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Developing Quality Online Dialogue: Dialogical Inquiry

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Dialogue is "at the heart of the e-learning experience" (Littleton & Whitelock 2004, p.173). It is the means to building mutual understanding, encouraging the construction of personal meaning and ensuring engagement. Inquiry requires dialogue. If we value processes of inquiry, then it is at our peril that we ignore the complex issues and aspects of designing and facilitating in online environments for inquiry processes. How do we design online learning experiences that encourage dialogue and a process of inquiry? A phenomenological inquiry using student postings, student interviews and survey data from an online undergraduate course is undertaken to explore the dynamic interrelation between design, facilitation, tools and learning. As part of the analysis, a heuristic device was developed – the *Map of aspects of dialogical inquiry*. In this article, this device and the dynamic interrelation between design, facilitation, tools and learning are discussed, and implications for practitioners teaching in online environments are explored.

Dialogue is "at the heart of the e-learning experience" (Littleton & Whitelock 2004, p.173; Garrison & Anderson, 2003). It is the means to building mutual understanding, encouraging the construction of personal meaning and ensuring engagement. Dialogue, meaning a process of inquiry, investigation and questioning, is a crucial element for online development of new concepts, knowledge construction and internalisation of learning (Bird, 2007). In online learning environments, dialogue and the creation of online learning communities are multi-faceted; the choice of platform, the role of the lecturer and the student, the structure and nature of the learning materials, institutional expectations, affordances, and limitations are all part of the complex web of interactions that mediate the online learning environment. For example, knowledge-creation processes through posting, responding, self-disclosure, and posing questions set up implicit norms (Ziegler, Paulus & Woodside, 2006) that reflect the nature of the task. Being comfortable with difference is a "norm" that the author believes is important for dialogical inquiry and developing reflective practice – whatever your discipline. As Hung, Chee Tan & Chen (2005) note, dialogue in online learning environments is a matter of tapping into the distributed expertise in the group, ensuring tasks are contextualised and requiring reflection, argumentation, and evaluation.

In addition, there are now studies that point to student anxiety, lack of confidence (Askell-Williams & Lawson, 2005), and alienation in online discussions (Mann, 2005). All of these are factors to be considered in the design and facilitation of online learning.

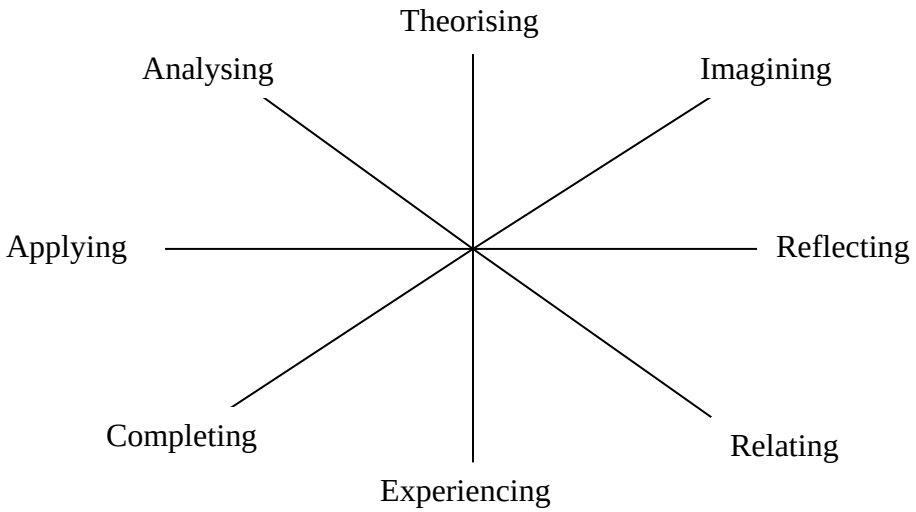
If we value processes of inquiry, then it is at our peril that we ignore the complex issues and aspects of designing and facilitating it in online environments. There are a number of factors that are markedly different in creating dialogical inquiry, the focus of this paper, in online environments compared to face-to-face environments. For both learners and designers these include: the asynchronous nature of online interaction; access issues (including learning new programs and navigating online for first time users, and addressing time issues when learners are in different time zones); the need to be very explicit to avoid confusion; and the limitations of the technological interfaces. The question is, how do we design learning experiences that not only encourage dialogue but a process of inquiry? A process of inquiry meaning to be curious, to be speculative, to ask questions, to experiment, to challenge, to investigate, analyse, conjecture, imagine. In the context of developing professionals, as in the case explored in this article where adult and vocational educators make up the student body, we also want our practitioners to be reflective, to examine assumptions (Brookfield, 1995), to construct knowledge of oneself and one's practices, and to observe. The ability to question taken-for-granted practices is important in handling change, ensuring practitioners are responsive and flexible (Dadds, 2009; Webster -Wright, 2009).

All of these processes require dialogical inquiry. The purpose of this article is to explore the dynamic interrelation between design, facilitation, tools and learning, and then to examine the implications for practitioners interested in encouraging their learners to engage in dialogical inquiry.

Conceptualising Dialogue and Inquiry in Online Environments

The processes of inquiry and dialogue are unified; inquiry cannot happen without dialogue with self and others. Inquiry can be defined as the process of examining, to "explore, delve into, catechize, query, question, quiz, investigate, probe, search scrutinise, interrogate, and study" (Martinello & Cook, 2000, p.3).

Figure 1
Aspects of Scientific Inquiry (From Stack, 2007)



Wells (cited in Audet, 2005, p.5) states that inquiry must be seen as an approach "in which the posing of real questions is positively encouraged whenever they occur and… all tentative answers are taken seriously." When we inquire, we move across different ways of thinking, often experiencing the accompanying emotions and sense of body. Inquiry may range from posing questions and experimenting with possibilities to challenging long held assumptions. Inquiry, therefore, encounters difference and a sense of being comfortable with difference.

Implicit within the definition of inquiry is the need for dialogue. Bakhtin (1986) writes about the mechanism of dialogue, one aspect of which is the appropriation of meanings, requiring interpretation and making the meaning your own. This is a process of filtering through prior experience, knowing, and negotiation of meaning (Hung, Tan, & Chen, 2005, p.38). These processes take place through psychological signs, symbols, and other tools that mediate (Vygotsky, 1978) the meaning making process. The language used, the mental models, past experience, interpretation of intent of others, and expectations of the lecturer are all part of the dialogic process within educational online discussions. Inquiry is therefore a socially negotiated process, requiring personal and collective/community meaning-making.

Tools of inquiry can be specifically taught. Stack (2007), for example, found that by asking four critical thinking questions in her physics classes, her 16 to 17 year old students moved from being teacher dependent to owning the inquiry process themselves. When posing these four questions, Stack used an experiential, problematising approach. She asked students to apply the four questions below to the explanations they and others arrived at when solving problems. The four critical questions were:

- Is it intelligible? (What further explanations or experiences can help me understand it?)
- Is it plausible? (How is it convincing, logical, relevant, trustworthy, fit into a bigger picture? What might be the flaws or limitations?)
- Is it useful? (How does it have greater explanatory or predictive power over other models? How does it fit into other ways of explaining the world? How is it significant?)
- Is it believable? (What are my underlying beliefs and values about the world and how do these new ideas interact with these?)

Students took on responsibility for critical thinking because they were given tools to work with and were expected to take responsibility for the inquiry process.

Stack (2007) suggests that good dialogue requires bringing a "state of being" to the process of dialogue and inquiry. She defines that "state of being as "a state of tentativeness, a state of willingness to look deeply, to be open to surprise, to nurture those who are tentative (p.328)" and involves an engagement in "insight making" (p.330). Often we enter the inquiry process through a particular aspect(s); the challenge is to encourage movement across multiple aspects of the inquiry process and not remain at our starting point. Drawing on the work of Atkin's whole brain learning model (Atkins, 2000), the Kolb (1984) experiential learning model, and McCarthy's 4MAT system (McCarthy, 2007), Stack developed an eight-sectioned model she called *Aspects of scientific inquiry*, as shown in Figure 1.

Drawing on particular learning style theories and approaches, this model provides a tool for educators in any field to encourage learners to move across and through different ways of thinking and being. It is contended that this will promote deep learning where learners are open to difference.

However, in online environments there can be a tendency for lecturers – designers/facilitators – to value evidence of engagement that may be supportive of each participant but not necessarily result in deep learning. Mann (2005) posits that a "failure of communication" (p.45) in online environments results in a tendency to restrict spaces for questioning and critique and closes off possibilities to being open to difference and what is "other" (ibid). Openness to difference and critique are critical aspects of inquiry. Being comfortable with difference is not just being argumentative; it requires "socially shared, relationally responsive, perceptible understanding" (Shotter & Billig, 1998, p. 25) between those involved. Debate, identifying places and points of difference yet being responsive and mindful of others, is part of the process of developing a robust online community that is "relationally responsive." The findings of the case study analysed in this paper lead the author to posit that openness to difference, dialogue, and inquiry needs to be designed into learning experiences and actively facilitated. This may seem obvious, but as designers and facilitators we are not always aware of the outcomes of the processes and experiences that we design for our learners.

Methodology

The unit investigated in this case study is part of an undergraduate degree in adult and vocational education that is delivered 100% online. Students are geographically dispersed, with some in remote locations. Students are mature aged; most are working in the field of adult and vocational education in settings as diverse as emergency services, Technical and Further Education (TAFE) institutions, defense, government agencies, private Registered Training Organisations and recruitment agencies, coordinators of online centres and neighbourhood houses, and literacy educators, amongst others. Students receive a CD of readings and a hard copy of their unit outlines. Learning modules and other support materials are placed online, with Blackboard being the institutional interface. Students are admitted into the second year of the course, having gained credit for the first year of study. The course has a small cohort, most of whom study part time with classes ranging from 5 to 32 students. The part time nature of study often means that students do not move through as a cohort, as they will take on different loads according to their life circumstances.

For this case study, all students in the first unit (n=20) were selected as the cohort. Unlike in other units, a deliberate decision was taken in this first level 200 unit to use only Blackboard; the second unit introduces students in a supported way to a range of other online tools, including the use of synchronous technologies. This staggered introduction to different technologies means these students can better manage what for many is a very steep learning curve when they first begin the course.

A mixed methods approach was used in this project. The data, collected in semester one of 2008, are the student postings collected for the thirteen-week semester. Postings for four level-200 units from one semester were collected, although, as indicated above, in this article postings from the 20 students in the first unit were analysed. The purpose of this first unit is to develop students' academic literacy through an exploration of qualities and characteristics of effective teachers and communication skills required for teaching, identified through observing learning.

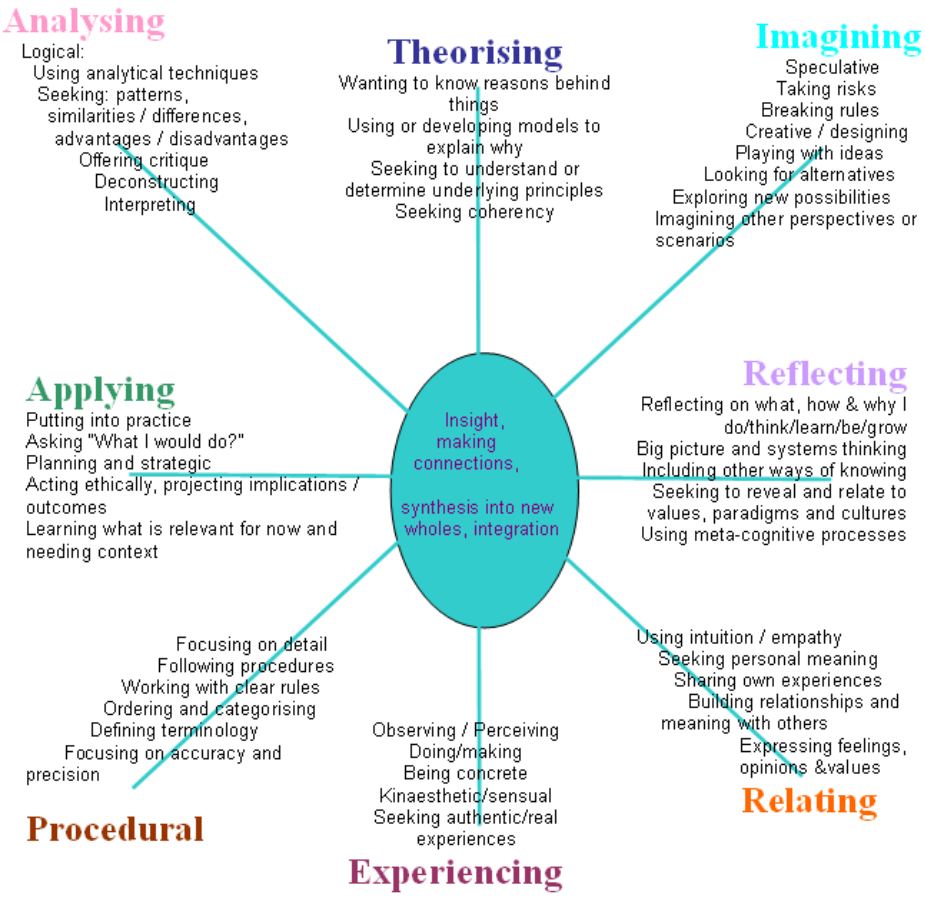
All students in the course were given the opportunity to complete an online survey, open from week 6 to week 10, which asked about access, levels of participation, confidence, and what encouraged and discouraged participation. The survey was developed with reference to literature, other online surveys,

received feedback from an expert in survey design and then piloted with students, staff and friends of staff (n=6). A link to the survey was placed in each semester one unit of the course. Response rate was high with 72% of all students completing the survey.

The survey and postings data is triangulated with interview data collected through telephone interviews during the first semester, undertaken by a Research Assistant. All students were sent an invitation via email to participate in the interview. A small representative sample of students (16.5**%**) (n=11) based on number of years in the degree and confidence with the technology were selected. Respondents were asked about their previous online learning experience, how they learnt to use Blackboard, levels of confidence, what helped them to develop confidence, the role of others in the online environment, highs, lows, challenges, what was helpful, what was not, and suggestions for change.

Data analysis was undertaken in a number of stages. At the time of writing, the survey data had been analysed for frequency counts. Interviews were coded by identifying themes from the data, such as perception of value of discussion, uses of discussion, strategies for engagement, support provided by peers and lecturer, structure, and assessment. Memos were written against each code. This process highlighted the need for a set of

Figure 2
Map of Dialogical Inquiry



heuristics to use for analysing the postings. Two cuts of data from the postings from four different activities were taken. The first was a phenomenological analysis of four different activities to explore the journey of the students. The four different activities represent a range of different types of activities requiring online posts: one about week four in the semester (different perspectives), one about week five/six (everyday learning), another activity about week nine (conflict case study), and the final activity (my emerging philosophy of teaching and learning) in the last week of the 13 week semester. These four different activities were selected from a total of 15 activities. The four activities selected represent a range of different types of activity and are spread across the semester to allow for the growth of group dynamics and confidence in using the technology.

The heuristic device was developed as a result of the first cut of analysis undertaken by the author of *Aspects of scientific inquiry* (Stack, 2007). The heuristic device, which we have called a *Map of dialogical inquiry* (see Figure 2), has the following aspects of dialogical inquiry: analysing, theorising, imagining, reflecting, relating, experiencing, procedural and applying. As can be seen from Figure 2, the map is very similar to the *Aspects of scientific inquiry* (Figure 1). However, each aspect was nuanced through a process of interaction between the analysis of the postings and intent of the unit, and "completing" was replaced by "procedural." Text analysis was used to plot postings

against *The Map*. Each post was analysed for evidence of one or more aspects of dialogical inquiry, using the explanations on *The Map* in Figure 2 to identify the different aspects. One post may have multiple aspects, as shown in Table 2.

A limitation of *The Map* is that it is a device for analysing dialogical inquiry without the power to acknowledge the context in which the dialogue is taking place. For example, the limitations of Blackboard and its affordances need to be acknowledged separately from the use of *The Map*. Institutional policy for design

Table 1
Selected Survey Responses

Survey statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Skipped Response	Total responses
I am comfortable volunteering my opinion and asking questions in the online environment	13.9% (5)	11.1% (4)	13.9% (5)	44.4% (16)	16.7% (6)	(2)	36
I feel uncomfortable responding to a student when I think they know more then me	8.3% (3)	25% (9)	25% (9)	36.1% (13)	5.6% (2)	(2)	36
If I disagree with a student I will make a posting giving my opinion	2.8% (1)	19.4% (7)	36.1% (13)	41.7% (15)	0% (0)	(2)	36
If I disagree with the lecturer I will make a posting giving my opinion	8.3% (3)	11.1% (4)	44.4% (16)	33.3% (12)	2.8% (1)	(2)	36
Often I do not understand what is expected of me in the online learning environment	0% (0)	44.4% (16)	25% (9)	25% (9)	5.6% (2)	(2)	36
I am worried that when I make a posting others may think I do not understand what is being discussed	11.1% (4)	33.3% (12)	19.4% (7)	25% (9)	11.1% (4)	(2)	36

processes and support for students and designers are also not implicitly captured within *The Map*. The facilitator/designer referred to in the findings section is the author. As a result of undertaking this study, a cycle of action research was entered into by the author. Unfortunately circumstances did not allow for collection of data on the changes implemented as a result of the research.

Findings

This section begins by providing selected findings from the survey relevant to the purpose of this article, then analyses the number of posts against each of the four activities. Each activity is further analysed using data from the postings under separate sub-headings, making reference to Table 3, which provides numerical data on the number of responses against aspects of dialogical inquiry.

Survey items most relevant to the purpose of this article have been collated in Table 1. Although the numbers are small, they are indicative of the cohort of the whole course, including those in the first unit. Most students (61.1%) are comfortable giving their opinion and asking questions, yet the lesser percentage of those not comfortable doing this is large (38.9%). What this item does not tell us is what type of questions students are comfortable asking, such as clarifying questions or questions that challenge.

Less clear is whether students are comfortable responding to their peers when they perceive they know more than them. A significant minority indicated they were uncomfortable (41.6%), with 33.3% indicating they were comfortable and 24% indicating they were not sure. This suggests that many of these learners feel uncomfortable when their peers appear to know more than them. It is likely therefore that these learners are less likely to challenge or manage difference.

The high percentage of learners who responded ‘not sure’ to the items asking if they disagree with a peer (36.1%) or their lecturer (44.4%) indicates that learners are perhaps not often required to engage in debate and argument where disagreement is part of the process of exchange. Alternatively, learners may consider “disagree” or “agree” to be inadequate to describe their processes.

The last two items in Table 1 relate to learners’ levels of confidence. There are significant percentages of learners in the course cohort who do not understand what is expected of them (55.6% included in this aggregation is the ‘not sure’ responses) and are worried that others will think they do not understand what is being discussed (54.5% included in this aggregation is the ‘not sure’ responses). This suggests that the design of online learning environments for a cohort that is returning to

study after many years and for whom the online environment is new requires consideration of clarity, support structures (including peer support structures), and reassurance and encouragement. Interestingly, student unit evaluations administered at the end of semester across the course indicate a high level of satisfaction, including the unit evaluation of the author. This suggests that the survey has captured aspects of the learners' journey.

Also of interest is the survey response to the question about the importance of the following components for learners when they were approaching a

Table 2
Number of Posts and Turns in the Selected Activities

Post	Total Number	Number of Turns (Posts Within a Thread) 1 Turn	2 Turns	3 Turns	4 Turns	5 Turns	6 Turns
Different perspectives	33	5	4	-	5	-	-
Everyday learning	46	4	6	4	3	-	1
Conflict case study	34	9	5	2	1	1	-
My emerging philosophy	16	2	-	1	-	1	1

Table 3
Student Responses

Aspect of Inquiry	Number of Student Responses: Different Perspectives	Everyday Learning	Conflict Case Study	My Emerging Philosophy of Teaching & Learning	Total
Analysing	6	6	16	2	30
Theorising	3	9	9	1	22
Imagining	9	6	7	2	24
Reflecting	3	7	1	10	21
Relating	27	43	21	19	110
Experiencing	-	-	5	2	7
Procedural	55	10	6	4	75
Applying	2	2	50	3	57
Total	105	83	115	43	346

formal assessment task. Figures in brackets indicate percentage of respondents who considered the resources provided important when preparing their assessment item.

- Learning module (94.4%)
- The readings (97.2%)
- The lecturer (83.3%).

The "learning module" and "the readings" encapsulate the end result of the design process; the "importance of the lecturer" embodies the way in which learning in the unit is facilitated. This will be discussed further into the paper.

It is interesting to consider the survey responses in the light of the number of posts in the four selected activities in one unit (as opposed to the course, as for Table 1). Table 2 presents the number of turns for each of the four activities (a turn is a message and any replies). For example, one turn indicates that no-one replied to that message; three turns indicates there was a post, and two replies. The total number of posts in this unit was 770 and there were 20 students in the unit. The extent to which the number of posts and turns resulted in dialogical inquiry is discussed below.

The 'Everyday learning' activity elicited most turns; it was this activity that asked learners to exchange anecdotes or personal accounts of their experience. 'My emerging philosophy' elicited only 16 turns. This activity took place in the last week of the semester, when students were busy writing assignments and had for the most part already met their obligations for assessment of their online participation. This activity was not clearly linked into the building of knowledge and understanding that would then feed into an assessment.

The following section analyzes posts from each of the four activities: Different perspectives on learning, Everyday learning, Conflict case study, and My emerging philosophy. These posts are discussed in chronological order in which they were undertaken by learners across the 13 week semester. Each of the activities was analyzed numerically, coding posts under the appropriate aspect of *The Map* (see Table 3). The responses are greater than the number of turns shown in Table 2, as many posts showed evidence of multiple aspects of *The Map*. This numerical data will be referred to under the discussion of each activity.

Different Perspectives on Learning

In this thread, where students were asked what is similar and what is different between three different perspectives of learning, students are making meaning of the readings that have provided them with behaviourist and cognitive views of learning and a more critical perspective of traditional notions of learning.

All students summarised, picking out what was meaningful to them in the readings. Many began with the words, "What is similar and what is different …" As indicated in Table 3, the single most used aspect of dialogical inquiry was procedural, accounting for 55 responses, followed by relating with 27 responses. Learners were following instructions and categorising; in most instances learners were not going beyond identifying the differences and similarities. There was no comment or opinion offered. These learners were doing what was asked of them. In addition, they were relating to each other, learning more about each other in their early time together in this unit.

A small number of students, however, did make observations and connections. For example:

- As I am currently teaching within the boundaries of a training package and using tools, which have been prepared previously, I have been thinking about which style of learning this falls under. Behaviourism is strongly represented I believe but certainly not all of it. I guess this comes back to having flexibility to cater to all styles of learning and being able to recognise that there may be another way of doing things. Keeping our minds open to this and to be able to recognise the needs is something that I am sure will come with practise. *(aspect of inquiry: reflective voice, speculating about how to categorise)*
- Terms I would associate with the role of facilitator would be directs, organises, challenges, formulates, structures, scaffolds, monitors, interacts, plans, assesses, models and most importantly learns. I guess we model learning by being learners and modelling learning skills. Every interaction we facilitate is also something by which we learn. … We must be aware of the development of the learner to further it, to encourage responsibility for one's leaning, hence the importance of teaching with developmental intentions (Taylor, Marienau, & Fiddler, 2000). (*aspect of inquiry: seeking to understand by using the model from Taylor et al 2000 to explain why)*
- The views on Engestrom (1994), Eggen and Kauchak (1996) challenge us as educators to consider the following points: Are our roles Facilitators or Lecturers? *(aspect of inquiry: analysis; asks question for analysis and sets challenge for deconstruction)*

Unfortunately, these uses of other aspects of *The Map*, making connections and deeper inquiry, were the exception, not the norm, in this activity. Another notable feature of this activity was that although students were making many similar responses, they were acknowledging the posts of others in a very limited way. It would appear there was no point or purpose of connection between them. Students interpreted the task as an individual one of making meaning and putting it 'out there.'

The unit facilitator rarely invited learners to extend their thinking, looking mainly for responses to the question asked and providing positive reinforcement.

Everyday Learning

Having undertaken some reading about socio-cultural perspectives of learning, which understand that we learn through everyday activity and that the context we are in mediates that learning, students were asked to provide an example of learning as an everyday activity. For some students, the concept of learning through everyday activity was new. Responses ranged from giving personal family experience, examples from work, learning as a parent, cultural experiences overseas, and learning to catch a train. In many posts these anecdotes were not explicitly linked to the theory in an exploratory way; that is, the anecdotes did not move beyond examples of everyday learning. The anecdotal nature of these posts and exchanges between learners placed many responses under the relating (n=43) aspect of dialogical inquiry.

However, there was some evidence of students appreciating the contextual and temporal nature of everyday learning. For example, one student used big picture thinking (reflecting) when asking, "How much does the social economic culture we come from affect the way we learn, the learning style we use, and what we learn." Four students shared very personal stories, using the language of self-disclosure. One such student theorised at the end of his story:

> It is impossible not to be always present in this learning environment, with so many opportunities for development should we be receptive enough to engage them. Simply by living and moving within

> a society, we are constantly immersed in a context for social learning.

This post was followed by a response from a fellow student, acknowledging the self-disclosure, an example of relating typical of the many relating posts in this unit:

> This is a really interesting post. You have a remarkable self awareness and a fabulous ability to articulate, you paint great pictures with your words, there's a nice honesty in your writing; it makes for a good connection.

What the facilitator had seen at the time she was facilitating were the number of posts, evidence of exchange between learners and the sense that learners had understood their introduction to socio-cultural theory. She typically provided positive reinforcement, was confirming, would restate the essence of the example and its relation to the theory, and in a number of posts posed questions to prompt further thought, but she did not do this consistently. What she seemed to be valuing was the exchange of stories /anecdotes and connection to the theory rather than additional aspects such as reflection on and analysis of the theoretical perspective under discussion. Interestingly, despite this activity having the highest number of posts (see Table 2), there were fewer responses as shown in Table 3. The responses were more consistently in one aspect of *The Map*, perhaps because of the nature of the exchange of stories and anecdotes.

Conflict Case Study

In the conflict case study, students were asked what they would 'do,' how they would respond as a teacher and as a learner to a classroom scenario where a racist remark had been made by a student called John. Suggestions included: establishing ground rules, splitting the group, organising a break immediately to create space to talk quietly and separately to each party, suggesting the 'offender' be asked to apologize, using the 'event' as a teachable moment, and ideas for follow up activities to develop cultural awareness and celebrate diversity. These are examples of applying as described in *The Map*.

The language used varied considerably in this discussion thread, with greater variation in types of responses (see Table 3) despite the number of responses being coded as proportionately *less* than in the other three activities. There was also evidence of students responding to each others' posts and following the discussion trails (see number of turns in Table 2) to a greater extent than in the other three activities. The nature of 'relating,' expressing opinions and building meaning with others, had greater depth, more so than in the other three activities. This was typified by comments such as:

- I agree with [name of fellow student] about not embarrassing John (name of perpetrator in the case study) but being firm and making a stand
- I considered the suggestion of others of delivering a discussion on discrimination… but on further reflection,… again I think this would only …
- I have to agree with you about …
- I agree that …. and … I would not necessarily get into the situation of …
- A very good point …

A number of students used the language of 'doing' – 'what I would do' – without exploring the issue any further. These responses used assertive language and labelling such as referring to John – the perpetrator in the case study – as a "bully." These learners were operating strongly in the "applying" aspect of *The Map*. However, quite a number of students moved beyond this immediate response and beyond the labelling (see Table 3) by hypothesising about John's background, imagining the experience, and discussing why some of the proposed approaches may not work by projecting possible outcomes and implications. There was also a challenge to the idea of labelling and needing to be aware of stereotyping. The quote below from one student typifies the thinking about various conditions that can mediate possibilities for responses to the conflict scenario:

> Conflict can be handled with both a proactive and reactive approach. It is also very situational – often depending on relationship between teacher and students and within the student body. Ease of handling this situation can also be dependent upon what phase the group has reached (formal, informal or self managed). Consider the following: Teachers introduction 'sets the scene', use body language to give important non-verbal communications, emphasize respect – acknowledge everyone is

> 'different' however basic human rights can override this. Encourage free thinking and freedom of speech but emphasise what is morally or accepted in the eyes of the law. Highlight dangers associated with generalisation / stereotyping. Relate it into the topic and gather ideas. Peer viewpoint often will support the Teacher's viewpoint. One on one discussions in a break / Call break if needed Empathy – try to understand where each is coming from' If possible or appropriate, link in humour e.g. 'walk a mile in their shoes - and if nothing else at least you have their shoes.' Follow up – this type of situation is not just forgotten after class. "To neither suppress our feelings nor be caught by them, but to understand them-that is the art."(Jack Kornfield) "They may forget what you said, but they will never forget how you made them feel." (Carl W. Buechner)

What is interesting about this quote and other similar posts is the consideration of a range of factors, from stage of group development, relationship between students and lecturer, the implicit need for empathy, a strong moral stance, and the use of simile. However, there is no evidence of analysing the conflict case study to identify the issues (remember learners were not asked to 'do' this), and although it is tempting to identify the post as including an imaginative aspect of dialogical inquiry, the post is written in an authorative voice and as though from experience (this learner was experienced in handling conflict from a position of authority), suggesting that the learner is using experience to apply theory and put forward solutions. But, what is the problem the solutions are addressing?

Another student in the unit noted the age of John, the person in the case study who made the remark (60 years). This student postulated about the values John would have grown up with and related relevant historical events and policies of the time. The same student also stepped into the shoes of 'Joanna,' the Aboriginal student, commenting that the moments following John's remarks would have seemed "like an eternity." This was a reflective post that also showed that this student was relating strongly to the characters in the scenario, relating to other ways of knowing and the experiences of others.

Students challenged each other, for example: "Do you think you are being slightly too aggressive with John? He might not respond in the way you desire if you speak to him so directly." The response to this challenge was to clarify intent and meaning. Other students picked up this discussion, agreeing or disagreeing and explaining why. At this point, particular strategies were unpacked and the impact of these strategies explored. For example, "Splitting the group may have had the effect of saying their group and our group," and "I can't think of any positives of splitting the group, as [name of student] states it would put a spotlight on Joanna," and

> Speaking from personal experience, coming from a different cultural background, it would have made matters worst by splitting Joanna and others into groups. This will throw a spotlight to the class that there are differences between the groups. We have to learn to live with diversity and accept our cultural difference.

The extent of discussion resulted in one student changing her mind from her first post after considering the various viewpoints and ideas put forward. Unlike the previous two activities, the language in this activity was conversational, there were no formal academic posts using references; rather, there was evidence of exchange and working through issues in a very conversational way. Students were feeling much more comfortable to challenge each other and put forward different viewpoints, to postulate, to explore alternatives and weigh these up. They were deconstructing arguments, suggestions and discussing the advantages and disadvantages of various proposals. This can partly be explained by the timing of the activity two thirds of the way through the semester. However, this is only a partial explanation; what was it about this activity that led to a greater range of the aspects of dialogical inquiry and had learners prepared to challenge and respond to each other much more than in the other activities? This will be addressed under the section 'Mediating factors.'

My Philosophy of Teaching and Learning

This activity was initiated by the facilitator modelling the type of response required by telling a story of an event that had led her to question some of her assumptions.

> I had cause to reflect on my teaching today as I watched some second year [pre-service teacher education] students give their group presentation for an hour. They did a fantastic job, incredibly well planned. I was wondering why they did not draw out and emphasise what was important in the discussions they initiated - and there were great discussions. I had thought of this as a point of

> weakness. I had not been part of the group work, as I was observing in order to give feedback and assess, and did not get to see a number of their activity sheets. When I asked them at the end if they thought they met their objectives, they supported their claim of yes by showing me, on my request, their activities as the students had experienced them. This group of student teachers were working on the basis of providing an experience and then providing an opportunity to think/talk about it. They did this about three-four times, building in depth and complexity each time and culminating with a jigsaw activity (where you have an expert group, then each expert group is dispersed into a different group and everyone teaches everyone else). I realised that I have increasingly been moving over the years to enjoy the power of being the one who pulls ideas together, and that in so doing I rob learners of the opportunity to think deeply for themselves …

This set the scene for this thread. Although the thread had far fewer posts than others (it was the last thread for the year and was when assessments were due), learners who did post either reflected on the unit and their 'take aways' or applied the learning from the unit to ponder their role as teacher, and how they had, prior to undertaking the unit, taught in certain ways without question. Others picked up specific points about technique and reflected on these. Examples of phrases used by students include:

- I too have had a chance to reflect on my teaching over the past semester. …
- Thanks for your reflections...I enjoyed the insight.
- I need to turn off the informative brain, and watch them [her learners] a lot more, and find out where they are at! Its all good though, I tell anyone who is new to teaching that you learn tremendous things about yourself, and it is such an amazing journey of self discovery, rediscovery of the amazing traits of other …

As expected and hoped for, quite a number of responses ((n=10) see Table 3) from those who participated in this activity did reflect on their teaching. However there was also a predominance of relating (n=19). Given that it is no easy task to critically reflect and uncover assumptions and that there was limited participation in this activity, the facilitator reported that she was more than happy with the responses. As indicated previously, the limited number of responses can be explained by the timing of the activity in the last week of semester. However, if reflecting was an important outcome for learners in the unit, then the timing of such an activity would need to be considered carefully and integrated into other activities, thus building the skills of reflection.

Discussion

Although there was movement across the different types of inquiry in each activity, each activity strongly privileged one aspect of inquiry. In *everyday learning*, most posts were in the "relating" aspect: feelings, sharing a personal experience, relating to another respondent, and positively reinforcing the posts of another or others. The *conflict case study* saw most postings focus mainly on the "applying" aspect of dialogic inquiry. When you consider that the question asked of them was "What would you 'do' and say as a teacher and as a student?" this is not surprising. Typically students would say what they would do, predict what might happen, and look at the implications of actions. However, it is also interesting that "relating" and "analysing" received significant posts, although less than half the posts than did "applying." In "analysing," students would critique, infer, discuss variables, and /or weigh options. In "relating," students would agree with another response, provide positive reinforcement to others, expand on the meaning of a post, ask a question to help another expand their thoughts, and express their own opinion.

Table 3 shows that, across the four different activities, the "relating" aspect scored highly, indicating a strong sense of community and support. Notably though in the *case study*, there was evidence that some learners moved from building relationships with each other, as in the previous two activities, to greater meaning making with others through more robust expression of opinions and values.

Across the four activities, "procedural" and "applying" also scored relatively highly. If we look at where these aspects fall on *The Map*, we see that they are in the lower half. The design on the four activities analysed in this article show there was limited activity in the upper half of *The Map:* "theorising," "imagining," "analysing," and "reflecting." So why was it that the lower half of *The Map* was over represented and the higher order thinking and inquiry processes

were under represented? Below I propose that the answer to this question lies, at least in part, in the dynamic mediation between learning, design, and facilitation.

Mediating Factors

Salmon (2003, p.42) suggests the setting of challenges or issues or problems that need to be made sense of, that weaving posts by analysing posts and feeding back to students your analysis and relating the contributions explicitly to concepts and theories are useful in moving students into knowledge construction. She further suggests that to move students from knowledge construction to development, students need to be given considerable control over their learning. Rather than picking up and applying these strategies without further thought, it is important to unpack what is implied, what the likely outcomes are, and what you really want for and from students.

Wegerif (2007, p.18) claims that:

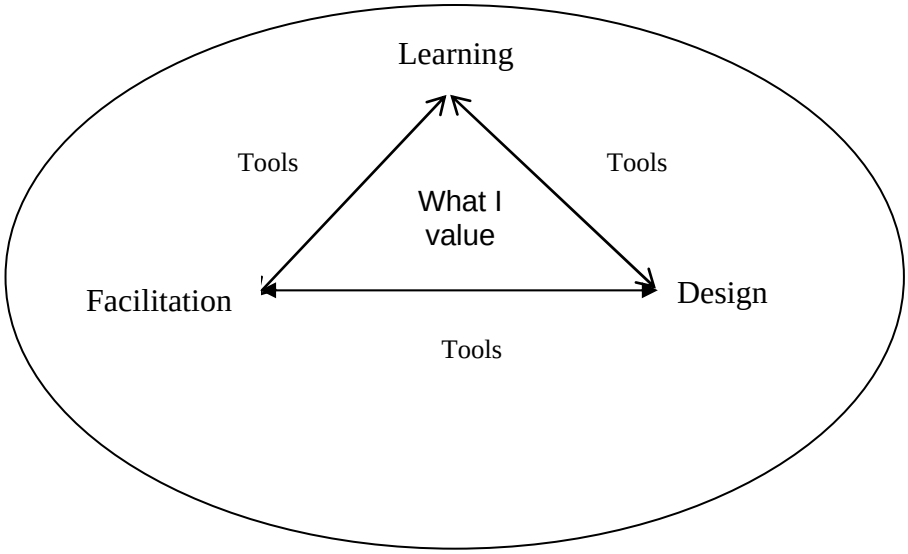
> When people understand or 'know' something they do so dynamically in a communicative act that carves out one meaning from a field of competing possible meanings- a field of alternatives that does not exist ready-made but itself is generated by the dialogue.

The *Map of dialogic inquiry* is so called because it represents a valuing of dialogue and multiple perspectives to create meaning. Bakhtin (1986) highlights the preserving of 'otherness,' or difference. This valuing of difference results in dialogic as a difference or gap or opening without which there would be no meaning (Wegerif, 2007, p.24). Dialogue requires a 'space' in which we make meaning (see Bakhtin, 1986). Online spaces are created first by the design of the dialogic activity, by the meaning learners make of this 'space' and by the ways in which we facilitate that space.

What we (as designers of online learning experiences) value implicitly informs our design of learning. How we design and facilitate online creates possibilities for students in their identification of difference, providing opportunities and structures for dialogue in all or most of its aspects, or not. Design and facilitation are closely interconnected, mediating possibilities and constraints by structuring the 'space' and the exchange for dialogical inquiry and thus deeper or shallower learning. What and how we design and facilitate will determine what the possibilities are for deep learning, as indicated in Figure 3.

In this case study, the facilitator explicitly valued the exchange itself rather than the nature of the dialogue, or 'meaning making.' Her design of the 'space' for meaning making limited opportunities for dialogical inquiry and thus the potential for deeper learning. For example, the everyday learning activity resulted in extensive exchanges of personal experiences. There was no point of difference for

Figure 3
Mediating Factors of Online Learning



students to move into to extend their thinking or dialogue into different 'spaces' such as theorising, imagining, and reflecting. While the exchange of stories is an obvious starting point, a structured series of questions, for example, could have taken learners beyond this exchange. In the case study when learners were asked, "what would you 'do'?" they were being pushed into the 'applying' aspect. Yet the case study of all the activities resulted in a greater use of different aspects of dialogical inquiry than the other three activities. This is testimony to the well established power of the use of challenge and the setting of problems for learners that is implicit in a case study. However, the design of the case study will play a significant role in the depth of learning.

The tools used to design the learning included, amongst others, the Blackboard interface and teaching and learning strategies. Part of design is working with the tools we are given access to and being aware of their strengths and limitations. This is necessary, as often the tools we are working with are outside of our control; they are institutional decisions we work with everyday. The Blackboard interface creates a very linear exchange, unlike a Wiki, which allows opportunities for much more collaborative exchange and creation of collaboratively developed products. The asynchronous nature of online exchange is also problematic. Simple communication issues you might address immediately in a face-to-face setting, such as puzzled looks when an instruction is given, can take days to clarify in the online environment. So when designing for online environments, it becomes necessary to be very clear what the intent of the learning activity is and to be unambiguous about instructions and processes. Thus, the tools we design with mediate our design decisions.

Figure 3 illustrates the relationships between what we value (e.g. critical debate, uncovering of assumptions, evidence of exchange, etc.), design, and facilitation, which lead to what is learned and how it is learned. The tools we use and work with also play an important role, consciously or unconsciously.

The author has applied her model in a redesign of the unit. For example, she identified her intent and what she valued in relation to the *conflict case study* activity, namely to encourage learners to identify and name the problem, explicitly link theory and practice, and reflect on similar situations they have experienced, either as a learner or a teacher. Given this intent, design decisions in the conflict case study were to first ask learners, "What is happening here?" "What are the dilemmas for all those involved?" and then to ask, "How might we address the dilemmas?" To facilitate this would require, for example, summarising the learning points and

inviting learners to explore the link between their responses; knowing how they deal with and identify a number of approaches suggested by learners; and asking about the ways in which these relate to particular theories. In this example, the design and facilitation deliberately invites learners to move across "procedural," "analysing," "applying," "relating," "reflecting," and "theorising" aspects of dialogical inquiry. These multiple aspects of dialogical inquiry provide learners with tools for becoming deeply reflective practitioners. In the redesign of the unit, the facilitator further strengthened these aspects by introducing learners to *The Map* and designing activities to develop metacognition.

Conclusion

There is a dynamic interaction among design, facilitation, what we value, the tools associated with each of these processes, and student learning. The importance of design cannot be stressed enough. As Ziegler et al (2006) note, design sets up implicit norms; designers need to clarify what 'norms' they wish to establish. To encourage dialogical thinking across aspects of *The Map*, students first need to feel safe and to trust the lecturer and others in the group; they require support from lecturer and peers. The design of specific activities, along with the overall design of the unit and resources, was considered by students in this study as being very important, as evidenced in the survey response to the question about the importance of the learning module (94.4%), the readings (97.2%), and the lecturer (83.3%). The findings of this study suggest that identifying what we value as designers and facilitators, both at a macro level of the unit and micro level of specific activities, is an important starting point in our design and facilitation processes. This principle is one that would apply to all discipline fields, not just education. The findings from this study also suggest that *The Map of Dialogic Inquiry* is a valuable device to explore ways in which quality online dialogue can be developed and to analyse the extent to which this dialogue is developed. 'Quality' online dialogue is moving into a space for meaning making, for identifying, and making sense of difference.

Wegerif (2007, p.55) notes that "thinking can be taught by improving the quality of dialogues." *The Map* explicates multiple aspects of dialogic inquiry. It can be used as a tool for analysing dialogue or the extent of movement across *The Map* by learners and facilitator, and it is also a tool to use when designing and facilitating online learning. Facilitators of online learning can extend their students' movement across *The Map* by designing and facilitating for dialogical inquiry rather than leaving students remaining at their point of entry in the dialogical inquiry process.

The Map is a powerful tool for assisting designers and facilitators of online learning and also has the capacity to develop metacognitive skills for all who use it. There is also potential to use it to check for, identify, and build developmental intentions across whole courses.

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