

SUPPORTING RESEARCH DEGREES ONLINE

L. Barroca, L. Rapanotti, M. Petre, Maria Vargas-Vera

Department of Computing

The Open University

Milton Keynes, UK

l.barroca, l.rapanotti, m.petre, m.vargas-vera@open.ac.uk

Abstract

Research degrees have been changing radically in the last twenty years, with an extensive body of work accumulated on improving the practice of research degrees and on developing skills for independent researchers. However, most of this work focuses on full-time residential research degrees, and little attention has been paid to part-time research degrees at a distance. There is still a gap in universities between the level of support made available to full-time, on campus, research students and that offered to part-time distance research students.

The Open University (OU), UK, has built a comprehensive research student support infrastructure and training programme. Contributing to this programme, in October 2009 the Department of Computing launched a Virtual MPhil degree. The OU is a market leader in distance higher education, particularly for taught degrees, and the Virtual MPhil capitalises on, and extends that infrastructure. The Virtual MPhil is an innovative research degree delivered entirely at a distance. It uses a blend of different technologies designed to better support part-time distance students. The vision for the Virtual MPhil is to provide a rich and flexible Virtual Learning Environment (VLE) to foster an online research community, to support the development of research skills at a distance, and to accommodate a large variety of user needs and attitudes to technology.

After introducing the academic context of the new degree, this paper presents how the technology-function match is achieved within the Virtual MPhil and discusses the lessons learned and issues raised in dealing with online education of research students; in particular, the support provided for the development of a student community, research dialogue and progress monitoring of distance research students. The paper also presents early results of an ongoing evaluation of this research degree.

Keywords: research degree, research skills, distance education, research communities, learning technologies.

1 INTRODUCTION

In the last twenty years, the nature of research degrees, in particular in the UK, has changed considerably, with a clear shift towards the explicit recognition of a set of skills required to be an independent researcher and their development [1], as well as of a supportive research environment. According to Metcalfe, among the triggers for change were pressure from the research councils resulting from poor submission rates, lack of scrutiny and quality assurance mechanisms, some evidence of poor supervision, and the changing nature of employment. In response to this need for change, the UK Quality Assurance Agency (QAA) has developed a code of practice for quality and standards in higher education covering, among others, postgraduate research programs [2].

The Open University (OU), UK, has built a comprehensive support infrastructure and training programme for research students, both those studying full-time on campus, and those studying part-time at a distance. Contributing to this programme, in October 2009 the Department of Computing launched a Virtual MPhil degree¹, the latest in a series of initiatives to improve our provision to research students in Computing.

In 2001, in order to improve completion rates and PhD experiences, and in response to the same triggers as were identified subsequently by Park[3] and Metcalfe [1], the third author led a series of

¹ An MPhil is a recognized research-based degree, in the UK, leading to a Master's award.

initiatives aimed to re-design our research degrees programme, with a focus on delivering three key ingredients (or functions):

1. integration into a research student community (induction, setting expectations, sharing experiences, and supporting a general research ethos and awareness);
2. regular, in-depth, technical research dialogues, particularly between student and supervisors (developing technical and critical depth); and,
3. a research skills development infrastructure that includes progress monitoring (developing general research skills, establishing expectations and maintaining standards).

In 2008, the Virtual MPhil project was set up, led by the first two authors, to engineer a technological infrastructure, and related processes and practices, for the online delivery of such research degrees. The Virtual MPhil capitalises on, and extends the OU infrastructure for distance higher education and builds upon our track record with part-time research degrees.

The vision for the Virtual MPhil is to provide a rich and flexible Virtual Learning Environment (VLE) to foster an online research community, to support the research dialogue between students and supervisors, to support the development and monitoring of research skills at a distance, and to accommodate a large variety of user needs and attitudes to technology. It uses a combination of synchronous, asynchronous and immersive technologies; these include a Moodle-based² site integrated with an ePortfolio system, a synchronous virtual classroom system (Elluminate Live!³), and a purpose-built virtual campus [4] (in Second Life⁴). Users also have the flexibility of using other popular freely-available technologies, like free phone calls over the Internet (such as Skype⁵), or social networks (as Ning⁶). The environment provides guidance and support in a rapidly changing technological landscape while allowing for individual users' choice.

In adopting technology into our research degrees programme, we consider how each new technology can serve these functions. Addressing this technology-function match has allowed us to provide an online experience comparable to a full-time, face-to-face experience, without requiring a forced duplication from one model to another.

In the Virtual MPhil, students, supervisors and their research collaborators come together through the VLE, bringing their expertise and know-how to the community. They are organized around research themes to facilitate peer collaboration alongside the traditional student-supervisor relationship. Considering Sharpe et al.'s pyramid model [5] for effective e-learners, the Virtual MPhil provides the lower layers of functional access, skills and practices that underpin the 'creative appropriation' by the researchers to determine their own environments and contexts for research. Within our long-term evaluation programme, we are monitoring and evaluating how this infrastructure is used and what new practices are developed to make any required adjustments.

This paper presents how the technology-function match is achieved within the Virtual MPhil with reference to its wider academic context. It also discusses the lessons learned and issues raised in dealing with online education of research students, and presents early results of an ongoing evaluation of this research degree.

2 THE CURRENT CONTEXT

Research in Computing at the OU is undertaken under the umbrella of the Centre for Research in Computing (CRC). The CRC is a diverse and vibrant research community that spans the OU, embracing software, systems, knowledge media, human-centred, social and educational perspectives on Computing. It includes over 70 research students who enjoy an infrastructure of seminars, research groups, conferences, labs and other resources. Roughly half of these students are part-time and at a distance. Many part-time students work professionally in a Computing-related area. Some part-time students live as far away as Japan or South Africa, and they can find it extremely difficult to attend any of the face-to-face sessions. As a result, students are supervised in a variety of styles, with some attending face-to-face supervision regularly and others relying almost entirely on remote collaboration.

2 <http://stadium.open.ac.uk/stadia/preview.php?s=1&whichevent=711>

3 <http://www.illuminate.com>

4 <http://www.secondlife.com>

5 <http://www.skype.com>

6 <http://www.ning.com>

Part-time distance students are also often cut off from the rest of the student community, missing out on the richness of daily exchanges with academics and fellow students. This increases their sense of isolation and decreases their sense of belonging. Brahme and Walters [6] found that “Uniquely, distance students experience feelings of loneliness and isolation during the dissertation process” (p. 490). Conversely, the department misses out on regular contact with them, and with the richness and insight they can bring from their professional roles.

Our use of technology has been developed to engage remote students actively in the community. The Virtual MPhil, in particular, has been developed to support distance students in overcoming these obstacles, by providing an online experience which is comparable to that of our residential full-time students, especially when it comes to research skills development, collaborative work and interactions with peers.

In the following we will discuss a set of practices in place within the CRC to address the key functions, and the way they are supported within the Virtual MPhil.

3 PRACTICES TO SUPPORT A RESEARCH COMMUNITY

The CRC has in place a set of practices and resources to support research students, and to address the key functions: engaging them in a research community, promoting in-depth dialogues, and developing skills (and monitoring progress). These practices and resources include: induction, fostering research communities, providing an infrastructure for developing research skills, and monitoring progress.

3.1 Induction

Induction is an important step for all new research students: to gain an initial understanding of the demands ahead, to become familiar with institutional structures and people that have a stake in their studies, and to introduce students to each other, to their supervisors, and to the broader research community. We have found that induction ‘sets the tone’ for graduate study, and that an effective induction can propel students into effective engagement and can bypass a variety of obstacles and pitfalls that arise from misconceptions or inappropriate expectations.

At the OU, all new research students receive books [7, 8] on basic skills for organising and planning their research degree, and are invited to attend two induction sessions. The first, when they arrive, is a two-day programme of introductions and workshops addressing subjects such as planning research, dealing with different supervision scenarios, and setting research objectives. The second, roughly half-way through their first year of study, is a two-day research methods conference with a wide choice of sessions. All students are expected to attend induction, and so the CRC runs extra sessions, including on-line sessions, targeted to students who cannot attend face-to-face sessions. Materials from the induction sessions are available online.

3.1.1 Induction on-line in the Virtual MPhil

While research students are welcomed on campus by the Pro-Vice Chancellor (PVC) responsible for research, Virtual MPhil students access a special welcome message from the PVC specially recorded for them and available through the Virtual MPhil website. A recording of the on-campus CRC welcome session is also available.

An online synchronous induction workshop (in Elluminate Live!) is used on the Virtual MPhil in lieu of the OU face-to-face induction workshops, and while Virtual MPhil students are given the option to attend the induction on-campus, there is no obligation for them to do so, with the online alternative allowing them to share the experience with other remote students.

A series of podcasts is also available to introduce students to the set of technologies adopted and developed by the Virtual MPhil. Specific synchronous training sessions on these technologies are also offered to students and supervisors.

3.2 Research communities

The CRC has adopted a number of practices to integrate students into the research community, and to ensure that they have a variety of opportunities for both informal and formal research dialogues. These include traditional mechanisms, such as research groups and an annual research student

conference, but also less common practices such as regular seminars to discuss research skills, wikis, and online discussion groups.

In the CRC, researchers and research students are typically associated with research groups (e.g., Software Engineering and Design, Human-Centred Computing, etc.), more focused communities of researchers with similar interests. Seminars, invited speakers, research projects, bidding and collaboration on papers are typical activities within these groups, and research students are encouraged to participate actively, for example, by presenting their work to, and getting feedback from, experienced academics and peers within the group.

An annual CRC conference was introduced specifically to bring part-time students onto campus, and to give them an opportunity to meet and socialize with academics and students across the CRC. The conference incorporates discussions about research issues and skills as well as presentations of students' research. Academics are encouraged to (and regularly do) attend to act as session chairs and discussants, so that students meet researchers outside their supervisory relationships. Key sessions of the conference are recorded and made available on the student wiki.

The CRC hosts regular postgraduate research seminars, both face-to-face and online, in which we discuss research skills, the broader research environment and research practices, and research issues and standards. Notes and resources from the sessions are posted on the student wiki. The wiki includes everything from regulations, through resources and links to resources, through tips and tricks, to jokes. Research students are strongly encouraged to create links with fellow students for social support, for example, to review each other's publications, to prepare and lead some of the CRC seminars, to meet socially and develop friendships.

Although it can be difficult for part-time distance students to attend face-to-face events, the intention is to help them engage as fully as possible in the life of the research community. Online seminars (using Elluminate Live!) mirror face-to-face sessions. Both face-to-face and on-line events are documented on the wiki, and students add their own commentary. The students themselves develop groups and online discussions.

3.2.1 Online communities in the Virtual MPhil

Fostering a sense of belonging in distance students is not an easy task, nor is it something that can be achieved through regulations; at most it can be facilitated and encouraged. Petre and Rugg [8] discuss some of the ways that networks can be built, and among the tools they suggest are coffee and chocolate biscuits. For distance students, alternatives to these need to be put in place

We have structured the Virtual MPhil in a way that we hope will encourage the fostering of a community spirit and the sense of belonging for distance research students. Students register as part of a research theme, which consists of all research students, supervisors and collaborators within a similar area of research. Each research theme is encouraged to use technology to support their community and make it accessible to distance students; some have created their own social network for all researchers, collaborators and students, others make extensive use of our Second Life virtual campus for supervision. The recognition that an element of fun is a contributor to a healthy community was one of the factors that motivated the design of the Second Life campus: as well as virtual spaces for research, we provide spaces where students can meet socially, have some fun, share a virtual coffee, even have a boat race or a balloon ride together.

The Virtual MPhil has also benefited from the experience of running a regular online seminar for research students using Elluminate Live!. This has been an important tool in engaging distance students with the flexibility of gearing the discussions to the particular needs of these students. An annual online conference is also being planned, to provide an online equivalent of the residential event.

3.3 Research supervision and skills development

In the UK, research skills training is now an integral part of most research degrees. Following the Robert's Review [9] and the UK Research Councils joint skills statement [10], the QAA updated the code of practice for research degrees [2]. This defines research program requirements that are now adopted by British universities covering: research skills and techniques, research environment, research management, personal effectiveness, communication skills, networking and team-working, and career management.

The OU follows the QAA code of practice and defines its own regulations and good practice guidance. The regulations establish a supervision model where a student is assigned two internal supervisors, members of the University's academic staff. The student is also assigned a third-party monitor, whose role is to provide mentoring and pastoral care outside the supervisor-student relationship.

The OU has developed a wealth of resources accessible to all research students, through the university's intranet, with activities for developing and gathering evidence of each research skill. The programme is based on a regular cycle of skills auditing (identifying existing skill levels), needs analysis (targeting skills for development), development planning (specifying how and when the skills are to be developed, and the criteria for successful development), and documentation (selected evidence of each skill is compiled in a portfolio). This cycle is embedded in the supervisory dialogue, and supervisors oversee and assess skills development. Skills development is also addressed in a series of weekly, on-campus 'doctoral training' workshops available to all OU research students in the first year.

In the CRC, research students also meet face-to-face on a weekly basis in a forum for research skills development more specifically targeted to Computing. This takes place during the working day; however, since 2008, an online version of the forum has also been taking place during evening sessions.

3.3.1 Online supervision and skills development in the Virtual MPhil

Normally, part-time students are supervised in a variety of styles, with some attending face-to-face supervision regularly with others hardly ever meeting their supervisors face-to-face. Many part-time students work professionally in a Computing-related area and are encouraged to contribute their experience to their research groups and the wider research community. Those who can are encouraged to come to campus on days when seminars take place and are given opportunities to present to research groups or department seminars.

For those students who are remote and cannot come to campus, the Virtual MPhil assumes that all supervision is to be carried out online. Many supervisors already use tools such as email, Skype, or Second Life for supervision. The Virtual MPhil's Second Life campus was designed to offer different types of spaces to facilitate different types of meetings, from supervisory sessions to large group meetings, from small meeting spaces to auditoria.

For research skills development the Virtual MPhil complements the resources offered by the University with a series of online activities that help students develop and assess some of their research skills. These activities are based on questionnaires to test students' achievement (e.g., understanding some characteristics of academic writing, self-assessment of a presentation) or tables to help students achieve tasks (e.g., estimating effort and prioritizing work, justifying research method followed, identifying the main questions to be answered when reviewing a paper). These activities are available from the Virtual MPhil VLE site and can be performed by the students independently.

One example is the development of communication skills, in particular, academic presentations. There are a great number of resources students can use to develop these skills, which are available from the University intranet, library and Virtual MPhil websites; supervisors also play an important role in shaping the development of these skills by providing specific advice and feedback to their students. However, the development of academic presentation skills by necessity requires some interaction with an audience, such as dealing with questions and engaging in discussions. Face-to-face research students have many opportunities to practice and get feedback on the development of these skills, e.g., by presenting in research group or department seminars, in the weekly research students forum, and in the yearly research students conference. Virtual MPhil students are provided with comparable opportunities mediated by technology. In particular, they can present to an audience in the virtual Second Life campus, or by using an Elluminate Live! virtual classroom either in the online research students' forum, or in a session organized within their research theme. Both technologies allow for synchronous voice and text communication among many participants, and the sharing of visual resources, like a slide show, both necessary for a meaningful presentation and question and answer session to take place. Students are also offered the possibility of undertaking an online mock viva before their final viva voce examination.

3.4 Progress monitoring

The university's research degrees programme involves regular oversight of student progress by postgraduate research tutors and Associate Deans of Research as well as by supervisors. The

progress monitoring is based on regular milestones: 6-monthly progress reports, and a probation assessment process.

Progress Reports: Six-monthly progress reports are structured as a dialogue between student and supervisors, with oversight by senior academics with management responsibilities. The report has sections covering supervision meetings, research activities, skills development, and thesis development and asks students to report on progress in the preceding period, identify priorities for the next period, note any particular problems that have arisen or needs that have been identified, and reflect on the activities and progress reported. Supervisors and postgraduate research tutors offer written feedback on the report; if progress is deemed unsatisfactory, then a plan for remediation is set in place.

Probation: All research students undergo probation assessment. Full-time students are assessed toward the end of their first year; part-time students are assessed in the second half of their second year. The main components of the probation assessment are a research proposal, which is read by two experienced researchers who are not on the student's supervisory team, and a mini-viva conducted by the two probation assessors. Students are also expected to provide a summary of their skills development to date, to have conducted some primary research, and to have presented their research to an appropriate audience in a format that includes a question-and-answer session, for example by giving a department seminar. Students pass probation if they demonstrate key skills satisfactorily: formulating a research question of appropriate scope and importance, and situating that question in the discourse; selecting relevant literature, reporting accurately, and demonstrating critical depth in discussing that literature; choosing an appropriate research methodology and justifying the choice; and planning the work.

3.4.1 Progress monitoring on-line in the Virtual MPhil

Online students use the same tools and conform to the same procedures as face-to-face students for progress reporting and probation. However, Virtual MPhil students can do their probation viva on-line.

The Virtual MPhil VLE includes also an ePortfolio system for collecting evidence of skills development, and progress report. ePortfolios are personal online spaces for the collection, creation and sharing of resources; for engaging in reflective writing; keeping learning journals; creating and storing personal information; and presenting evidence of work [11]. The OU has its own ePortfolio system, which is integrated in the VLE. For the Virtual MPhil, the ePortfolio is seen as one vehicle for monitoring and supporting student progress, which can contribute directly to regular progress reviews (as required by QAA [2]).

3.5 Summary of research degrees support

Table 1 summarizes the support provided to OU research degrees students in Computing and shows the comparability of the support provided to full-time and part-time students. Not all part-time students are remote and some attend campus regularly albeit much more sporadically than resident full-time students. However, the online support provided by the Virtual MPhil, although designed with remote students in mind, is also available to all our research students.

Table 1 – Support for OU Computing research students

	Full-time students	Part-time Virtual MPhil students
Induction	Face-to-face introductions, workshops, a research methods conference	Online synchronous induction workshop, podcasts, online synchronous training sessions
Research skills development, progress, and monitoring	Resources on the intranet, Doctoral training workshops, Face-to-face weekly forum, ePortfolio for monitoring	Resources on the intranet, Online activities, Elluminate regular online fora, Sessions in Second Life, ePortfolio for monitoring
Research dialogue	Face-to-face supervision, remote discussions (via Skype, telephone), email	Online supervision: Skype, Email, Second Life, etc.
Researcher communities	Access to research groups	Online research communities, Virtual MPhil research themes

4 EVALUATION AND DISCUSSION

Given the innovative nature of the programme, particularly the use of a virtual world, we have instigated a long-term programme of monitoring and evaluation which, among others, aims to collect experiences and best practices in the use of technologies on the Virtual MPhil: such collection will be made available to students and supervisors to help them decide which technologies best serve which purposes, based on their specific needs and preferences.

The methodology used for the evaluation of the Virtual MPhil is a long-term, three-stage programme that aims to assess the suitability and effectiveness of the technology offered to support the main processes of the programme, and to collect reliable data on workload for both students and supervisors.

The first stage, prior to the October 2009 pilot, included a programme of user evaluation and testing, with feedback loops into further development and customisation; it involved participant observation in live sessions, and interviews with volunteer Computing research students and supervisors, as well as eliciting the opinion of advanced and expert users of our technologies.

We are now in the process of conducting a second evaluation stage, covering the first year of the MPhil programme, where significant activities (induction, initial stages of supervision, research skills development, and progress monitoring) will be evaluated, feeding into an early project review at the end of year one. This will cover all the different technologies used and assess their uptake and their effect on supervision, research skills development and contributions to making students feel part of a wider research community.

In the follow-up stage, activities will continue to be sampled on a regular basis to guarantee coverage of all significant processes, till the first cohort of students reaches completion of the degree, at which point a programme life review will take place.

In the first stage, a questionnaire was sent to academics to elicit experiences of the use of technology to support supervision, enhancing research skills and building a research community for research students (MPhil / PhD) at a distance. The results of the first phase of evaluation showed that different technologies were used for distinct supervisory purposes; also different technologies suit different people for different tasks for different reasons. There was also an indication of a will to experiment and/or have fun alongside serious research activities.

These early results indicate, at this stage, that a wide set of technologies should be made available and that experimenting with the use of technologies, such as 3D worlds has potential benefits, in particular to add the fun element to collaboration at a distance.

A questionnaire was also sent to students supervised at a distance. A primary concern for students was a lack of feeling of connection, both with the supervisor and the wider student community. Again, as for supervisors, students used a variety of technologies.

From these early results, we feel reassured that offering a wide range of technologies in the Virtual MPhil has been a good choice, and in fact finding ways to expand the available technologies even further might be beneficial. For the available technologies, we will also be building a set of good practices and improve guidance offered to support choice of technologies.

4.1 Lessons learned

We have been supervising research students for a long time and learning from that experience to improve the support we offer. Since the programme was re-developed in 2001, we have been monitoring the CRC's PhD programme overall, taking into account a variety of inputs:

- exit interviews with completing students
- regular debriefings based on input from the weekly research skills seminars
- annual feedback sessions with students
- spontaneous feedback from students
- information from the students' 6-monthly progress reports.

These inputs have given us a strong basis for reflection not only on the efficacy of the programme over time, but also on the PhD process and how to support it.

Those students – both full-time and part-time – who engage in the student community, for example by participating in the regular research skills seminars and the annual conference, and by contributing to the wiki, tend to be those who complete on time and have a good student experience.

The facilities established with part-time students in mind have benefited the whole community, and have brought full-time and part-time students together. The online forum is an interesting example of how technology has augmented the existing processes. This online forum has been using the Virtual MPhil technical infrastructure, in particular an Elluminate Live! virtual classroom. It is typically attended by, on average, six students, with one of the authors leading a structured discussion. Topics are suggested either by the students or the leader. Although the online sessions are structured like the face-to-face sessions, we have observed that the dynamics of the online sessions are different from those of the corresponding face-to-face meetings. Because we want to encourage students to engage and to discuss their own research and ideas, we work to ensure that literally every student's voice is heard. This means that we may employ some fairly artificial mechanisms for turn-taking and polling input, and that we tolerate some awkward silences, but the students report nevertheless that the sessions are rewarding, and those who attend are keen on the continuation of these sessions. The topics discussed in the face-to-face and online sessions are not always the same, and the online forum has addressed some particular concerns of distance and part-time students (e.g., 'working remotely' or 'the trials and tribulations of a part-time student'). Because we use Elluminate's shared workspace to create notes collaboratively during online PG Forum sessions, there's a record of the discussion to put onto the group wiki straight away, for those who could not attend. (Notes of the face-to-face sessions are written up and posted on the wiki either by the host or one of the participants.)

One of the interesting lessons is that the facilities we've provided with part-time distance students in mind are being adopted by full-time campus-based students as well, bringing the part-time and full-time students into regular dialogue. The campus-based students saw no need for a Ning-type forum until the distance students started one, and then they joined in. Campus-based students are attending the on-line seminars as well as our weekly face-to-face sessions. The students are keen to be part of the discussion, and to keep up-to-date with other students. Other technologies supported by the Virtual MPhil's platform, such as social networks, have also been used to establish richer links among students. We encourage students to upload photos and personal profiles on the wiki, as a way of introducing themselves to each other.

Feedback from students on the online forum indicate their important role in making students feel part of a research community:

"Each [PG Forum] session starts with delegates telling of a 'success' in their research no matter how small this success might be. The peer group then comments on each success offering support and encouragement. This method of support works very well and is an extremely good way to motivate students. The academic content is also purposeful – rather than a one-way lecture it often involves preparatory work and the sharing of electronic material..."

"Forums [made me feel part of a research community], because I react to what other people say and they react to my comments"

"I felt that Elluminate sessions make the research students become more accessible and helpful to each other. For example during one Elluminate session I learned about the CRC PhD wiki as well as the site of the RD Skills. Attending online sessions more frequently can increase the familiarity between researchers and students. So online sessions are welcome"

"I am not really sure that the communication methods of half-duplex transmission with add-on asynchronous chat can ever fully create a shared experience to rival that of a face-to-face meeting, but it did feel more of a shared experience than just an asynchronous chat"

Students introduce each other to technologies. The use of tools such as social bookmarking tools propagates from one student to many, as the advantages are made manifest. One example is the 'drift' in bibliographic referencing tools. For many years, EndNote was the software of choice; the university provided licenses, and the students shared a host of tips and tricks on the student wiki. A few years ago, the preference shifted to Zotero, a free extension to Mozilla's Firefox browser designed to enable users to collect, manage, and cite research sources. The directness of interaction with web resources was attractive. Now Mendeley, with free backup of references to an online repository, is the preferred tool, because, as one student expressed it: *"Its integration with the web, easy import of references, and PDF annotation tools are definitely killer features."* Students share pointers to valuable

blogs and online resources, sometimes more formally through the group wiki, sometimes conversationally through email.

5 RELATED WORK

The literature on supporting research students at a distance is scarce and most of it was written a few years ago, before many important technological advances, such as virtual worlds, social networks, etc., and their widespread use.

Stacey [12] describes a 'virtual campus' for Doctor of Education (EdD) students, but her experiences are limited to asynchronous, text conferences in FirstClass⁷. Harbon and England [13] have more recently looked at the practice of a research degree at a distance; however, they focus on the development of the relationship between student and supervisor, not on the support offered to students for skills development nor on the overcoming of the isolation of a student from a researchers' community. Unwin [14] reports on his experiences of using information and communication technologies to "deliver a supportive distance-based model of supervision". His approach was to include distance students in face-to-face peer supervisory meetings through audio and video-conferencing, rather than organizing peer supervisory meetings with all students attending online. Unwin reports that distance students found this extremely challenging and that he was disappointed by the lack of uptake of distance students of Moodle facilities for peer interaction. In his approach, support for distance students' induction and training was limited to mainly sending them copies of handouts of face-to-face meetings or arranging meetings that they could also attend.

In view of what is reported in the literature the Virtual MPhil appears to be unique in having focused entirely on the support of distance research students and their training, without assuming that they should ever be present for face-to-face activities (other than for the final viva), or be happy with a mixed-economy of ICT-based participation in face-to-face meetings.

6 CONCLUSIONS

The OU, in the UK, has a long tradition of distance education. For research students, in particular, it has built a comprehensive support infrastructure and training programme. The Virtual MPhil builds on top of this long experience and on the re-developing of research degrees in 2001. It provides a platform of technologies to better support, in particular, those research students entirely at a distance, in their research skills development and integration in the research community. By offering synchronous, asynchronous and immersive technologies and building guidance, processes and best practices for these, it offers researchers a basis for the exploration and development of research environments that best support their needs and preferences.

Although the long-term evaluation has only just started, the early feedback we have already collected is reassuring in supporting our offer of a wide range of technologies. Through its long-term programme of evaluation and feedback from users, it is hoped it will also act as a repository of best practice guidelines in distance research degrees support [15]. By making the Virtual MPhil platform available to all students, full-time and part-time, we are also bringing these two communities closer into a more regular dialogue.

ACKNOWLEDGEMENTS

Many thanks go to our research students and the many academic colleagues at The Open University, UK who have contributed to the Virtual MPhil programme, particularly Ahmad Reeves, Graham Roberts, Darrel Ince, Shailey Minocha and Jon Hall.

⁷ <http://www.firstclass.com/>

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