate approach. Griffiths and Graham (2009) report "students

were able to perceive the instructor and his personality very well through the use of asynchronous video" (p.16). In fact, students reportedly commented that their connection with the instructor was "much more personal, this way, even more so that a face-to-face class usually is" (Griffiths and Graham, 2009, p.16). It would be important to follow up this video presentation with an online discussion in which students can raise and resolve their questions and concerns. Having established an open, trusting community with shared expectations, students are ready to begin the enquiry process.

Triggering the Enquiry Process

At the start, students require triggers to initiate their enquiry process. Most commonly in communities of enquiry these triggers are questions, issues or problems identified by the teacher and/or students for further investigation and research (Arbaugh, 2007). Triggers vary according to the disciplines and the topics being explored. They may include video stimulus, core texts from the literature and/or case studies or experiments. A video case study can be a successful trigger because it provides a common example that the students can discuss in relation to the further academic research that they pursue. The video can introduce some controversy or an issue that requires an argued response from the students and provoke their enquiry process. The video in Figure 1 requires a critical response from students based on an understanding and application of the literature relating to ethics and the media (YouTube, 2011).

Figure 2: Sample of a video that can trigger the enquiry process.

As the students respond to the triggers and engage in the research, a database tool can be useful to record and share the research being undertaken in the enquiry process. As students research the disciplinary literature, they need to record ideas from their preliminary readings, so that they can reflect and build on these ideas and conduct further more defined research as they start to increase their awareness and understanding of the topic. For this purpose, each student could commence a research blog. The blogs should show development of the students' ideas as they work through some of the disciplinary literature. The blogs are the students' means of creating their knowledge claims that will be put to the community for testing and discussion.

Testing Knowledge Claims through Discourse

As students start to develop their knowledge claims, they need a space to "test" (present, defend and extend) these claims. A discussion board is the ideal online space for this testing of claims. Students need to be able to respond easily to each other as they engage in an evidence-based debate and critical dialogue of their peers' contributions. During this time, students will be participating in several different online discussions, they will be defending their own knowledge claims and critiquing the claims of their peers. Students need to provide academically credible evidence in their argumentative discourse and this may include links to various audio-visual materials or websites. Depending on the nature of the discipline, students can include videos taken during practical placements in relevant professional contexts.

The student who is presenting the knowledge claim will lead each discussion. It is their responsibility to ensure the debate progresses constructively. They will synthesize the relevant input from other students and follow up

on new literature that is provided by peer critique. Students can also continue to maintain their personal research blogs throughout the enquiry process.

Producing Knowledge Artefacts

Having thoroughly tested their knowledge claims through the discourse of the community discussion, students are able to produce knowledge artefacts. Ideally these will use a digital format that aligns with the online enquiry process that the students have engaged in. They may use a wiki to present their digital essay incorporating links to audio-visual evidence. The wiki can be opened up to the community for more peer editing and commentary as deemed appropriate. The student blogs are also digital artefacts that can be used to evaluate the students' research and their development of knowledge claims to test in the community discourse. These knowledge artefacts can then be evaluated as part of the overall assessment of each student's achievement of the unit outcomes.

Conclusion

The ROCE model is based on the premise that students' learning is enhanced through collaboration and critical discourse with peers. Its design is tailored to the goals and demands of the higher education environment. This is evidenced by its commitment to engaging students directly with the literature of their chosen discipline. The process of enquiry mirrors the process of scholarly endeavour and debate. Students create supportive online communities of enquiry that enable them to challenge themselves and their peers to delve into disciplinary knowledge and emerge with a clear voice that is able to expound the legitimacy and frailty of the various academic positions within the literature. The online environment provides flexible, purpose-built web technologies such as videos, forums, blogs, databases and wikis, which can both support and provoke students to engage in the enquiry process. The ROCE is pedagogically a better fit for the higher education context than the more constructivist models that prioritise the students' construction of knowledge over their engagement with the history of ideas in the academic literature. Overall, the ROCE is an approach that is flexible enough to apply in different disciplines and can be set up in most learning management systems. It offers a sustainable model that will address demands for flexible study environments that develop digital literacy skills (Johnson, Adams, & Cummins, 2012) and as such, constitutes a means for facilitating learning for the future.

References

Akyol, Z., Arbaugh, J. B., Cleveland-Innes, M., Garrison, D. R., Ice, P., Richardson, J. C. (2009). A Response to the Review of the Community of Inquiry Framework. *Journal of Distance Education , 23* (2), 123-136.

Akyol, Z., Garrison, D. R., & Ozden, M. Y. (2009). Online and Blended Communities of Inquiry: Exploring the Developmental and Perceptional Differences. *International Review of Research in Open and Distance Learning* , 10 (6), 65-83. https://doi.org/10.19173/irrodl.v10i6.765

Arbaugh, J.B. (2007). An empirical verification of the community of inquiry framework. *Journal of Asynchronous Learning Network*, 11 (1), 73-85. https://doi.org/10.24059/olj.v11i1.1738

Biggs, J. (2003). *Teaching for Quality Learning at University* (2nd ed). Berkshire: Open University Press.

Brew, A. (2003). Teaching and Research: New relationships and their implications for inquiry-based teaching and learning in higher education, *Higher Education Research & Development*, 22 (1), 3-18

Garrison, D. R., & Arbaugh, J. B. (2007). Researching the community of Inquiry Framework: Review, Issues, and Future Directions. *The Internet and Higher Education , 10* (3), 157-172.

Griffiths, M.E., & Graham, C.R. (2009). The Potential of Asynchronous Video in Online Education. Distance Learning, 6 (2), 13-22.

Griffiths, M.E., & Graham, C.R. (2009). Using Asynchronous Video in Online Classes: Results from a Pilot Study. International Journal of Instructional Technology and Distance Learning, 6(3).

Johnson, L., Adams, S., & Cummins, M. (2012). *Technology Outlook for Australian Tertiary Education 2012-2017: An NMC Horizon Report Regional Analysis*. Austin, Texas: The New Media Consortium.

McKinney, P., & Levy, P. (2006). Inquiry-Based learning and information literacy development: a CETL approach. *Innovation in Teaching and Learning in Computer and Information Sciences*, 5 (2). http://www.ics.heacademy.ac.uk/italics/vol5iss2.htm

Nicol, D (2008), *Technology-supported assessment: A review of research*, unpublished manuscript available at http://www.reap.ac.uk/resources.html

You Tube, (2011). The Media Have No Morals 1 of 3 - BBC Intelligence Squared Debate. *The Festival of Dangerous Ideas*: http://www.youtube.com/watch?v=02JIuDkS83c

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