Using collaborative peer feedback and supervision to support doctoral research at a distance

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This paper documents a collaborative peer-support and supervision model with peers and supervisors provide critical feedback to doctoral thesis proposals within an online learning community in a New Zealand university. A content analysis was conducted on 26 online presentations from 10 EdD proposals to investigate the nature and types of feedback provided by a group of 10 students and 10 supervisors engaged in this collaborative learning and supervision process. Six students were also interviewed. Findings from this study show that the online feedback process was helpful in supporting revisions of thesis proposals, and was a valuable component of this new approach to thesis supervision.

Keywords: online learning, doctoral supervision, online learning community

Introduction

It is well known that the attrition rates of doctoral programmes in many countries are very high. For example, the completion rate of PhD students enrolling in New Zealand universities after five years of enrolment (2002-2006) was only around 30%, and the withdrawal rate in the same period was as high as 25% (C. Stoddart, personal communication, September 17, 2008). In Canada, while the completion rate of PhD programmes is higher, at around 50%, it takes 7-9 years for the successful students to complete their studies (Elgar, 2003). While there are a number of factors contributing to these high attrition rates, intellectual isolation has been cited as one of the major factors or even the prime contributing factor (Hortsmanshof & Conrad, 2003; Lovitts & Nelson, 2000; Manathunga, 2005). For example, a recent large-scale survey of more than 600 PhD students in Finland (Pyhalto, Stubb, & Lonka, 2009) reported that almost 30% of its respondents felt that they were not part of a scholarly community. Doctoral students' experiences in the thesis research process often shown to be "mentally and emotionally challenging", and that "participation in academic communities is fundamental to the transformation of graduate students into professionals" (Hadjioannou, Shelton, Fu, & Dhanarattigannon, 2007, p.161). Lovitts and Nelson (2000) point out that a key to successfully competing a doctorate is to encourage and support a sense of community among doctoral students. Recently there has been an increasing interest, particularly in Australia and UK, to develop alternate models of research supervision to reduce attrition rates and completion time (Samara, 2006). For example, strategies of supporting research students working within a

learning community or using group supervisors have been proposed in the literature (Conrad, 2003; Pearson, 2000).

There is some evidence in the literature that providing peer support and feedback is effective in supporting graduate students' thesis research. For example, in Hadjioannou et al.'s (2007) study, they described how four students had formed into a community to support each other, mentored by a professor. Members of this face-to-face community met regularly and shared their writing and readings, and their research. This study found that the student-led community was not only helpful in providing emotional support to overcome isolation, but academically, it was also invaluable in helping the participants to improve their academic writing, and to peer-review their thesis proposals, as a sense of trust had been developed in the community to allow sharing of constructive criticisms. Shacham and Od-Cohen (2009) have documented a study surveying 25 PhD graduates on the learning characteristics of their communities of practice, established in a doctoral programme to provide academic and emotional support. Their study showed that studying in a cohort facilitated doctoral students to share and critique each other's ideas. In this community there were group consultations and students had opportunities to share their research, including their conceptual frameworks and methodologies. Again, students in this community valued the peer support and feedback provided. The limited research conducted in peer support at doctoral level thesis research are primarily qualitative studies (e.g., Lim, Dannels, & Watkins, 2008; Wisker, Robinson & Shacham, 2007), very little research has been conducted to investigate how communities of practice can be used to support doctoral students' thesis research work at a distance using quantitative or mixed methods.

A collaborative peer-support and supervision model designed to provide academic support for distance doctoral students has been implemented in a research-intensive university in New Zealand since 2008. In this Doctor of Education (EdD) programme, distance students collaborate with their peers and supervisors during course work, preparation of thesis proposal, and undertaking thesis research within a learning community. This paper documents the collaborative peer-support and supervision process of the first cohort of students during their preparation of thesis proposals (in the second year of the programme) when students and supervisors were engaged in regular group dialogues via computer-mediated communication. This paper will focus specifically on the feedback process and investigate the following questions:

208. What is the nature of the feedback provided by the students and supervisors in this model?
209. What types of feedback are conducive to assisting students in revising their thesis proposals?
210. Are there any differences between feedback provided by students and supervisors?
211. How do students see their role as proposal reviewers?

Description of the EdD programme

The EdD programme in this study is delivered flexibly as a part-time/full-time, cohort-based, online distance programme supported by integral on-campus intensive residential schools. Students are expected to complete the programme in five to six years of part-time study. This programme has three components:

- *Course work*. Students undertake an intensive 12 months of part-time course work, focusing on the relationship between research and practice, and also on advanced research methodologies. The course work is equivalent to one and a half semesters of full time study.

- *Thesis.* Students spend the following six to nine months to developing a thesis proposal. These proposals are then examined at a public symposium by two internal and one overseas examiners. Once approved, students can proceed with their research.

- *Research to Practice Portfolio*. As a professional doctorate, students are also required to produce an evidence portfolio to demonstrate that their research is indeed related to practice. This portfolio includes a reflective journal, evidence of conference presentations/publications, and artifacts generated from their research.

In this community-based model, students work as a cohort and collaborate intensely during the course work and thesis proposal preparation stages. They meet regularly in ten online conferences (each lasts for two weeks) as a group during the course work stage and in five conferences during the development of their thesis proposals in the second year of the programme. During the thesis proposal development stage, in addition to having to meet

with their supervisors on a one-to-one basis (either face-to-face or by telephone, Skype, email), students meet with their supervisors as a group in an online discussion conference to support each other. Depending on class size, the cohort may be divided into groups of five students. Each group consisting of a moderator (a professorial staff member), one to two senior supervisors, two to three junior supervisors, and five to six students. Structured online meetings are regularly held in the learning community for students to share ideas, discuss issues, and critique each other's work. Students present their draft proposal in three online conferences. Since the primary supervisors are also members of the group, each group will have about ten participants. In each online conference, every student has to present a draft of certain parts of his/her proposal (e.g., methodology), which is critiqued by a designated student discussant and a supervisor discussant. Other members of the group (both students and supervisors) are also asked to contribute feedback. Students thus are exposed to a wider range of expertise and the online community also provides them the opportunity to learn how to critique scholarly work. In this model, students are encouraged to co-construct knowledge and are enculturated to become a member of the academic research community. Moodle (Modular Object-Orientated Dynamic Learning Environment), an open source e-learning platform was used as the discussion platform. Moodle is designed to foster online learning communities based on social constructivist pedagogy principles, and can provide the flexibility to quickly and easily adapt to the needs of the students.

Pedagogical strategies

The pedagogical strategies implemented in this online EdD programme are derived primarily from social constructivist beliefs and socio-cultural approaches to learning, where learning is conceptualized as an active process, with the learner actively constructing knowledge in a community of practice (De Laat & Lally, 2003; Lai, Pratt, Anderson, & Stigter, 2005; Lave & Wenger, 1991; Vygotsky, 1978). There are two strategies in this model that are particularly relevant to this paper and they are briefly discussed as follows.

Computer-supported collaborative learning

One important strategy of this peer-supported doctoral research model is that students are engaged in collaborative learning and co-construction of knowledge with their peers and supervisors right from the course work stage (Lai, 2009). During the second year of the programme when students prepare their thesis proposals, in addition to working with their supervisors on a one-to-one basis, students will also support each other by providing feedback during the online presentations. Feedback from their own supervisors as well as from their peers is also provided during the online discussions. Conventionally, supervision in the humanities disciplines is primarily based on an apprenticeship model, with a "master" supervisor (sometimes supported by a co-supervisor, or a committee) working closely with an "apprentice" student, conducted in closed doors, with little input from other students or faculty members, but in this model, supervision is conceptualised as a collaborative process and is no longer treated as a private business conducted between a student and his/her supervisor. Because the group collaborates by means of computer-mediated communication, feedback is contributed to a public space and the process of negotiation of meaning and understanding is recorded permanently. The online conferences thus help increase accountability and provide a milestone for the students to achieve. For less experienced supervisors, this will also be an opportunity for them to learn from the senior supervisors in the group.

Distributed expertise

This collaborative peer-support and supervision model is based on the belief that both students and supervisors are able to provide useful and informed feedback to the presenters, even though they may not be experts in the topic that the presenter is researching. The value of peer-feedback is well documented in the literature (Hattie & Timperley, 2007), although there is little research on how best it can be used in an online distance programme to support doctoral research. It is recognised that students in this programme come with a wealth of practitioner knowledge and they have a lot to contribute to the learning community. Their expertise can be more effectively facilitated through participating in "leader-scholar communities" (Olson & Clark, 2009) where students can see how experts work with knowledge and solve problems, and also have the opportunity to act as experts, rather than directly acquiring knowledge from the experts (Hakkarainen, Palonen, Paavola, & Lehtinen, 2004). In this model, students are seen as "expert novices" with rich professional background, and since the supervisors have expertise in different fields of studies (but all in education), specializing in different methodologies, students

now have a wider exposure to professional and research expertise. In this learning community, students are treated as equal partners and assume a critical reviewer's role.

Method

Content analysis

To evaluate the value of using this collaborative model to assist students' development of their thesis proposals, a content analysis was conducted on all the online presentations presented in 2009. The cohort of students in this year was divided into two groups (a total of 10 students and 10 supervisors) during the proposal preparation stage. While students and supervisors primarily worked in their own group, it was not uncommon for them to contribute feedback to the other group. In this evaluation there were three rounds of presentations and in total 26 presentations were included in the analysis (for various reasons four students only presented twice). The presentations were run within a two-week period, in February, March, and May 2009, and the proposals were examined in July. The presenters normally posted their proposals to their group a week before the discussion started, and they moderated their own conferences.

The online presentations were analysed using a feedback model adapted from Nelson and Schunn (2009). In Nelson and Schunn's model, a number of cognitive and affective feedback features are included as factors affecting understanding and performance. In the present study, seven types of feedback are included in the coding scheme (refer Table 1). Following Nelson and Schunn (2009), an idea unit is used as the unit of analysis. An idea unit is a feedback unit segmented from a conference posting consisting of a single idea directly related to the proposal (e.g., a research question, a data collection method etc.) as "contiguous comments referring to a single topic" (Nelson & Schunn, 2009, p. 386). It could be a sentence, several sentences, a paragraph, or a whole posting. The responses provided by the presenters are similarly segmented into response units, and coded in four response types (refer Table 2). Again, these response units are ideas units, responding to a single feedback idea contributed by the discussants. Each feedback/response unit is coded once.

All the postings contributed by the students and supervisors were initially reviewed to exclude those postings which did not contain any feedback or response directly related to the proposal (e.g., postings used to manage the presentation). Then feedback and response units were segmented and coded by the author, using two coding schemes (refer Tables 1 and 2). Two presentations were randomly selected and coded independently by another researcher and there was a 92.3% agreement between the two coders. Using Scott's pi formula, and based on Potter & Levine-Donnerstein's (1999) formula to compute the percentage of agreement expected by chance, the intercoder reliability coefficient was 0.91. Coding discrepancies were resolved by discussion between the two coders.

Coding scheme
Tables 1 and 2 summarise the coding categories used to analyse the nature and types of the feedback and responses contributed by the participants.

Table 1: Coding scheme of feedback provided by students and supervisors

Category	Examples
Asking questions for clarifications but no specific suggestions/solutions are provided **(Clarification - CL)**	"Have you thought about…" "What do you mean by…"
Raising a specific problem/issue but no specific solutions/suggestions for revision are provided **(Problem - PR)**	"I also found your 'Research Methodology' paragraph confusing…" "What I am concerned…if you are only using the interviews…to address questions 2 and 3, you may not be getting enough data"
Raising a specific problem/issue and suggesting a specific solution or providing a suggestion/idea to assist the presenter to move forward **(Solution - SO)**	"You need to link your strong statement…" "Another idea would be to have children create stories about these issues and have them react to the stores".
Making a general comment **(Comment - GC)**	"My main concern…was that methodological nuts and bolts did not precede or swamp what is important here…" "I realize that your work is likely to show that we have to be sensitive to cultural influences…that really seems to be at the heart of what you propose to investigate"
Providing an explanation of a concept or a resource related to the topic of study **(Resource - RE)**	"The following references…might be useful to you" "Some non-sampling errors and other possible design weakness in the Kochenderfe-Ladd and Pelletier (2008) questionnaire for you to consider…"
Confirming/agreeing/empathizing with the points raised by the presenter or other participants **(Confirmation - CO)**	"Have to agree with your last comment…" "Thanks for the clarification…I also agree with you…"
Praising the work done by the presenter **(Praise - PA)**	"Your proposal looks good to me…" "This is looking like a really exciting and useful project…"

Table 2: Coding scheme of responses provide by the presenters

Category	Examples
The presenter has considered the suggestions/solutions provided by the discussant and certain action has been or will be taken **(Change - R-C)**	"May be I need to think about this a bit more…" "You distinguishing between attainment/achievement and the wider process of education is very helpful…" "I probably need to explore the emerging…literature…to see what methods other researchers have used…"
The presenter explains/clarifies/answers the questions raised by the discussants **(Explanation - R-E)**	"This interests me for several reasons…" "No current NZ research has used the CLES survey to investigate…"
The presenter provides some general comments on the issues raised by the discussants, but these are not specific responses **(Comment - R-G)**	"Sorry about the references, I do have them…" "I don't know the answer to this…"
The presenter responses with further questions or seeks help from the discussants **(Question - R-Q)**	"At the risk of embarrassing myself can you just clarify for me what you meant by…" "When you say I have 'enough of a sample'…do you mean…"

Interviews

In addition, students and supervisors were invited to participate in telephone interviews after the completion of the last conference. Six students were interviewed; two from Group A and four from Group B. Six supervisors were also interviewed. Findings from the student interviews are also reported in this paper.

Findings

Amount of feedback and responses

As can be seen from Table 3, on average each presenter received 2.6 feedback postings from 2.23 students and 5.23 postings from 3.23 supervisors per presentation (a total of 7.46 postings received). The supervisors contributed twice as many postings as students, and more supervisors participated in each presentation than students. On average each presenter contributed four response postings per presentation. Presenters thus received almost twice the amount of postings that she/he had posted. The average length per posting was between 200 and 300 words. As reported elsewhere (Lai, 2010), students participated very actively in this learning community.

Table 3: Amount and length of feedback and responses per presentation

	Average number of postings	Average number of words	Average number of feedback/response unit
Contributed by students	2.6	239	7.9
Contributed by supervisors	5.2	210	14.1
Contributed by presenter	4.0	293	10.0

Types of feedback and response

Students and supervisors contributed a total of 204 feedback postings. 573 feedback units were segmented (206 units contributed by students, in 68 postings; 367 by supervisors in 136 postings) from these postings. There were a total of 261 response units, 95 of them were responses to students' feedback units, and 166 to supervisors' feedback units.

As can be seen from Table 4, students have provided more feedback in clarification (CL) (40% of the total feedback units) whereas supervisors provided more feedback on solutions (SO) (44% of the total feedback units). It is interesting to note that the supervisors have provided relatively more praises to the presenters than the student discussants (8.2% versus 5.8%). A t-test on the number of feedback units provided by students and supervisors was conducted on each feedback type. Statistically significant effects were found on problem (PR), $t=2.080$, $p<0.05$; solutions (SO), $t=5.670$, $p<0.001$; and praise (PA), $t=3.411$, $p<0.005$).

Table 4: Types of feedback units per presentation

	CL	PR	SO	GC	RE	CO	PA	Total
Contributed by students	3.2	1.3	1.6	0.6	0.4	0.4	0.5	7.9
Contributed by supervisors	2.2	2.2	6.2	0.9	0.4	1.0	1.2	14.1

In terms of responses, the presenters provided more responses to supervisors' feedback than to their fellow students' feedback (6.38 units versus 3.65 units per presentation, respectively). However, it should be noted that since the supervisors had provided more feedback units to the presenters, proportionally speaking there was little difference in the amount of responses between these two groups (46% response to student feedback versus 45% to supervisor feedback, refer Tables 4 & 5).

As can be seen from Table 5, almost two-third (64%) of the responses to students' feedback were explanations (R-E), and only 25% were revisions (R-C). In contrast, when responding to supervisor's feedback, only 46% of

the responses were explanations (R-E) and 37% were about revision (R-C). A t-test on the number of response units responding to students' and supervisors' feedback was conducted on each response type. It was found that the presenters have made significantly more changes on their proposals, based on the supervisors' rather than on their peers' feedback ($t=3.203$, $p<0.005$). Also, the presenters have asked significantly more follow-up questions based on the supervisors' feedback, rather than on their peers' feedback ($t=3.578$, $p<0.005$).

Table 5: Types of responses units contributed by the presenter per presentation

	Change R-C)	Explanation (R-E)	Comment R-G)	Question (R-Q)	Total
Responding to student feedback	0.9	2.3	0.3	0.1	3.7
Responding to supervisor feedback	2.4	2.9	0.3	0.8	6.4

Relationship between feedback and revision

A major objective of this evaluation is to investigate the helpfulness of the feedback provided to the presenters. One indicator of helpfulness is the extent in which the presenters have revised their proposals based on the feedback received from the online discussions. As can be seen from Table 6, the presenters had responded to about one-third (32%) of the ideas provided by the student discussants by making changes to their proposals. In contrast, proportionally speaking they made fewer changes to the ideas provided by the supervisors (28%). However, as supervisors had suggested a much larger number of problems (PR) and solutions (SO) to the presenters, in absolute terms the changes made to the proposals due to the supervisors' feedback were much larger (refer Table 5). It is a concern that over two-third of the ideas provided by the group, particularly those provided by the supervisors, had not been responded to. Perhaps in these online discussions, there might be a problem of information overload. As commented by one of the supervisors in his response to a presenter, "A lot of good points here, but I fear if I were in your shoes, I'd be confused right now". To take advantage of this review process, the primary supervisor may have to take an active role in advising the presenter how to sort out feedback generated from the discussions.

Table 6: Relationship between feedback and responses units

	Problem (PR)	Solution (SO)	PR + SO	Response – Change (R-C)	R-C/PR + SO
Student feedback	33	41	74	24	32%
Supervisor feedback	57	162	219	61	28%
Total	90	203	293	85	29%

It is important to know what types of feedback are more conducive to making revisions. A correlation analysis was conducted to identify relationships between feedback and response features. As can be seen from Table 7, there is a moderate level of positive correlation between solutions (SO) provided by students, and changes (R-C) made to the proposals, as well as follow-up questions asked (R-Q). It should be noted that problem (PR) was not significantly correlated to change (R-C). It seems that to assist their peers to revise their thesis proposals, providing suggestions or solutions would be more effective than just by pointing out problems. However, with feedback provided by supervisors, PR (but not SO) was positively correlated to change (R-C), showing that students would be more likely to revise their proposals even though no concrete solutions were provided, if the feedback came from the supervisors (refer Table 8). This shows that students didn't treat all feedback as equal value.

Clarification (CL) questions were also positively correlated with explanations (R-E) provided to both students and supervisors (Tables 7 & 8), thus perhaps indicating that the presenters were more likely to clarify their understanding of the concepts and design of their projects if more clarification questions were asked.

Table 7: Correlations between student feedback features and responses features

	Response - Change	Response - Explanation	Response - Comment	Response - Question
Clarification	0.19	0.45*	0.14	-0.02
Problem	0.03	0.07	-0.12	0.12
Solution	0.67**	0.30	0.15	0.55**
Comment	-0.23	0.03	0.21	-0.05
Resource	0.10	-0.14	0.14	-0.19
Confirmation	-0.01	-0.42*	0.22	0.04
Praise	-0.19	-0.14	-0.16	0.02

** correlation is significant at the 0.01 level
* correlation is significant at the 0.05 level

Table 8: Correlations between supervisor feedback features and student responses features

	Response - Change	Response - Explanation	Response - Comment	Response - Question
Clarification	-0.27	0.51**	-0.20	0.17
Problem	0.43*	-0.125	0.65**	-0.05
Solution	0.08	-0.30	0.37	0.22
Comment	0.39	0.05	0.28	0.35
Resource	0.07	0.04	-0.27	-0.25
Confirmation	0.52**	-0.05	0.31	0.19
Praise	-0.10	-0.23	0.21	0.12

** correlation is significant at the 0.01 level
* correlation is significant at the 0.05 level

The role of the peer reviewer

Students and a few of the less experienced supervisors were very cautious about providing feedback. They did not seem to be too confident about their role as a critical reviewer, as can be seen from the following comments:

> "I am not going to be of much help to you…" (Student)

> "I can't comment intelligently on the various instruments and technical aspects of methodology…but I can add the following procedural comments…I don't know much about a lot of the tools that you have mentioned…I will leave those comments to the experts among us." (Supervisor)

When the students were interviewed similar comments were expressed, for example:

> "I think students felt a bit constrained about giving feedback…because I think they thought the academics would know more about this subject matter…may be a lack of confidence about offering feedback..."

Supervisors supporting one another

The online conferences in this EdD programme are open forums where the students were treated as equal participants as supervisors. Supervisors could critique each other's ideas and suggestions and students could critique their ideas as well. One example was a discussion of the sample size and preferred response rates needed in a proposal where several supervisors were engaged in the discussion.

> *Supervisor discussant:* You [referring to the presenter] should state here why you have chosen to approach 1000, and why 40% is your 'preferred' response rate.

The presenter replied that she had discussed it with her primary supervisor. The primary supervisor then responded:

> *Primary supervisor:* Not sure I understand your calculation. The response rate refers to the sample…Without going into details of how to calculate the required sample size (Supervisor A, Supervisor B, or Supervisor C might want to have a go), I would say you need no more than 350 as your sample size…

Here the primary supervisor invited three other supervisors to provide further ideas about this issue. Supervisor A responded in detail of how to calculate the sample size.

> *Supervisor A:* What you need is more on the order of 200, and you could probably live with 100 if necessary…

Another example was a discussion of whether rural schools should be included in the sample of a proposal. The presenter was seeking advice from the group, "I am looking for advice from our experts here". Altogether seven postings were contributed (including two from the presenter) and three supervisors (two from Group A and one from Group B) offered a number of suggestions to resolve this issue.

Value of the feedback

For the designers of this EdD programme, it is important to know whether the collaborative peer-support model has added any value to the supervision process. Would students rather just work with their own supervisors? From the content analysis and the interviews, it seems overall the students were rather positive about the feedback they valued the process. The following excerpt is an example:

> *Student discussant A:* Ignore all of this if I am on the wrong track…
> *Student discussant B:* These thoughts from the top of my head – may be complete nonsense…
> *Presenter:* No way!...I know how valuable this process is…if I can answer the questions – then I can have confidence in my questions, if I can't, what you are offering me is other opportunities to strengthen my study…and I do need to go check those self-directed learning scales and to potentially operationalise what is SDL [self-directed learning]"

A supervisor agreed with the presenter's comment:

> *Supervisor:* "Good discussion here – and the value, as you say, is in the way this shapes/forces further thinking and clarification."

His comment was supported by another presenter:

> *Presenter:* "I'm beginning to realize that the value of this type of forum, while partly about assisting us to design a competent study, is also about us developing a design that works for us individually. Hearing how different people would approach the same research question is very valuable for me."

From the students interviews it seems that this feedback exercise was useful to the majority of the students, in particular when students have to defend their presentations, as can be seen from the following comments:

> The best was defending things when you critiqued each others, and people would ask you questions about your writings and things like that, just how to make yourself clear, which is a good practice…it has been useful…

> I certainly have constructed a lot deeper knowledge than I would have around my area that I'm working on…

> I've learned a lot about other people's research…the content but also it's given me some ideas that I might be able to apply to my own situation.

Students also saw benefits when they served as a discussant. The following comment is an example:

> …I particularly looked at a questionnaire that somebody was proposing to use or adapt as part of their thesis research…I gave some high level comments about some non-sampling errors that I'd spotted in the questionnaire…and in going through that process it was useful to refresh my memory on principals of questionnaire design…

However, it should be noted that students didn't treat all feedback as equal value, as different kinds of feedback were provided by the discussants (refer Table 7), as can be seen form the following interview comment:

> On the specific methodological questions…it has been more the specialist staff comments because…we feel relatively inadequate in commenting in detail…in terms of feedback from classmates, it's been more a global level rather than specific ways of testing hypotheses

Discussion

Findings in this study show that this collaborative peer-support and supervision model has facilitated the doctoral research process, particularly during the research proposal development stage. Feedback from the peers and supervisors was considered carefully and positively and the presenters used the discussions to clarify their understanding and improve their proposals. While clarification questions did help the presenters to clarify and sharpen their understanding of the concepts and design of their projects, it was mostly the problems identified and solutions proposed by the discussants that led to revisions. The success of this model depends very much on the willingness of the students and supervisors to participate actively in the discussion process. From the comments in the discussion postings and in the interviews conducted afterwards, it is clear that most of the students highly valued this collaborative process. Students benefited in different ways from the feedback process, and some benefited more than the others. The value of the online presentations and discussions was well summarized by a student:

> "…rather than just having a conversation with your supervisor, it's forced us all to be more involved in critiquing each other's developing work…it's helped because there's been more feedback from a wider range of people…that the comments that one person makes are visible to the whole group, and so…sparks ideas and thoughts from a wider pool of people."

All ten presenters subsequently had their proposals approved in the July confirmation symposium.

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