LEARNER, TEACHER AND CONTENT INTERACTIONS ONLINE:

A Research Evaluation of Cross-institutional, Multi-disciplinary Distance Education

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LEARNER, TEACHER AND CONTENT INTERACTIONS ONLINE:

A Research Evaluation of Cross-institutional, Multi-disciplinary Distance Education

PROJECT REPORT
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Acronyms and Abbreviations

CQU: University of Southern Queensland  
DEEWR: Department of Education, Employment and Workplace Relations  
DEHub: the Distance Education Hub  
ICST: Information, Communication and Surveillance Technologies  
LMS: Learning Management System  
USQ: Central Queensland University

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EXECUTIVE SUMMARY

Introduction

The research evaluation reported here focuses on the Distance Education Hub (DEHub) Project entitled “Learning interactions: A cross-institutional multi-disciplinary analysis of learner-learner and learner-teacher and learner-content interactions in online learning contexts” (herein referred to as the DEHub Project).

Method

The sequencing of evaluating each of the Project’s outcomes accords with accounts of the Project’s trajectory, namely:

1. Collaborative research partnership
2. Critical review of course designs
3. Explanatory conceptual model of online teaching-learning interactions and knowledge construction
4. A set of evidence-based curriculum development and delivery guidelines
5. Scholarly outputs

Collaborative research partnership

This is a learning journey where the team members have engaged in a process of arguing around alternatives, shifting perspectives, refining the research methods and conceptual models. Epistemologically, scholarly argumentation and rational disagreement are methodological techniques central to any research project. In other words, the exhausting, intellectually engaging work of research choreographs arguments and rational disagreements which are constructed through the collection and analysis of evidence and counter-evidence to generate original knowledge that explains and justifies claims about complex educational phenomenon. Methodologically, argumentation is integral to the rational production of research-based knowledge. That reflexivity, critical reasoning and rational disagreement are crucial to the conduct of research means it deserves a central place in research project management.

Critical review of course designs

Key elements of this DEHub Project might usefully inform and thereby improve online learning and teaching, especially learning analytics if these were connected with course leaders, so that they can work with academics who interact with students and adapt the courses. Learning analytics information grounded in specific courses can provide academics and students with evidence to use in the complexities of their educational decision-making. Academic and students interactions via web-based learning environments are among the many factors in the scholarly arguments and managerial press to improve learning and teaching.
Explanatory conceptual model of online teaching-learning interactions and knowledge construction

A holistic interpretation is provided by the dirigible model of online interactions. The concept of “dirigibles” is used to conceptualise the LMSs as a learning platform. The metaphor of “dirigibles” is organized into a systematic model that provides a clear and intricate series of categories. This model offers novel concepts of “skeletal rigidity”, “impermeable membranes”, “volatile gaseous variability”, “gondola windows”, “institutional tethering” and “institutionalised entrance and egress points”. The use of the “dirigible” is more than a replacement of words with an image. It persuades us to think of the online learning environment in terms of the constructed implications associated with old-time airships. What is significant is that it gives us something to view mentally, something more familiar and tangible but filled with loaded suggestions for theorizing.

A set of evidence-based curriculum development and delivery guidelines

The challenge posed by leading-edge research that makes a substantive contribution to the production of original knowledge is that the data is used to re-think existing theoretical presumptions, and existing, explicitly stated theoretical frameworks are reconstituted through the data. Much leading-edge creative research in distance education using qualitative methods of data collection and analysis argues within and against mechanistic coding, data reduction and the theoretical pigeon-holing of evidentiary excerpts. Such closed, fixed modes of qualitative research do little to advance the critiques needed for thoughtful and informed innovations. They do even less to explore the complexities at stake in distance education. Closed, fixed modes of research preclude the multidimensional treatment of dense data sets. In contrast, cutting-edge research pushes research, data and theory to their limits within the available timeframe in order to make a substantive contribution to the production of new knowledge.

Scholarly outputs

It is timely and appropriate for the project leaders, Professors Harreveld and Danaher to consider disseminating the DEHub Project’s original findings which this evaluation found relate to:

1. Digital higher education at our finger tips.

2. Building digital communities of practice into teaching and learning: Sustaining intellectual engagement among students and academics.

3. Aligning institutional strategy for the use of learning analytics by academics in pedagogical innovations for improving teacher-learner and learner-learner interactions.

4. Developing cross-institutional partnership management to strategically and effectively embed digital tools and ensure authentic learning given organizational restraints, divergent views and ethical issues.
5. Using the ‘dirigible’ model to create mechanisms to support increased digital literacies amongst students and academics within the constraints and opportunities of the LMS systems.

6. Implementing appropriate governance frameworks that account for the contextual, intervening and interactive conditions for embedding online learning networks and course-based learning environments in program delivery.

7. Using learning analytics to measure the success of, and develop guidelines for curriculum delivery and learner interactions through mobile and social media.

8. The digital future of the academic workforce: Preparing for the changes

9. Embedding collaboration, scholarly argumentation and rational disagreement for changing models of course development, online learning networks and course-based learning environments

10. Developing and implementing high quality approaches to researching and evaluating digital higher education
1. LEARNER, TEACHER AND CONTENT INTERACTIONS ONLINE

The research evaluation reported here focuses on the Distance Education Hub (DEHub) Project entitled “Learning interactions: A cross-institutional multi-disciplinary analysis of learner-learner and learner-teacher and learner-content interactions in online learning contexts” (herein referred to as the DEHub Project).

The overarching purposes of the DEHub Project were to:

a) conduct a systematic enquiry into the technologically mediated interactions of online course delivery; and
b) construct understandings of and insights into the central relationship of education – teaching and learning.

In terms of priorities this DEHub Project addressed “interaction and communication in learning communities” as these relate to “curriculum design” and “professional development and faculty support”. In addition, this DEHub Project also worked to contribute to orthodox research and development approach by exploring research methodologies appropriate for investigating distance learning.

This DEHub Project’s beneficiaries were conceived as end-users. The key expected end-users for this DEHub Project include those in universities requiring “benchmark information” and “indicators” about students’ learning engagement within online courses. The Project’s end-users also include those who can best improve learning through their engagement in it, namely students and academics, with the latter including course coordinators, lecturers, tutors, markers, and specialist course designers. In relation to the issue of how learners interact in online courses, the main question addressed by this DEHub Project was: what are the patterns, processes and consequences of learner-learner, learner-teacher and learner-content interaction in online contexts?

The intellectual context for this particular DEHub Project was the use of academic analytics to examine academics and students’ teaching/learning engagement within online courses. This is part of the use of learning management systems (LMS) to provide universities with benchmark information and an indicator of student engagement within online courses. The processes of and relationship between learner-learner interactions and knowledge construction have been studied within online courses.

The Research Proposal for this particular DEHub Project explicitly stated:

“The project will achieve the following outcomes:
- A critical review of course designs that are both conducive to and effective for teaching and learning in online university courses.
- A conceptual model to illustrate and explain the role of teaching-learning relationships in online interactions and knowledge construction in university courses.
- A set of evidence-based curriculum development and delivery guidelines that will enhance online teaching-learning relationships in online university courses.
- A collaborative research partnership between CQU and USQ.
- Scholarly outputs that will contribute positively to the research and publication quantum of both institutions and the DEHub consortium”(Research Proposal, 2011, p.3).

The Research Proposal (2011) stated that the project will achieve all of these outcomes between February 2011 and June 2012. It is always useful for all members of a research project team to be fully aware what the expected outcomes of their study are, and to have these as a key focus throughout the project.
2. METHODOLOGICAL ORIENTATION TO RESEARCH EVALUATION

This research evaluation was conducted in response to an invitation from Professors Patrick Danaher (University of Southern Queensland) and Roberta Harreveld (Central Queensland University) made on Saturday, 7 May 2011. These two Universities conducted a joint-venture project entitled, “Learning interactions: A cross-institutional multi-disciplinary analysis of learner-learner and learner-teacher and learner-content interactions in online learning contexts.” This research evaluation which commenced in May 2011 and concluded in July 2012 was funded by Department of Education, Employment and Workplace Relations (DEEWR) through the DEHub Consortium (http://www.dehub.edu.au/).

The research evaluators spent up to 10 days in preparation of the research evaluation plan, consultation with project managers and project team, collating and reviewing relevant evidence provided by the team, and writing this research evaluation report. The research evaluation entailed one visit to the Toowoomba Campus of USQ and one to the Rockhampton Campus of CQU. Data collected include semi-structured focused interviews with individuals and groups.

The core outcomes described in the DEHub Project proposal were a critical review of course designs (not a critical literature review); the production of an explanatory conceptual model and a set of evidence-based curriculum development and delivery guidelines. This DEHub Project proposal expressed the “will to achieve” an “explanatory model” of the relationship among course design, academics, students, content interactions and student learning in online courses. This “explanatory model” was expected to elaborate on the patterns, processes and consequences of these different types of interactions in online teaching/learning contexts. This model was then to achieve the establishment of a set of guidelines identifying conditions conducive to these interactions and “effective learning” in online courses. Both the “explanatory model” and guidelines are expected to be use by CQU and USQ to enhance the design of online courses, the learning and teaching experience of students and academics, and the learning outcomes of online, distance education. Dissemination of this DEHub Project’s results is meant to benefit the Australian and international higher education community. The research and teaching relationships formed during this collaborative DEHub Project promise to lead to further opportunities for research-based knowledge production in this field.

Our method of evaluation focused on the project development as a learning journey for all the project team members, in particular the issues, problems and concerns they have to handle in the process of developing a cross-institutional and cross-disciplinary and multi-method research partnership. Respectful, evidence-based data analysis highlights the team members’ own interpretations of these issues, problems and concerns. Descriptive coding and open coding were used in the first stage to analyse interviews and documents, in
particular the interim project report and the final project report. The second stage of analysis as presented in this report focuses on evidence related to each of the projected outcomes. The third stage of analysis compared the evaluations of the interim and final project outcomes. The fourth stage provided a meta-analysis of a learning journey where the team members have engaged in a process of arguing around alternatives, shifting perspectives, refining the research methods and conceptual models. However, the sequencing of evaluating each of the Project’s outcomes in Part 3 of this report accords with accounts of the project’s general trajectory, namely:

3.1 Collaborative research partnership
3.2 Critical review of course designs
3.3 A set of evidence-based curriculum development and delivery guidelines
3.4 Explanatory conceptual model of online teaching-learning interactions and knowledge construction
3.5 Scholarly outputs
3. ANALYSIS OF DEHUB PROJECT’S OUTCOMES

3.1 Collaborative research partnership

The DEHub Project research proposal (2011) expressed the “will to achieve” a collaborative research partnership between CQU and USQ. The research and teaching relationships formed during this collaborative Project was expected to lead to further opportunities for research-based knowledge production in this field. In their effort to establish and build a collaborative research partnership as such, the members of this DEHub project benefited from the intellectual diversity within the team. Meanwhile, the team members, especially the project leader, gained valuable leadership experiences and skills in the process of confronting challenges including: creativity of divergent views, cross-organizational restraints, research ethics, clarifying roles for team members, updating project progress, and time management. Through participating in this DEHub project, the team members embarked on a journey of intellectual engagement with each other, activating a collaborative learning community.

3.1.1 Intellectual diversity

Managing a team-based research project that runs across two universities requires a commitment to learning by all members, and especially team leaders. A project team which is multidisciplinary presents project members and leaders with a fortunate collision of intellectual diversity:

“The DEHub project team is of a multidisciplinary nature with intellectual diversity. It is a fortunate collision of IT skills and education knowledge – collectives of people having strong IT and education knowledge merging their skills. For the Education Development Unit to have strong IT skills is fortifying as IT skills are really handy for education.”

3.1.2 Creativity of divergent views

Project leadership requires attention to managing different views – creative and destructive tensions – among team members to capture what is illuminating and valuable. This means dealing with critique, counter-argument and counter-evidence in ways that are not reduced to ad hominem attacks:

“There are tensions – the process is both creative and destructive. This Project’s strength lies in emerging from a strong literature review which defines the field and its limitations. However, there are differences within the team; members have different views regarding the relationships between principles, models and issues. To date the process has just been a de facto stance of ‘agreeing to disagree’. Project leaders need to have...
dispositions to engage with rational disagreements. This is necessary, if all team members are to ‘buy into’ the Project. Leadership must move on from an individualistic approach to one’s own studies to re-conceptualize this Project as team-based.”

3.1.3 Cross-organisational constraints

While research teams from different universities may agree to collaborate, it does not follow that this agreement applies across the organizations:

“This has something to do with the misunderstanding of education and the ways organizations are structured. The reductionist model of organization puts people in silos and then tries to make cross-organizational connections. With analytics there is order at the macro level – the linear relationship between modal efforts and grades, complex adaptive system disorder at the micro level and order at the macro level, the way you make interventions at the level of students’ needs – need a range of solutions that change over time, by responding to and probing education complex adaptive system. Business intelligence units are really good at analytics, producing strategies for administrators and governance, showing program strategic data, not tactical data in time of need for academics – giving the other ranks to do their jobs.”

The demands of university administration for a project are central issues to be addressed by project leaders. One of the challenges of the DEHub Project was “the amount of administration; it is eye-opening how much of that there is.” This DEHUb Project benefitted from the generosity and goodwill on the part of team members:

“Besides the complexity between sharing data between institutions, the collaboration between certain members of the Project team or the two Universities has been excellent. Once we had the necessary permissions, the interactions were excellent. It would have been nice to share the ‘at risk’ data.”

Ownership of data proved problematic:

“There is also the ownership of information or extracted data – IT is a separate division to access the data within the university, let alone across universities. This leads to issues of legality of sharing USQ and CQU data.”

3.1.4 Research ethics

Issues of research ethics have to be carefully considered:
“One example is the ways in which the monitoring of students and the investigation of the classroom are conducted. The ethical aspects of such close investigation of students are open to questions. If we were subject to the same sort of scrutiny into classroom we would object to it.”

3.1.5 Clarifying roles for team members

Project members and leaders need to negotiate clearly defined roles, and frequently review and revise these as the study proceeds:

“The Project’s team members need to have clearly defined roles. Team members have volunteered for this Project, but all have different perceptions about the Project and their own role. It would have been good for the Project leaders to mobilize the steering committees, and to use them productively in a way to throw light on the Project for the team. This is the role of the chief Project investigators. The busy people on the steering committee are not going to knock on their door. It is very complex. If nothing is written down, and there is little discussion of what the Project entails.”

3.1.6 Updating project progress

Ensuring that team members know where the Project is up to and what they are meant to be doing are essential leadership considerations to be done forensically. During the interim evaluation, one of the team members said:

“I have no sense of where we are at since the preparation of the proposal. That is the last full document with which we engaged. I was not clear as to whether there was any updating of the literature, and whether that review was done forensically. Strangely, updating the literature is being done by employing two outsiders. Given the timeline, I now feel confident that we might have up-to-date material for chapter 2 literature.”

Leadership strategies are necessary to forming a team that has a shared focus, and for keeping team members on-task and up-to-date:

“Some team members are running to catch up with where the Project is supposed to be. It can’t be assumed that they all have the same starting point. There is a need to think about what strategies that could be used to bring team members up to speed, such as to sharing and discussing readings key to the Project. We are not as far along as we should be.”
3.1.7 Time management

Time management, and the work intensification produced by this study is a key issue for project leadership:

“There are organizational challenges such as the amount of time allocated to do this Project, which is zero. While I have a 20% research workload, I don’t actually get the time. Time is a major challenge in the Project.”

Team-based research requires project management skills to coordinate timelines. During the interim evaluation, one of the team members said:

“To analyse three courses has been challenging because it has been difficult to coordinate with timelines. Project managing can be achieved by three monthly reports regarding what is going on at the same time. We have only analysed learner interactions. We were supposed to be trying to analyse three dimensions across three courses across the two institutions and come up with the model(s) - to have a conceptual view about the different types of interactions. Project management is a process of keeping the timeline and the process of getting to the interpretation and recording. Conceptual analysis and understanding is a leadership challenge, but in necessary in order to make it clear to others, and to enable exchange of ideas and interpretations. It is a challenge to have to make conceptual determinations and have it all written. The time-frame is tight for all the tasks. I anticipated more time for conceptual thinking and modelling, but I feel that we had spent more time doing project management tasks. This is a very time-consuming task. Get money allocation for marking, we need to use time more intensely. We can’t just do a little bit a day.”

3.1.8 Collaborative learning community

This DEHub research project provided ample opportunities for proactive learning.

“Active intellectual engagement is where one takes ownership of one’s own learning, engaging in ‘take and give’, having to think about why. Actively engaging as a learning community – interacting with content, having to think about it apply your knowledge, respond to others informed comments, individual reflection on one’s own experiences, articulating that, questions and challenges come back to reflection, collective reflection sharing experiences and literature … self-awareness and awareness of others as part of transformational learning – being able to see one’s self through other people, seeing other people reflecting back to themselves.”
3.1.9 Collaborative research partnership: Comparative analysis of outcomes

The third stage of analysis involved a comparative evaluation of the interim and final project outcomes. Table 3.1 shows a summary of evidence of progress, interim and final evaluation results. It can be seen from the table that while a cross-institutional team of six researchers was formed prior to the beginning of the project, major progress in terms of developing and managing research partnership issues was achieved after the interim evaluation. Up until the interim evaluation, the team members had to deal with a range of problems concerning the collaborative research partnership. Not all the problems were resolved by the end of the project; however, the team members have achieved some valuable outcomes.
Table 3.1 Collaborative research partnership: Progress against projected outcome

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<thead>
<tr>
<th>Interim evaluation</th>
<th>Final evaluation</th>
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<tr>
<td>1. Project Tasks, Timelines and Responsibilities provided an overview of the positive evolution of the collaborative research partnership between CQU and USQ.</td>
<td>1. Six researchers across CQU and USQ lived a process of forming and managing a research partnership.</td>
</tr>
<tr>
<td>2. Evidence in this area focuses largely on matters of administration, less so on collaborative research project management.</td>
<td>2. Cross-institutional project team videoconferencing and face-to-face meeting generated notes and actions from all project team members.</td>
</tr>
<tr>
<td>3. The major lessons learnt are concerned with project management issues, especially team-building, communication and protocols for scholarly argumentation.</td>
<td>3. The project report writing process especially chapter 3-6, engages multiple perspectives and collaborative analysis.</td>
</tr>
<tr>
<td>4. Research collaboration involves considerable online file sharing</td>
<td>4. The partnership developed certain understandings of issues including: creativity of divergent views; cross-organizational restraints; research ethics; clarifying roles for team members; updating project progress; time management.</td>
</tr>
<tr>
<td>5. Technological problems were addressed e.g. P20. ARCS Data Fabric, DropBox, GoogleDocs</td>
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<tr>
<td>6. Team member workloads, contracts and project budgeting were attended to.</td>
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<td>7. Ethics approval and confidentiality agreements are in place.</td>
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<td>8. External evaluation was approved for the project.</td>
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3.1.10 Meta-analysis of learning journey

This is a learning journey where the team members have engaged in a process of arguing around alternatives, shifting perspectives, refining the research methods and conceptual models. Epistemologically, scholarly argumentation and rational disagreement are methodological techniques central to any research project. Research can be defined as the production of an informed, thoughtful argument that: (a) advances novel, insightful propositions using etic and/or emic concepts; (b) provides analyses of evidence and counter-evidence in relation to these propositions and counter-arguments, and (c) provides explanations and justifications for the connection between the proposition and the evidence and counter-evidence (Duschl & Osborne, 2002). In other words, the exhausting, intellectually engaging work of research choreographs arguments and rational disagreements which are constructed through the collection and analysis of evidence and counter-evidence to generate original knowledge that explains and justifies claims about complex educational phenomenon. This defines research as the use of argumentative logic with respect to:

1. a claim/proposition or series of propositions;
2. evidence or grounds to support the proposition;
3. a warrant validating the connection between the proposition and its grounds;
4. and some sort of backing that provides an agreed set of values, parameters, and common discourses as a foundation for argument.

5. It may also contain a rebuttal in opposition to the proposition and/or to its connection with the evidence.

6. The rebuttal could bring about a qualification of the argument. (Andrews, 2010: 216, numbers added)

Methodologically, argumentation is integral to the rational production of research-based knowledge. That reflexivity, critical reasoning and rational disagreement are crucial to the conduct of research means it deserves a central place in research project management. For instance, involving high school students’ in the explicit consideration of argumentative reasoning improves the quality of their research practices and knowledge (Osborne, Erduran & Simon, 2004; Zohar & Nemet, 2001). Further, Kuhn and Udell (2003) established that peer dialogues involving arguments and counterarguments are effective in developing the argumentative capabilities of academically ‘at-risk’ 13- to 14-year-olds. Andrews (2010) also argues for the modes employed in making written and verbal scholarly arguments to be made explicit at universities. However, the analyses of written research reports indicate that they do not explain the attributes of arguments or how scholars constructed their arguments as part of the research process (Weinberger & Fischer, 2006). Disagreements in research teams are not a sign of a project’s failure or team members’ ill will or irrationality:

“Even though they understand one another perfectly, rational people may continue to be rational though they continue indefinitely to disagree; neither their mutual understanding nor their rationality is sufficient to achieve that consensus which is a necessary-condition of collective autonomy. Because of this, another ideal besides autonomy, one which recognizes the existence and the defensibility of rational disagreement, needs to be invoked” (Fay, 1987, p. 190).
3.2 Critical review of course designs

The DEHUb Project proposal expressed the “will to achieve” a critical review of course designs that are both conducive to and effective for teaching and learning in online university courses.

3.2.1 Mixed-method approach

This DEHUb Project set out to value and give value to combining quantitative and qualitative data analyses procedures which were conducted in parallel:

“We tried to strike a balance between quantitative and qualitative methods. There is a need to maximize quantitative data to find those patterns and to make analytical predictions. This involves dealing with large courses. Of course, you can only make sense students’ engagement through rudimentary IT mechanism. Teachers are essentially blind to how the students react or respond in online courses. In face-to-face classes, teachers can respond to the class; they can speak up to engage students, yet they don’t have the same capacity to do that online. What technological substitutes are available to see what happens and who does what in the online classroom? Every university is collecting this information and analysing the data retrospectively, but nothing is done at the academic point of need.”

Learning analytics provides a means of observing processes of on-line learning in model development:

“Our job is to describe what we have seen happening in these courses. To see what processes are going on so we can influence those processes, so often in online courses, we can sit back and take stock of what happens and see what you can do.”

As is known every research method has its limitations, these were fully acknowledged with respect to learning analytics in the interviews and are clearly stated in the report:

“The limitations of analytics is that numbers can only tell that much. The beauty of this project is it matches up quantitative analysis with qualitative analysis. You can have a number of hits, but at the same time delve into what the students can do. We use scripts to convert raw modal data into aggregated ones so that you can see the numbers of hits.

An interactive analysis of qualitative and quantitative data was necessary to reduce, but not necessarily overcome the limitations of one form of data collection against another, not in the least because of the focus – and thus the limitations of the data analysis procedures:
“Once we have the evidence from quantitative data this will provide new insights-limitations in the data and what interpretations can be made of that data. Contextualizing the online conservation is difficult and time consuming and out of sync. A response might be a post, a post might be a response. Again there is the issue of relationship between qualitative and quantitative data.”

Figure 3.3 (see below) is from the final project report. It is included here to illustrate the mixed-method approach of cross-case studies developed in this project. This important contribution that the DEHub Project had made can be explored on two levels: first, it values and gives value to integrating qualitative and quantitative data analyses, supplementing statistical analysis of student attributes and LMS learning hits through learning analytics with qualitative data analysis exploring in-depth factors, processes and consequences of online interactions. Second, as part of the qualitative data analysis, thematic analysis was used in case 3-5 but not in case 1 and 2, thus creating a comparative angle which enables the uses of “thematic analysis” in online education research to be re-examined. The “equal” importance attached to qualitative and quantitative data in cases 3, 4 and 5 highlighted the insufficiency of analytics as a research method of online education, as shown through the analysis of cases 1 and 2. However, there is a need to develop strategies to integrate analytics and qualitative analyses in a more meaningful way to highlight the significance of analytics, especially variables like age, gender and grade.

3.2.2 Model-testing research

In the beginning of the project, a model-testing approach could be perceived from the selection of courses for critical review. Courses for critical review were selected to validate the model.

“I chose CQU courses which can give justification for the model. To see what is happening in these courses provides some validation for the PhD model - its applications and relevance. There is some bias due to different understandings of the model, but we can understand and stand back to allow for differences and changes in perspectives.”
Testing the model was central to the critical review of the courses

“We are looking at the multiple applications of this model for a range of courses at both the undergraduate and postgraduate levels. The project is investigating three different kinds of interactions across institutions. This could be used for other purposes as well. There is not any literature that looks at these three things in detail.”

This approach was challenged by the various sources of evidence generated by team members during the process of developing even more innovative and relevant conceptual models for this project (See section 3.3).
3.2.3 Critical review of course designs: Comparative analysis of outcomes

Much of the critical review of the course design was undertaken between the interim evaluation and the final report writing. Course design and structure were categorized as an intervening condition for the interactions which determine how online learning takes place and with what consequences (DEHub Final Report, 2012). Specifically, synopsis, learning objectives, learning activities and assessment of each course were examined.

The major finding regarding the critical review of course design shows that the learner-content interactions was the most prevalent form of interactions in all five courses studied in this project. Learner-content interactions range from 39% to 78% across the five cases with one case having a reasonably even distribution between learner-teacher, learner-learner and learner-content interactions. This might suggest that an emphasis on content creation and learner-content interactions should be given a major focus in online higher education. However, the interactions with teachers and other learners are considered by the literature cited in the report to be important to quality teaching and learning. Therefore, the DEHub final report (2012) argues that there is an inappropriate amount of significance given to curricular content development and learner-content interactions in online education in these cases.

**Table 3.2 Critical review of course designs: Progress against projected outcome**

<table>
<thead>
<tr>
<th>Interim Evaluation</th>
<th>Final Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A critical review of course designs was undertaken, with findings from two USQ courses provided: JOUR19024, EDG3001 and EDU5112.</td>
<td>1. Course design in which participation was a major element was categorised as intervening conditions within this study.</td>
</tr>
<tr>
<td>2. This critical review does not specify the target number of courses to be reviewed.</td>
<td>2. The “most pertinent finding to the teaching academic” is “the misplaced emphasis on content creation and learner-content interaction in course design” (DEHub Final Report, p.134).</td>
</tr>
<tr>
<td>3. It is not clear as to the explicit criteria that have been used to judge which online university courses are conducive to and effective for teaching and learning, and which are not.</td>
<td></td>
</tr>
<tr>
<td>4. The report contains evidence for progress in this aspect. However, there are inconsistencies. Page 5 indicates that five courses have been “analysed to date”. The findings in Appendix 1 include analysis of three courses: two USQ courses and one CQU course.</td>
<td></td>
</tr>
<tr>
<td>5. 10 references (among 33) listed in the reference list are not cited in the literature review.</td>
<td></td>
</tr>
</tbody>
</table>

3.2.4 Meta-analysis of information, communication and surveillance technological systems

Key elements of this DEHub Project might usefully inform and thereby improve online learning and teaching. However, this would mean connecting learning analytics resources with course leaders, so that they can work with academics who interact with students and
adapt the courses. Typically, it is academics who are responsible for the design and delivery using information, communication and surveillance technologies (ICST) systems; although the surveillance uses of the technology is a matter for university management. Learning analytics information grounded in specific courses can provide academics and students with evidence to use in the complexities of their educational decision-making. Academic and students interactions via web-based learning environments are among the many factors in the scholarly arguments and managerial press to improve learning and teaching. Their teaching/learning decisions are based upon and evolve, unpredictably in relation to this evidence, their interactions and adaptability, along with other complex drivers of teaching and learning. However, the danger for distance education research is that the current mode of organizational management, is the construction of universal constants or generic indicators that can be used to regulate and micro-manage teaching and learning through ICSTs. The report (2012) presents a selected excerpt of a student stating: “I do not post personal information to forums and will not be posting a picture or other personal details.” However, the university has details of this students’ age, gender, grades versus hits, as well as interactions with other learners, teachers and content – and much else besides. It is not clear what uses can or cannot be made of these personal details by universities, it is not clear that by engaging in online learning that students who do not want to post personal information online are necessarily doing so.

It is folly to think that university managers, academics and students, all being competent rational users of ICST systems must agree on the particularity of their uses, or the one ‘best’ theory or model. Analysis may confine or enable them to rationally adopt different uses, models or theories. However, one does not decisively and absolutely determine the other. Neither the research process employed by the DEHub Project can dictate a single answer to the problems under investigation, nor can its report dictate a single answer as to how it results can or will be used:

“To identify rationality with certainty or proof or with single solutions is already to accept a construal of the relationship between humans and their world which underplays its ineradicable complexities, ambiguities, and uncertainties” (Fay, 1987, p. 179).

Research does not require or presuppose that all those involved in the inquiry process or all those who use the research report will necessarily agree with one another. To undertake educational research means developing good reasons for various propositions based on sound evidence and insightful concepts:

“together with an openness to reconsider alternatives and a willingness to revise one’s beliefs if evidence is adduced which fits better with an alternative system of belief. To be rational is to be informed about the relevant facts, clear-headed conceptually, impartial, open-minded, consistent, and accountable to the
evidence as responsibly as one can; or rather, it is to be all of these things at once. It is true that a group of people who possess these characteristics would not necessarily agree with one another; but this does not show that their beliefs are not rationally based, or that they are not rational creatures. Rational beings can disagree with one another and still be rational as long as they are willing to submit their beliefs to argument and debate, as long as their adherence to their beliefs is consistent with the evidence as they best know it, and as long as they are on the look-out for other beliefs which square better with the evidence. ... Rational people are those who are uncertain of the truth of their beliefs, and who are thus open to revising them if the evidence warrants it” (Fay, 1987, p. 179).

3.3 Explanatory conceptual model of online teaching-learning interactions and knowledge construction

The DEHub Project proposal expressed the “will to achieve” a conceptual model to illustrate and explain the role of teaching-learning relationships in online interactions and knowledge construction in university courses. It expressed the “will to achieve” a model that would explain the relationship among course design, academic, students and content interactions, and student learning in online courses. Further, it was also projected that this model would detail the patterns, processes and consequences of these different types of interactions in online teaching/learning contexts.

3.3.1 Team-based model development

Leadership is necessary to build a team, and to inform and form their collective recognition of the Project’s potential benefit and impact:

“What is the use of this Project for academics in higher education? What is it meant to transform? How is it meant to impact upon academics and students? For whom is this Project meant to be a benefit? Is it for academics who are interested in redesigning their courses? Is it to inform students? Is it to tell them what it is like to be ‘on-line students’? Is it to provide university management with findings to consider how to run online programs? It is not clear to all the colleagues in the Project team what the impact of our work is meant to have or might be. Team-based projects are different from doing a project by one’s self”.

Together the team had to address various issues regarding the model development:

“We have 3 months left. I do learning while writing. It is slow to put it together. I find it hard to articulate my understandings so as to negotiate with others. We can’t go too deep, because the work will be cut out. The need is to write up the case description as the basis for the models. We have a model. We have to look at the courses and flesh out the model, and
document the model in relation to the courses. The principles will emerge from bringing the model and the course descriptions together. Get feel for the model. What comes first, the model, the evidence, or the principles? For whom is the model being developed?”

3.3.2 Opening up models of conceptualization

These key questions were answered in various ways. For some the model should come from the evidence. The initial model-testing approach of model development was challenged.

“It is worth considering to develop a model rather than starting with one, with the latter risking constraining the project. How much is a pre-existing model a prison house?”

A grounded theory method could be used for model generation:

“The spirit of the methodology is open versus closed. If it is prescriptive, how much does this constrain the project? Are there other ways of doing this? What other factors from the universities act on, constrain and enable online interactions? There is a need for a wider range of data about what university factors have a bearing on this project.”

A self-critical disposition is seen to be a defining attribute of leading-edge researchers:

“There has to be a disposition of researchers to be researching and questioning their own practices, to see one’s last project as a beginning and not an end. It is like having a license for a teacher to drive. Isn’t it that disposition that enables you to develop yourself as a researcher in the field of education? Some like being challenged to learn – a disposition that leads us to enjoy the work and enjoy the challenges. While some prefer closed thinking, good researchers engage in lateral, reflexive thinking.”

Team members were of the view that “it would be fantastic to have this model in two similar universities, which have complex online learning systems”. However, there were managerial barriers to applying the model:

“There are organizational impediments to putting that into practice, like learning and teaching plans, and strategic plans. If the model does not get through, there might be a need to follow up this project to investigate the implementation of this model in the context of organizational drivers.”

It is not evident that the model deals with challenging organizational culture to encourage diversity:
“Educational development unit needs a higher-level perspective at program level which is different from course level. It needs a complex adaptive system that encourages diversity- to involve people from diverse background and experiences as much as possible so that it is possible to get a variety of opinions and more disparate thinking. This will lead to better results than simply getting people with the same background, ideas and cultures. Otherwise, you get very narrow, less robust products. This is one of the challenges of how to make a series of divert interventions within organizational culture and structure. You have to take baby steps.”

However, challenging organizational culture is an evolutionary, iterative process:

“Tensions between complex adaptive systems – it is an evolution not a revolution, to make sense by probing for responses in an iterative process. Don’t do it on one facet, like the military/machine model of university organization. Academics throw rocks at you if you do this. Evolutionary systems make small changes that do the work for them, not to make them do a big arduous job. Instead, pull existing information; make it easy for them to reduce the cost of learning. Apple makes it so easy for you to give them money. They make it a painless process – that is their business model. Why do universes not pick up on these? Evolution is still in the early stage of technology assisted learning. It is at a point where most of the senior managers are older. People have not moved into these positions.”

There is a need to develop different on-line learning models for different academic levels in universities: “There could be different models – depends on assessment, postgraduate and undergraduate levels”.

This means customizing the development of on-line learning models:

“The images stay the same, but different courses may have different consequences, and intervening conditions which then generates a customized model, can cut in between conditions and intervening conditions, can interject at different points of actions between the different factors in the model in different contexts, can look at different points to make a difference in students learning. Where does it differ? It is an extension – by learner-leaner interaction to teacher and content. I was getting a sense of these while doing PhD … consequences key interactions, because of the courses, difficult to differentiate between learning and content in this process.”

An on-line learning model needs to capture the dynamic interactions between concepts:

“If model arrows between relations show that interactions of relations can be effected by the points of the arrow to effect learning, in order to engender a sense of community, we need to measure learners engagement
with learner, to have learners engage with content, their learning is improved with the learner together, if you want to provide a community then you need to do this – the principles are derived from the interactions about the concepts.”

Further, an on-line learning model needs to draw boundaries with respect to teacher-student interactions:

“Sick and tired after asking for extension, setting a climate where no extension will be given, establish conditions, which influence actions and interactions, set the tone, draw the boundaries.”

While management loves analytics maybe this project could help

“steer them in the way to assist academics. US/Canada analytics is to replace the academic, versus supplementing it. Is this a material agenda in Australian universities? Not in Australia. Management has a ‘cookie cutter’ approach like putting into silos, but learning and teaching is complex and messy, not the neat ordered models managers like to have.”

Experience in this area suggests that the interests of university managers are central:

“The massive hierarchy in university is surprising – they have all these metrics. There was no support, one had to improvise. There was no such a thing as not being able to fix it. We had a good leader at university, very abstract thinker, open-minded to different possibilities. The crisis of universities occurs when you don’t understand if they are businesses or universities. Businesses are about making money while universities are about producing good learning and teaching. The nature of short-term management is they come in for five years and make changes that look good over the five years. It is a very short-term approach, a teleological approach. People can manage from the top. The balance between management and leadership in universities is out of kilter.”

3.3.3 Conceptual modelling: Comparative analysis of outcomes

Two different types of conceptual models have been developed at different stages of project conceptualisation. Table 3.3 shows a summary of evidence of progress, interim and final evaluation results. Appendix A in the DEHub Final Report (2012, p142-151) illustrates the online learner-learner, learner-content and learner-teacher interactions respectively in case 3, 4 and 5:

“The diagrams depict the categories and subcategories associated with each of the three interaction types as a unit of analysis within each case. The range of
properties and dimensions are identified to facilitate an understanding of each category and to show how they are linked. Green association lines are used to illustrate further connections between categories and subcategories” (DEHub Final Report, 2012, p.142).

The neural-networking diagrams mapped the categories and sub-categories involved in the interaction types. The online interactions vary within and across each case. A holistic interpretation is provided by the dirigible model of online interactions.

Table 3.3 Conceptual modelling: Progress against projected outcome

<table>
<thead>
<tr>
<th>Interim evaluation</th>
<th>Final evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. This conceptual model is supposed to be extending Rossi’s (2010: 234) schematic model of “elements of online learning.” However it is not clear even what this schematic model is.</td>
<td>1. The neural-network models mapped the complex issues of teaching-learning relationships involved in online interactions.</td>
</tr>
<tr>
<td>2. Developing the model is the target outcome of the research project listed in the conclusion of the research article submitted to the DEHub Quarterly. However, little evidence shows that work on constructing the conceptual model, a core project outcome, has begun.</td>
<td>2. A dirigible model offered a holistic illustration of online interactions through LMSs.</td>
</tr>
</tbody>
</table>

An etic concept of “dirigibles” is used to conceptualise the LMSs as a learning platform.

“In the twenty-first century, LMSs are the dirigibles of online education. Like the airships of a century ago, they are known for their skeletal rigidity, impermeable membranes filled with volatile gaseous variability of knowledge constructions, yet with gondola windows that enable passengers to connect to other worldly knowledges, while tethered to institutionalised entrance and egress points” (DEHub Final Report, 2012).
This metaphor represented a panoramic understanding of online interaction gained through the data analysis in this DEHub project. The use of this metaphor in the DEHub Report involves the use of images and concepts through which readers are invited to visualize or to picture a process otherwise very difficult to capture. The metaphor of “dirigibles” has been organized into a systematic model that provides a clear and intricate series of categories (Turner, 2010). This model offers novel concepts of “skeletal rigidity”, “impermeable membranes”, “volatile gaseous variability”, “gondola windows”, “institutional tethering” and “institutionalised entrance and egress points”. While the power of LMSs is much celebrated in the education field, their potentials need to be further explored to combat the abovementioned restraints. Geertz provides a definition of metaphor relevant to the purposes of educational research:

“a metaphor is a way of talking that works well in one field of inquiry and that is employed in an attempt to make sense of something in another field of inquiry; we resort to metaphor when we seek to make sense of something which is not comprehended by means of something which is comprehended better, but comprehended somewhere else” (Geertz, 1983 cited in Turner, 2010, p. 81).
The use of the “dirigible” in Figure 6.1 is more than a replacement of words with an image (Turner, 2010). It persuades us to think of the online learning environment in terms of the constructed implications associated with old-time airships. What is significant is that it gives us something to view mentally, something more familiar and tangible but filled with loaded suggestions for theorizing.

3.3.4 Meta-analysis of etic and emic theorising

Theorisation is important for analysing patterns, conceptualising relations without dissolving complexity, and producing novel imaginings. Emic and etic approaches to data analysis and its theorisation are used in a range of fields for these purposes, including in nursing (Hoare, Buetow, Mills & Francis, 2012). Etic analysis consists of observing and reporting of a particular phenomenon with theorising conducted without reference to any of the concepts of those within the group being studied. An etic analysis applies generic categories or constructs, derived from an external theoretical source to discuss observed practices. Few, if any of the concepts or metaphors used in the analysis or associated conceptual mapping are derived from the original data that has been generated. Etic analyses afford an external theoretical perspective, with the theoretical tools of interpretations being imposed coming from beyond the evidence involved. This is the approach used to generate the concept map or model used in this study. The modelling done for this project resembles an examination of general traits, fitting selections from the available data to the generic attributes.

The report notes that the theorisation of the phenomenon it addresses is in its infancy. A key issue for etic analysis and theorisation concerns selection of source for the theoretical tools used in the analysis. Generative, innovative, cutting-edge research tends to be based on combining a focus on leading-edge debates over the concepts constructs mobilised within a given field, and the introduction of new theoretical tools from outside the field, to provide the level of critique (creative, critical thinking) needed to prevent debates – thinking and action – within the field from becoming rigid, inflexible, and thus moribund. For instance, theorists of cultural acceleration (Redhead, 2004) offer etic concepts for exploring online learning in terms of questions concerning what technology is, technologies of disappearance and uncritical conceptions of technology. Etic concepts derived from such theories open up to question how cultural acceleration, the speeding up of education, challenge many assumptions about what is the ‘learning’ and ‘teaching’ that is taking place, as much as the web of managerial surveillance of teachers and learners. In resisting social constructivism as a basis for the critique of the world-changing experiences produced by GRIN technoscientific knowledge-cultures, cyberculture theorists (Bell, 2007) examine the interplay of concepts in a way that could usefully help blur boundaries otherwise treated as distinct, thereby pointing to hazards while opening up new theoretic-practical framings of online content-learning-interactions-teaching.
Evidence-based health care now argues for the integration of both emic and etic modes of analysis (Hoare, Buetow, Mills & Francis, 2012). Emic analysis portrays features of a particular phenomenon from the inside, and takes the insider’s conceptions as a serious source of theorising. This would generate an alternative conceptual map that provides a contrasting perspective on the phenomenon under study. This provides a representation of the richness and complexity of the phenomenon, and avoids the reductionism that comes with cutting excerpts and pasting them into pre-determined categories. In this project an emic analysis on online interactions might have revealed various other features of this particular phenomenon, such as utilitarian, hedonic and social dimensions. Examples of emic categories given in the report that could provide teachers, students and management different, less abstract and therefore qualitatively richer insights into online teaching/learning include: ‘uppers,’ ‘inconsiderate listener’, ‘minor hiccups,’ ‘ladies,’ ‘small group bonding,’ ‘poor feelings,’ ‘it is a struggle’ and culturally ambiguous terms such as ‘group norms.’ However, as the report notes, the theorisation of the issues raised in this report is in its infancy. A key idea borne out in the DEHub Project is the underdetermination of any particular theory or model. Theories, models, concepts and metaphors are structures which try to make sense of a large amount of data by fitting what is thought to be the situation into a rational outline. The point borne out by the DEHub project is

“that there is no reason to expect that there will only be one way to organize this material into such a pattern. Instead, there may be a number of competing theories equally sustained by the evidence such that there will be no rational compulsion to decide in favor of one theory as opposed to another. This, of course, does not mean that theories are not responsive to evidence; they ace, on this view, logically constrained by it, but they are not determined by it. In other words, to be acceptable, theories must be consistent with the evidence as it is known, but they are neither uniquely derived from statements of evidence alone, nor can they be uniquely refuted by them. Hence, no theory is uniquely acceptable” (Fay, 1987, pp. 177-178).

3.4 A set of evidence-based curriculum development and delivery guidelines

The DEHub Project proposal expressed the “will to achieve” a set of evidence-based curriculum development and delivery guidelines that will enhance online teaching-learning relationships in online university courses. These guidelines were to be developed from the forgoing model, and identify conditions conducive to these interactions and “effective learning” in online courses. It was expected that the model and guidelines might be used by the partner universities to enhance the design of online courses, the learning and teaching experience of students and academics, and the learning outcomes of online, distance education.
3.4.1 Teacher’s role in learner-teacher interactions

During the interim evaluation, one of the team members observed: “The determination of our research project intervention is not yet clear; I am not definite about what it is all about.” With regard to the teacher’s role in learner-teacher interactive discussions a team member asked:

“No the teachers analyse their own role in the discussion? What types of questions get feedback from students? What they do or do not understand, do or do not arise as issues in the class?”

The students’ passivity is overwhelming, especially in large courses: “People are so passive, can’t get discussions going, or on the other hand it is so overwhelming with 600 students, one can’t deal with that number.” Having 600 students makes calls for active and interactive participation a challenge:

“Have to reflect on how five of their ‘post’ helped them to learn – more a constructionist view of learning, than a socio-constructivist view of learning – reflect on roles and take on responsibilities, being reflective, use each to reflect on their own professional experience.”

Teachers are advised to consider the focus and frequency with which a student participates in an online discussion: “Have to get ready the focus or frequency of topic, students had to discuss or debate that topic, and they build on that.” Moreover, teachers need to ensure that discussion of topics does not become fixated: “Discussion topics for each week (relating reading to students’ experiences) need to do teaching and learning beyond the fixed.” Teachers are advised to respond to all students, not to individuals: “Never respond to an individual, but to all the students.” Teachers need to structure discussions:

“Discussion needs to be structured. They have a general social discussion, need to structure and focus the discussion – otherwise they turn it into moaning. Maybe create an arrival-lounge for students to introduce themselves; create activities outline about what you expect of the students; criteria related to the level of participation; get some students who don’t fully engage, modelling in the course, respond with prompts, scaffolding – have a look at x’s work, more detailed comprehensive response, and they can do further work.”

3.4.2 Mediated interactions in writing

Mediated interactions in writing are important for education which is memory work:
“Vygostky’s concept of mediated interactions means speech has a function, speech is action; writing is recall. Writing helps to remember it, and requires thinking through articulation and social negation of meaning. You can learn more if you put in the effort, need investment, commitment and time.”

Students learning interactions on-line are through writing

“Promoting reflection, scaffolding and engaging with each other, wanting to see argument and debates in writing …the process is a good medium for learning if it gets them to write – documenting your knowledge and understanding and engaging with the views of others. Writing makes a more meaningful experience – forming a learning relationship through writing.”

Writing is important for learning as much as it is for assessment:

“Rules like “no merits for attendance, no merits for participation” but merits for ‘learning interaction’ to promote learning interaction. Setting up criteria for assessing; of course students who say nothing might also be learning, but here we need to go back to the issue of writing – learning through writing, making it clear and public through its written articulation – that makes a different, qualitative learning – your learning will be different if you engage in that kind of activity.”

Feedback is educationally important:

“A feedback loop to see what has happened (but is not part of the analysis) - to include in assessment items a reflective component – want to see what they are thinking – what does this mean for changing the teaching practice.”

3.4.3 A comparative analysis of interim and final project outcomes regarding curriculum development and delivery guidelines

A set of evidence-based curriculum development and delivery guidelines have been developed to inform future online course designs in terms of all three types of online interactions. Table 3.4 compared the interim and final evaluation results with regard to this outcome.

**Table 3.4 Curriculum development and delivery guidelines: Progress against outcome**

<table>
<thead>
<tr>
<th>Interim evaluation</th>
<th>Final evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Little evidence indicates the commencement of work towards this Core Project Outcome.</td>
<td>1. A set of evidence-based curriculum development and delivery guidelines have been developed.</td>
</tr>
</tbody>
</table>
3.4.4 Meta-analysis of creative research in distance education

The challenge posed by leading-edge research that makes a substantive contribution to the production of original knowledge is that the data is used to re-think existing theoretical presumptions, and existing, explicitly stated theoretical frameworks are reconstituted through the data. Jackson and Mazzei (2012: vi-vii) argue that

“qualitative data and analysis does not happen via mechanistic coding, reducing data to themes, and writing up transparent narratives that do little to critique the complexities of social life; such simplistic approaches preclude dense and multi-layered treatment of data. Furthermore, we challenge simplistic treatments of data and data analysis in qualitative research that, for example ... reduce complicated and conflicting voices and data to [etic] thematic ‘chunks’ that can be interpreted free of context and circumstances”.

Much leading-edge creative research in distance education using qualitative methods of data collection and analysis argues within and against mechanistic coding, data reduction and the theoretical pigeon-holing of evidentiary excerpts. Such closed, fixed modes of qualitative research do little to advance the critiques needed for thoughtful and informed innovations. They do even less to explore the complexities at stake in distance education. Closed, fixed modes of research preclude the multi-dimensional treatment of dense data sets. For Jackson and Mazzei (2012: vii) typical problems for such qualitative research include being seduced by the desire to create a coherence bound by themes and patterns, which in turn inhibits the inclusion of data beyond a priori theoretical fixity. In contrast, cutting-edge research pushes research, data and theory to their limits within the available timeframe in order to make a substantive contribution to the production of new knowledge. Acquiring the skills of a good educational researcher

“is not reducible to learning a set of rules which indicate what one is to do in various laboratory situations. It is, rather, acquiring the practical sense of knowing what appropriate research behavior is and knowing how to make judgements which express this understanding in the myriad circumstances in which [educational researchers] might find themselves. The same is true for cooks, auto-mechanics, teachers, nurses, lawyers – indeed, for all those endeavors in which general rules act as guides for behavior but which themselves must be interpreted in order to be applied to particular circumstances” (Fay, 1987, p.181).

3.5 Scholarly outputs

The DEHub proposal expressed the “will to achieve” scholarly outputs over the project’s 18 month life-span by contributing positively to the research and publication quantum of both institutions and the DEHub consortium.
3.5.1 Identifying original contributions to knowledge

During the interim evaluation, one team member stated in terms of scholarly publication:

“I feel guilt-ridden and angst about not progressing with the proposal. Progress on this has been slow. We are not clear about what these publications will make a contribution to”.

The DEHub proposal also expressed the “will to achieve” the dissemination of the project’s results to enable the Australian and international higher education community to benefit.

In terms of drafting the project report, a team member asked:

“What is the constituency for the project report? This relates to publication. This relates to what contribution the project will make to the literature.

This project had value for the professional learning of the participants:

“I can see it benefiting my own teaching. The nitty-gritty knowledge is easier to gain through showing and telling, or demonstrations (the conditions and the intervening conditions for learning) – including face-to-face interactions, and interactions at a distance.”
3.5.2 Scholarly outputs: Comparative analysis

Table 3.5 indicates the progress that the DEHub research team members have made in producing scholarly outputs.

**Table 3.5 Scholarly outputs: Progress against projected outcome**

<table>
<thead>
<tr>
<th>Interim evaluation</th>
<th>Final evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. One article submitted to <em>Journal of Learning Design</em></td>
<td>1. One paper in press. Four conference papers are in progress, to be presented in conferences in both Australia and other countries.</td>
</tr>
<tr>
<td>2. One article submitted to the project-based <em>DEHub Quarterly</em>.</td>
<td></td>
</tr>
</tbody>
</table>

To date, the following scholarly outputs by the team members of the DEHub project are either in progress or in press.


3.5.3 Meta-analysis of research publication agenda

Designing research projects to contribute to the quantum of research publications of universities, and to the personal benefit of researchers themselves is driven by bibliometrics to measures of research productivity (Auranena & Nieminen, 2010; Canavan, Gillen & Shaw, 2009; Jarwal, Brion & King, 2009). The Australian Government’s ERA has sanctioned the use of bibliometrics to measure research impact, measures which are used to support recruitment, promotions, grants and institutional comparisons (Drummond & Wartho, 2009; van Aalst, 2011). Part of the problem is that there is “no systematic process of measuring the broader economic, social and environmental benefits of publicly funded research undertaken across the publicly funded research system as a whole” (DIISR, 2011, p. 7). Even so, there is a need for distance education researchers to consider the benefits to academics and students themselves of large-scale publically funded research. Learning analytics, for instance, may contribute to improving students’ learning and academics’ teaching, if a vehicle is found by which they can be made of pedagogically relevant patterns in the data. Inter-university collaborations in distance education research provide an important focus for making improvements in students’ learning and academics’ teaching as primary research objectives – and as valued and valuable outcomes - of the research project itself. Moreover, there is a need to train a new generation of researchers who can conduct distance education research that directly contributes to improving students’ learning (Lasley & others, 2006).

Future research publications might usefully appropriate the best of what the DEHub Project has achieved over the past twelve months. Individuals or groups from the team could constitute journal articles or chapters out of the history they have undertaken and make these accounts of their own original contributions to knowledge. In doing so, they are likely to transform themselves and the Project’s outcomes in terms of the material provided in the DEHub Report. Individuals and groups within the team are just the creative elements which, among the Project’s evidentiary archive and theoretical insights, can make useful conceptual resources for advancing significant scholarly arguments in this field. Of course, the team members need not treat the totality of the Project as worthy of further elaboration; they can reject any or all of it if they wish. Logically, it would be valuable to use the inheritance made available through this Project to press forward the innovative insights it has provided. This means individuals and groups within the Project team need to be able to dissociate themselves from the Project as experienced, such that any and all parts of it can be rationally criticized and their imaginations inspired to document what truly are the most original contributions made by this Project. It is timely and appropriate for Professors Harreveld and Danaher to consider writing and publishing a multi-authored book based on the DEHub Project to disseminate original findings:
1. Digital higher education at our finger tips?

2. Building digital communities of practice into teaching and learning: Sustaining intellectual engagement among students and academics

3. Aligning institutional strategy for the use of learning analytics by academics in pedagogical innovations for improving teacher-learner and learner-learner interactions.

4. Developing cross-institutional partnership management to strategically and effectively embed digital tools and ensure authentic learning given organizational restraints, divergent views and ethical issues.

5. Using the ‘dirigible’ model to create mechanisms to support increased digital literacies amongst students and academics within the constraints and opportunities of the LMS systems.

6. Implementing appropriate governance frameworks that account for the contextual, intervening and interactive conditions for embedding online learning networks and course-based learning environments in program delivery.

7. Using learning analytics to measure the success of, and develop guidelines for curriculum delivery and learner interactions through mobile and social media.

8. The digital future of the academic workforce: Preparing for the changes

9. Embedding collaboration, scholarly argumentation and rational disagreement for changing models of course development, online learning networks and course-based learning environments

10. Developing and implementing high quality approaches to researching and evaluating digital higher education
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