G12 Raglan Thursday 6 December 9.00 - 11.00

Exploring perceptions about the role of information and communication technologies (ICT) in doctoral research processes (0145)

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Background

Information and communication technologies (ICT) have long been important in supporting doctoral research processes. It is believed that ICT should help PhD students to do background research, undertake data-gathering and analysis activities, support time/project management, scheduling, accessing/organising resources, facilitate and enable communication and the writing of the thesis; that is, support all phases of research and in the best possible ways (e.g., Onilude & Apampa, 2010). In addition, there is a wealth of evidence demonstrating the key role that high quality supervision plays in a successful PhD outcome (e.g., McCallin & Nayar, 2012). So how do these two important facets of research work come together within a PhD research journey? This study sought to explore the role played by ICT in doctoral research and supervision and how/if that role is being capitalised upon to enhance the facilitation of doctoral research processes.

Literature: A range of studies have focused on doctoral study and supervision more broadly and provided evidence of the need for supportive and well-planned ICT environments, so that staff and student learning about ICT use is facilitated effectively. These include research on doctoral supervision, research skills and professional development practice in New Zealand and Australia (e.g., Denholm & Evans, 2007; Rath, 2008). Some Australian studies on ICT skills and use have focused on postgraduate students (e.g., Dowling & Wilson, 2017), and there are some UK studies on students, though not necessarily doctoral students (e.g., Oliver, 2011). These studies indicate that (PhD) students continue to adopt educational practices incorporating limited ICT use, even though the use of ICT has grown enormously in the last 10 to 20 years. These bases (viz., literature about the nature of supervision; ICTs in tertiary teaching and learning; and ICT use by doctoral students as part of their research processes) provided the context of this project.

Design & Methods

The aim of this study was to explore PhD students' perceptions of the role and place of ICT in supervision and doctoral study with a view to examining more closely the claims that ICT use facilitates effectiveness and efficiency within the doctoral research journey.

Within an interpretive enquiry and analysis framework, data were gathered through a three-tier participative drawing process (e.g., Wetton & McWhirter, 1998) which involved discussion sessions mixed with a drawing activity in which participants were asked to illustrate where ICTs fit within the(ir) doctoral research journey. A general inductive approach (Thomas, 2006) governed the analysis of the drawing and discussion data to produce assertions about how ICTs are perceived and used by participants in the study.

Findings

The findings are around two areas.

a) *Knowing about ICTs is only part of the thinking. What is more important is getting the "flow" right.*

Students talked about how hard they had worked to set up routines and processes to enable them to manage time and their research projects. For example, they referred to categorising documents, searching for resources, undertaking analysis, managing data, and producing the thesis itself. Despite many references to attending training sessions to learn more about ICTs, their drawings highlighted routines and processes, showing how and when ICTs were used to undertake study and research related tasks and activities. What was clear was that those who talked about feeling comfortable with their research journey had set up a "flow" to suit their personal study needs. In that flow ICTs and their research journey were woven together, one complementing, supporting, facilitating and enhancing the other.

b) *ICTs are not neutral - there is a two-way interaction between technologies as artefacts and the use of them to achieve ends.*

When discussing their research journey alongside ICT use, students described how they had tried a variety of different ways (software, hardware, processes, systems) to match their preferred way of operating and meet their project needs. Upon finding a technology unsuitable, students sought other ICTs with different features and functions to test appropriateness. Despite this process sometimes being a little random or almost accidental (e.g., as a new idea/technology was 'stumbled' upon), it was not "mindless" trial and error, but broadly thoughtful, intentional and experimental. As well as finding technological 'solutions' to the challenge of facilitating a smoother research project "flow", a result of that search was a raised awareness of the demands of the research project, PhD/degree goals and personal preferences and needs as a researcher. During these phases, some students noted how their well-practiced ways of operating were brought into question. Just as the students made use of the ICTs to achieve their ends, so too did the ICTs affect the students' thinking and study practices, often causing them to modify how they engaged in their research and make changes in their so-called 'preferred' ways of working.

Implications

Knowledge of students' perceptions about ICT and use of ICT in doctoral study provides insights into how perceptions can facilitate or inhibit ways of thinking and acting, thereby influencing and determining PhD study effectiveness and/or efficiency. The research journey is as much about how it happens as about what happens.

These insights thus can become the foundations for addressing barriers to effective ICT use to not only support and facilitate the PhD research process, but also improve and enhance it. Recommendations for action include the need to create explicit learning opportunities for students and supervisors:

- to enable them to address how to embed and integrate ICT within their work, research and study practices: learning about the ICT journey is integral to learning about the research journey;
- to engage with ICT in such a way as to retain focus on research goals, while becoming explicitly conscious of one's work/research preferences and practices; and
- to develop flexibility in, and openness to, modifying or changing well-practiced ways of thinking and operating in response to new, perhaps previously unimagined, possibilities that the facilities and functions of ICTs can prompt and provide.

The outcomes of the study thus provide insights into the support needed by supervisors and students to integrate ICT for academic purposes in/during doctoral supervision and research.

References

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