

An exploratory study to determine students' perceptions of the value of interaction in an Australian classroom context and the perceived impact on learning outcomes

**Jacquelin McDonald, Dawn Birch, Anthony Gray, Raj Gururajan,
Ray Hingst, Michael Maguire**
*University of Southern Queensland
Australia*

ABSTRACT

Interaction has long been a defining and critical component of the educational process, whatever the classroom context (Anderson 2003). This paper presents findings of a study to explore the perceptions of students at an Australian university towards various types of interactivity in the classroom. The study also investigates students' perceptions of how interactivity in the classroom impacts on cognitive, affective and behavioural learning outcomes.

In a recent review of the literature Muirhead & Juwah (2003) argue that interactivity is critical in underpinning the learning process in face-to-face, campus based and distance and online education. They say that interactions serve a diverse range of functions in the educational process, which include learner to learner, learner to content, learner to tutor, learner to technology, tutor to content, tutor to technology, content to content. These functions promote and enhance the quality of active, participative learning in a learning environment. However, literature indicates that perceptions towards active learning involving greater interactivity varies across students and between students and lecturers (Billings, Connors, & Skiba 2001). Investigation into student perceptions of the value and effectiveness of interaction is of particular interest for educators who are adapting to the learning of a diverse range of students, including on-campus, distance, international, under and postgraduate students.

Much of the existing research into classroom interaction was grounded in the behaviourist and cognitive sciences approach to learning and teaching, where traditional classroom interaction placed the teacher at the centre of all activities as transmitter of knowledge and co-coordinator of student interaction (McLoughlin 2002). Those studies predate the recent application of constructivism (Bonk and Cunningham 1998) and social learning theory (Bandura (1977), and the emphasis on building life long learning skills. This research will contribute to current discussion about the role of interaction in learning, based on a constructivist approach to developing life long learning skills.

This paper will present the findings of an exploratory study of students' perceptions employ a focus group approach to gather data from on-campus students to identify the key issues that emerge from this data. These findings will be used to design a survey instrument to implement a follow-up research project.

INTRODUCTION

The many facets of educative processes create an intricate web of research opportunity. But to be able to focus on one of the fundamental constructs of education, the role of interactivity in learning, provides an opportunity to gain a deeper understanding of the contemporary classroom, both real and virtual.

The modern world provides additional opportunities for allowing interactivity, not only in the face to face classroom, but also via other media such as the web – especially as adapted for online discussions. In view of constructivist approaches to education now increasingly coming to prominence, it is appropriate to enquire into the perceptions of students in order to further the

effectiveness of interactivity as a pre-eminent methodology. The imperative to enhance the learning experience of students has led us at University of Southern Queensland to make these enquiries.

The usefulness of interactivity as a methodology and even the ability or motivation of students to engage with other students and teachers may well be effected by considerations of quality, the make up of the student cohort and also students' perceptions of the value of such activity.

The purpose of this paper is to present the findings of an exploratory study of students' perceptions to various types of interaction in a classroom context. This exploratory study has employed a focus group approach to gather data from on-campus students to identify the key perceptions that emerge from this data. These findings will be used to design a survey instrument to implement a follow-up research project.

The paper has four main sections, commencing with a literature review of the basic components of the pedagogy of interactivity in a constructivist setting. In the next section the research methodology is described. This is followed by the findings and a discussion of the results of the focus group interaction. The final sections of the paper deal with the teaching implications for the lecturer using an interactive approach to teaching law courses followed by conclusions and future research proposed.

LITERATURE REVIEW

Academics and students are engaged in various forms of 'interaction' during teaching and learning. Interaction has long been a defining and critical component of the educational process, whatever the classroom context (Anderson 2003). Thurmond & Wamback (2004) identify four types of interaction: learner - content, learner - learner, learner - instructor, and learner - interface, in their review of the literature on interactions in distance education. In a classroom context the types and levels of interaction depend on a number of factors. These include the nature of the cognitive domain being taught, the nature of the teaching session (lecture, tutorial, workshop etc.), instructor teaching style and strategies, as well as students' perceptions towards interactivity.

In his study of interaction, Thurmond (2003) presented an insightful definition of interaction:

The learner's engagement with the course content, other learners, the instructor, and the technological medium used in the course. True interactions with other learners, the instructor, and the technology results in a reciprocal exchange of information. The exchange of information is intended to enhance knowledge development in the learning environment. Depending on the nature of the course content, the reciprocal exchange may be absent – such as in the case of paper printed content. Ultimately, the goal of interaction is to increase understanding of the course content or mastery of defined goals (p. 4).

In a recent review of the literature Muirhead & Juwah (2004) argue that interactivity is critical in underpinning the learning process in face-to-face, campus based and distance and online education. It promotes and enhances the quality of active, participative learning in a learning environment. Laurillard (2002 p. 148) also mentions that research *showed that students valued the discussion environment for the alternative perspectives and explanations they encountered, for the opportunity to learn from others mistakes and insights, and for the sense of community it offered.*

There have been a range of studies that investigate students' perceptions to interaction (Anderson 2003; Duffy et al 1998; Muirhead & Juwah 2004; Thurmond & Wamback 2004). However, unlike this research most recent studies have focused on the use of technology mediated interactions. For example, Biesenbach-Lucas (2003) present students' perceptions of

an asynchronous electronic discussion assignment implemented shortly after the technology had been introduced to the university. Also much of the earlier existing research into classroom discussion was grounded in the behaviourist and cognitive sciences approach to learning and teaching, where traditional classroom interaction placed the teacher at the centre of all activities as transmitter of knowledge and co-coordinator of student interaction (McLoughlin 2002). Even if students in the studies were engaged in collaborative small group tasks, the teacher was usually present and monitored students' progress while providing input on how to solve a particular task, a situation that may hinder learner-centred interaction. Those studies predate the recent application of constructivism (Bonk & Cunningham 1998) and social learning theory (Bandura (1977), and the emphasis on building life long learning skills. The interactive teaching and learning experience that provided the context for this study is based on a 'constructivist' approach that *involves the belief that better learning occurs when knowledge is the result of a situated construction of knowledge* (Bonk and Cunningham, 1998). That is, meaning is generated from 'real life' situations, as in the tutorial discussions of the legal implications of current issues that were the focus of this study. The 'current issues' discussion approach will be outlined in the context section of the paper.

The concept of interaction is a core element of the seven principles of good practice in education (Chickering & Gamson, 1987). These practices include: encouraging faculty/student contact; developing reciprocity and co-operation; engaging in active learning; providing quick feedback; emphasising the amount of time dedicated to a task; communicating high expectations; and respecting diversity. However, ideas of 'good practice' are often researched from a teaching perspective, so this research aims to fill a perceived gap in identifying the student perspective of the value of interaction as a learning activity.

Literature indicates that perceptions towards active learning involving greater interactivity vary across students and between students and lecturers (Billings et al 2001). This is of particular interest for educators in the Faculty of Business, USQ, as there are a wide range of student cohorts, including on-campus, distance, international, under and postgraduate students. This research explores students' perceptions towards various types of interactivity in the classroom and investigates how their perceptions of interactivity in the classroom impacts on cognitive, affective and behavioural learning outcomes. A model of the research approach developed for this study is shown below. The model shows the various types of interactions, as presented in the literature and actualised in practice in the case study. Central to the model is the students' perceptions of the value of interaction, which impact on learning outcomes.

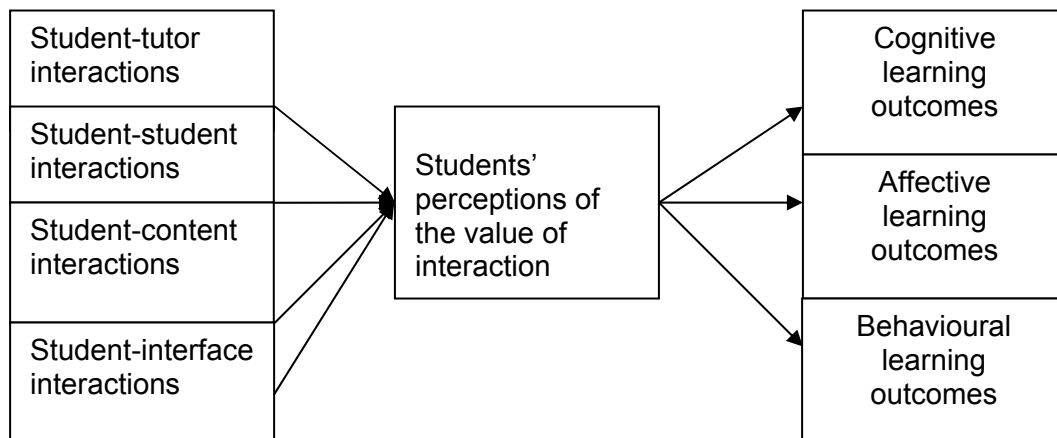


Figure 1: A model of the impact of students' perceptions of classroom interactivity on learning outcomes

CONTEXT

The students who participated in this focus group discussion were enrolled either in the first year course Introduction to Law, or the Master of Business Administration (MBA) core course Comparative Law and Business. For the vast majority of the students, this was the first law study they had ever studied. Most of the undergraduate students surveyed were enrolled in a Bachelor of Business or Bachelor of Commerce degree. Of the MBA students surveyed, almost all of them came from a non-English speaking background. The learning and teaching strategy that was the focus of this study was a task set for students in an on-campus tutorial group. Each week the students were asked to reflect on legal issues that were currently under discussion in the media, and comment on how those issues related to legal issues raised in the course.

Students were asked for their impressions of the interactive teaching approach taken by the academic in these courses, whether they enjoyed the interaction and whether it aided their learning experience, and if they had any suggestions for refinement of the process.

Goals

Specific feedback was sought on the following issues:

- (a) How interaction took place within the classroom
- (b) How interaction affected the learning experience of the student in the course
- (c) Whether any students felt uncomfortable with an interactive approach
- (d) Whether students' backgrounds affected their attitude to an interactive approach
- (e) Whether the students enjoyed the interaction
- (f) Whether the interactive approach was deemed to be valuable by the students
- (g) Any suggestions for improvement to the process
- (h) Whether and how the interaction improved students' generic thinking or study skills
- (i) Whether students saw the real-life application of their studies
- (j) Issues of equity in participation in the discussion

RESEARCH METHODOLOGY

This study used a qualitative method to explore students' perceptions toward interaction in the classroom. The rationale for using qualitative method is due to the nature of the objectives where students' opinions were extracted as an initial step to identify factors influencing interaction. Qualitative methods are recommended for such activities as a suitable approach (Berg, 2004).

The specific technique (among the qualitative method) adopted for this study was focus group discussions as this is a popular technique to study a variety of social scientific phenomena (Whiting, 2001). This study initially explores various factors of interaction using focus groups and hence an ideal candidate for focus group techniques. Further, the research team was keen to learn how conscious, semi conscious and unconscious psychological thinking processes among various groups and focus groups facilitated various processes associated with such events (Edmunds, 1999).

Three focus groups were conducted to explore issues of interaction among students. The participants of the focus groups were two undergraduate law classes and one postgraduate law class. Each focus group comprised between 15 and 20 students, and the discussion lasted for approximately one hour per focus group. To encourage open and frank discussion, the focus groups were conducted by an independent moderator (not the course leader) and students were assured of anonymity. Upon permission from the participants, the sessions were taped for the purpose of analysis. A transcript of the discussions was then prepared and analysed by the research team to uncover key themes and findings.

To ensure consistency across focus groups and comprehensive coverage of the research issues, a focus group protocol was prepared that included an explanation of the purpose of the research

and the role of the focus groups in gathering qualitative data. The protocol also included the specific questions to be asked, as well as, some prompts for the moderator for seeking further clarification and probing responses. The questions were based on the research model and explored various types of interactions, students' perceptions toward interactivity, and perceived cognitive, affective and behavioural learning outcomes.

The specific purpose of the focus group discussions was to determine students' perceptions toward interaction in the classroom and their perception of the impact of these interactions on key learning outcomes. Specifically, questions addressed the nature of interactions within the classroom and how these interactions took place. Students' were asked to discuss whether they valued these interactions and how classroom interactions impacted on their cognitive, affective and behavioural learning outcomes. Students were also asked whether they interacted with the instructor or other students outside of the classroom using web technologies available to them.

FINDINGS AND DISCUSSION

The findings from the three focus groups considering the topic of classroom interaction will be presented in broad alignment with the proposed model of student interaction primarily derived from student to instructor, instructor to student, student to student and, student to content exchange. The patterns and content of interaction disclosed by the two undergraduate groups were similar to each other, while that reported by the focus group composed of MBA students, most of whom spoke English as a second language, showed some variation from the two undergraduate groups participating in the research. The types of interaction identified by the focus groups concentrated on forms of face-to-face contact, with occasional reference being made to student to content interaction observed. Some use was made of course sponsored, electronic discussion groups by one undergraduate cohort in particular. The remaining undergraduate focus group reported no meaningful interaction using this medium. Extensive use of email contact between students and the instructor was a feature of the interaction reported by the MBA focus group which was not revealed by either undergraduate class.

Instructor to student interaction was a typical opening phase to each class however, the responsibility for, and emphasis of, the interaction is left with the students during this stage of the class. The Instructor attempted to 'structure' proceedings by posing a question related to content topics as a lead into a period where students engaged in an exploration of each topic. There was occasional intervention and guidance provided by the instructor to compensate for a lack of experience with specific issues, to restore focus when a digression from the subject may have proved futile, to supplement understanding from personal experience, or to reinvigorate discussion with fresh insight into complementary facets of the subject being considered. The conclusion of the discussion was arrived at with the achievement of shared meanings and perspectives demonstrative of a collaborative approach to constructivist learning.

Some barriers to interaction explicitly identified by MBA students are worth considering as distinct from the experience of the undergraduate classes which were populated predominately by white, Anglo-Saxon, English speakers with a small number of students representative other cultures. By contrast, the MBA group featured a polyglottal cohort, with a variety of cultural heritages including Indian, Chinese, Asian and German. Although not associated with a particular cultural orientation, some students commented that 'personality' was an attribute which moderated their willingness to make forthright contributions. This could simply be the expression of a preference for a particular learning style, in that the comment made reference to a preference for listening rather than talking. Another student remarked that *some people are arguing, some people they just like to keep to themselves*. Language was also identified as a potential barrier to interaction with some members of the undergraduate classes. *English is our second language. We sometimes find it very difficult to contribute ...so let us sit down and listen to what the Australian students are saying*. Other factors contributing to barriers to effective interaction in the MBA focus group were fear of embarrassment manifest in a desire to 'save face', and the dominance of the class by some more vocal students. This was characterised by an expressed belief that *Some people tend*

to be a bit fast in the way of answering questions so the rest of us (find ourselves) being deprived. One restriction to interaction which was shared with the undergraduate classes was expressed in terms of a perceived lack of legal knowledge. *I've got no basic background in law so sometimes I feel it's better that I keep quiet and listen what people are talking about and absorb from there.*

In terms of the model's learning outcomes, the focus groups revealed a range of cognitive outcomes from the various interactions generated by the course. The cognitive benefits of course interaction identified by students include the following attributes:

- Thorough exploration of all facets of an argument exemplified by an assortment of comments. *(You are) more aware that you've got to look at all the angles; making you, step back, rather than getting on the one narrow track; look at it as from as many angles as possible; (the interactive process) calls for you to know there are many ways a question can be taken or answered; no one right answer; different people have different approaches and it's interesting to find out how others are approaching it.*
- Shared perspectives/experiences were evidenced by representative comments such as *learning from other people's points of view; somebody else will have a completely different take on it; and, I guess you do learn a lot about people's opinions, that's definitely a plus.*
- Understanding of the relevance of the course and currency of the subject were emphasised by expressions centred on the heightened awareness of legal issues. Students suggested *that instead of switching off at 5:00pm on a Wednesday when we walk out the door here, if you hear a news article or read a paper and see something, it's a good way of actually bringing up, being able to apply relevant theories.*
- The depth of coverage of content issues was considered to be a strength of the interactive process. *What you do cover, you cover very well.*
- Increased levels of motivation to study and do well in the course were made apparent by the telling comment that *I feel more motivated now because when you understand something, it's easier to go away and actually write about it. Like if you find that I had a general idea what to do and until I came to the tute where I could actually grasp a whole of what concepts were and then I felt better. I felt I could really do my assignment so it just motivates me more and I get better at it.*

Though less numerous in variety than cognitive outcomes; focus group participants provided compelling evidence to support the value of the various forms of interaction in producing and enhancing affective outcomes. Of particular appeal to each group was the dimension of informality which pervaded the class environment and promoted discussion. Some of the most appealing aspects of class interaction were identified by students in the following comments.

- Interest levels in the course were reported as being high with concomitant enjoyment of class interactivity also clearly indicated. *(I) enjoy the interactivity. I don't have a lot to say in it. I get a lot out of listening to everything that's said, taking it all in. I enjoy the discussions and like the opinions we get. It's a great class to come to.* Perhaps the most telling endorsement though was provided by a clearly 'discriminating' student who stated that *I really like this tute I mean I'm not one for going to uni a hell of a lot but I don't think we get marked on this, I just feel good about coming. I find it more interesting, (interaction) makes it more enjoyable.*
- The social aspect of learning through interaction resulted in the establishment and development of friendship/mateship, relationships and networking, particularly within the undergraduate groups. *You've got mates when you walk in the class and you know*

everyone better. You come to this class and because you're interacting with other people, you know their names and their opinions. The benefits of relationships established on the basis of student to student interaction in one course can be extrapolated into the wider student experience as one student illustrated. Well even if you're having trouble outside it gives you another area you know to bump into someone in some corridor who you also have in class, you say oh having a bit of trouble here I can't quite suss this one out. How did you take it and because you're taking your relationships from the class outside, it's another source if you encounter any difficulties along the way, you can just fall back on.

Interaction promoted a range of behavioural outcomes for students in each focus group. Some identified direct benefit in the application of legal knowledge to understanding aspect of their everyday life. *That we're taking from the tute and using it, not just at the tutes but in other areas of our life.* Others observed that class interaction with the instructor and other students *calls for you know there are many ways a question can be taken or answered... you probably a more objective thinker.*

- *A changed attitude toward law was the product of interaction noted between several students, their instructor, their colleagues, and to a lesser extent, the course content. I would say definitely. Well I know for starters (the class) talked about negligence duty of care and things like that and my personal opinion on that was you've got to be responsible for your own actions, I would be very much set against all this suing for damage. I just thought it was a load of rubbish but having done the course now I can see it does its place to some extent that there has to be rules and regulations and values, a legal option. Without these you know you would have to say we would be a lot worse off.*

TEACHING IMPLICATIONS

Students commented very favourably on the student-tutor interaction they experienced in the classroom, and articulated the links between the interaction they participated in, improved understanding of the material for this course, and changed learning habits. They commented that they have improved their critical thinking skills, and their ability to discuss issues from a variety of perspectives. These are considered to be important behavioural learning outcomes for the law course, and as life long learning attributes. They have also commented on their new appreciation of the relevance of what they are learning in the law course to everyday situations, so they can relate their learning with practical experiences they may have or will encounter, or to current affairs and issues.

One of the interesting outcomes of the study was the recognition by the academic concerned that, as valuable as the student-tutor interaction (and indirectly, student-student interaction) was, he might work to facilitate more overt student-student interaction by discussing some of the controversial issues in small groups of students, rather than always conducting an entire group discussion. This may reinforce the desirable outcome of seeing issues from different perspectives, while improving communication skills (including speaking and listening) further. It would also allow less vocal students, and those ESL students greater opportunities to participate.

Another interesting finding was that not all students actively participated in the interactive discussion. The academic sought to create a non-threatening environment by assuring students they were not being judged on their comments, were encouraged to speak up, and by being careful not to be critical of any comments offered. Another finding was that even students who did not actively participate in the discussion benefited from listening to the interaction. This led to the conclusion that these students were gaining from the interaction, although not directly participating in it themselves. Accordingly, it cannot be a criticism of an interactive learning environment that some students do not participate, because there is evidence of the value of such an approach from students who admitted they did not actively participate. This conclusion is supported in the community of practice (CoP) literature, and by McKendree & Mayes (1997) and Mayes et al (2001) in their discussion of how vicarious learning supports student learning, even if

they are not actively contributing to the discussion. A study of online participation (Donald (2003) noted that *'Wenger's perspective is that lurking is legitimate, therefore can be classified as legitimate peripheral participation.* Wenger et al also noted that CoPs *'invite different levels of participation, that a large portion of community members are peripheral and rarely participate'*.

Having said this, however, the academic may try more strategies to encourage those students who are reluctant to actively participate in discussion. These students may have come from a background where interactivity was not used as a learning strategy, or they may lack confidence in their ability. Some are from a non-English speaking background. Possible additional strategies that might be used to encourage these students might include occasional small group discussions, or some kind of reward for an active contribution to the discussion

CONCLUSIONS AND FUTURE RESEARCH

The focus group interviews indicate that instructor to student interaction is an opening phase in a class room. It was also found that minimum interaction takes between students in terms of 'content' in an electronic medium at undergraduate levels. The postgraduate students appear to be interacting with the tutors using emails and this was not found prevalent among undergraduate students. Barriers were also noted, especially with postgraduate student cohorts, in terms of cultural aspects, language and lack of subject content derived from previous studies. Students also requested that the interactive discussion be supported by a tangible handout that summarised the key issues that arose in the tutorial discussion. The need to model learning strategies and the impact of this process on learning outcomes is an area for further research.

The research findings have significant impact on pedagogy as the opinions expressed by undergraduate students is different from that of postgraduate students belonging to a specific course. Due to this difference in opinions, it is important to focus on instruction delivery that addresses varying cohorts of students. If academic outcomes are to be met successfully, the varying nature of student interactions at different levels of learning should be considered and accommodated in the overall teaching practice. In other words, the concept that 'one size fits all' may not be appropriate.

The implications of this study have an impact on resources provided by tertiary education institutions in terms of instructional design materials. If one standard style of interaction is not sufficient to meet the demands of varying levels of students, then there is a need to build varying types on interaction to accommodate student needs. This places extra work on instructional designers and content providers and hence impacts resources provided for course materials.

The study reported only the first phase of the research. Currently, based on the focus group interviews, a survey instrument is being developed to quantify the opinions expressed by students in terms of interactions. The purpose of this exercise is to identify various factors that contribute to such interactions. The research team is also interested to explore the ranking of such factors. It is planned that this exercise will be completed in the next four months.

The research is perhaps a first attempt after several years to study various aspects of interaction in a class room environment. Due to the technology maturity and knowledge gained by students, this field has somewhat changed. When the class room interaction aspects are combined with online resources, there is potential for new theories and this study will explore these aspects in the future.

REFERENCES

Anderson, T. (2003) 'Modes of interaction in distance education: Recent developments and research questions', in Moore, M. (ed), *Handbook of Distance Education*, Mahwah NJ, Lawrence Erlbaum

Anderson, T. and Garrison, D.R. (1998) 'Learning in a networked world: New roles and responsibilities', in Gibson, C. (ed), *Distance Learners in Higher Education*, Madison, Atwood Publishing

Berg, B.L. (2004) *Qualitative research methods for the social sciences*. (5th ed.) New York: Pearson

Biesenbach-Lucas, S. (2003) 'Asynchronous Discussion Groups in Teacher Training Classes: Perceptions of Native and Non-Native Students', *Journal of Asynchronous Learning Networks*, Vol. 5, No. 2, pp. 36-52

Billings, D.M, Connors, H.R, and Skiba, D. J. (2001) 'Benchmarking best practices in Web-based nursing courses', *Advances in Nursing Science*, Vol. 23, pp. 41-52

Bonk, C. and Cunningham, D. J. (1998) 'Searching for constructivist, learner-centered and sociocultural components for collaborative educational learning tools', in Bonk, C. and King, K. (eds), *Electronic Collaborators: Learner-Centered Technologies for Literacy, Apprenticeship, and Discourse*, Mahwah NJ, Lawrence Erlbaum

Chickering, A. W. and Gamson, Z.F. (1987) 'Seven principles for good practice in undergraduate education', *AAHE Bulletin*, Vol. 39, No. 7, pp. 3-6

Duffy, T. M., B. Dueber, and Hawley, C. L. (1998) 'Critical thinking in a distributed environment: A pedagogical base for the design of conferencing systems', in eds. C. J. Bonk and K. (eds), *Electronic Collaborators: Learner-Centered Technologies for Literacy, Apprenticeship, and Discourse*, Mahwah NJ, Lawrence Erlbaum

Edmunds, H. (1999) *The focus group research handbook*, Thousand Oaks, CA, Sage

Garrison, D. R., T. Anderson, A. and Archer W. (2000) 'Critical inquiry in a text-based environment: Computer conferencing in higher education', *The Internet and Higher Education*, Vol 2, No. 2-3, pp. 1-19

Laurillard, D. (2002) *Rethinking University Teaching: A Conversational Framework for the Effective Use of Learning Technologies*, (2nd edn), London, Routledge Falmer

Mayes, J.T, Dineen, F., McKendree, J., & Lee, J. (2001) 'Learning from watching others learn'. In Steeples, C. & Jones, C. (eds), *Networked Learning: Perspectives and Issues*, Springer: London

McDonald, J., Atkin W., Daugherty F., Fox, H., MacGillivray, A., Reeves-Lipscomb, D., Uthailertaron, P. (2003) Let's get more positive about the term 'lurker', *CPsquare Foundations of Communities of Practice Workshop*.

McKendree, J., Mayes, J.T. (1997) 'The vicarious learner: investigation the benefits of observing peer dialogues'. Paper presented at CAL97, University of Exeter, 23rd June-26th March

McLoughlin, C. (2002) 'Learner support in distance and networked learning environments: Ten dimensions of successful design', *Distance Education*, Vol 23, No 2, pp. 149-162

Muirhead, B. and Juwah, C. (2004) 'Interactivity in computer-mediated college and university education: A recent review of the literature', *Educational Technology & Society*, Vol. 7, No. 1, pp. 12-20.

Thurmond, V. A. (2003) *Examination of interaction variables as predictors of students' satisfaction and willingness to enroll in future Web-based courses*, University of Kansas Medical Center, Kansas City, KS, Doctoral dissertation

Thurmond, V.A. and Wamback, K. (2004) 'Understanding interactions in distance education: A review of the literature', *International Journal of Instructional Technology and Distance Learning*, Vol. 1, No. 1. [Online]. Available: http://www.itdl.org/journal/Jan_04/article02.htm [Accessed 21 January 2005].

Wenger, E, McDermott, R., & Snyder, B. (2002) *Cultivating Communities of Practice*, Boston, Massachusetts, Harvard Business School Press.

Whiting, R. (2001). Virtual focus groups. *Information Week*. July 30, 53.

Contributors: Jacquelin McDonald, Dawn Birch, Anthony Gray, Raj Gururajan, Ray Hingst, Michael Maguire are a team of academics located in the Faculty of Business at the University of Southern Queensland, Australia. They are from a range of disciplines including instructional design, law, economics, marketing, business administration and information systems. They are members of a community of practice who are researching 'interaction in all modes of learning' as part of a Faculty initiative to increase research into learning and teaching, to inform practice, grow individual and group knowledge and research skills, and improve student learning outcomes.

Citation details: McDonald, J., Birch, D., Gray, A., Gururajan, R., Hingst, R. & Maguire, M 2005, 'An exploratory study to determine students' perceptions of the value of interaction in an Australian classroom context and the perceived impact on learning outcomes,' *What a Difference a Pedagogy Makes: Researching Lifelong Learning and Teaching*, Stirling Management Centre, University of Stirling, 24-6 June 2005, pp. 405-12.