Chapter 14
Technology-Enhanced Learning: Towards Providing Supports for PhD Students and Researchers in Higher Education

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ABSTRACT

There are many elements to an individual's life. Each individual engages in a variety of different activities which all require different types or forms of supports. Through family, friends, and colleagues, supports are available for many of the activities in which we engage. But, for students conducting research, specific types of support are necessary that can only be provided by supervisors and peers. This chapter reviews the supports necessary to learn how to effectively undertake research and how these supports could satisfactorily be provided through an e-learning portal or an e-learning platform. An e-learning module could be used to facilitate collaboration amongst student learners and researchers who share similar research interests. Students should be encouraged to develop a community of practice with fellow researchers as this relationship could provide beneficial peer support for as long as their research interests evolve and endure.

INTRODUCTION

This chapter investigates some of the issues which researchers encounter when performing their research and suggests that an e-learning module would assist researchers in overcoming these issues, "with the worldwide spread of journals in educational research, such technology-enhanced research has received much attention since the turn of the century" (Hwang & Tsai, 2011, p. 65). A Technology Enhanced Learning (TEL) or an e-learning module on research methods and statistical analysis is envisaged not as a replacement for existing structures to assist researchers, but as an enhancing technological solution to augment existing approaches through blended learning.

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Technology has enhanced research through the ease of access to electronic journals and other citable electronic media. The use of word processing applications and referencing packages has made the writing up of research findings more efficient. The use of statistical analysis applications, spreadsheets, and database packages, has streamlined the process of analysing data, and the production of graphs and charts to illustrate the findings. The use of graphs and charts has greatly improved the readability and understanding of research outcomes. Communications between co-authors, editors and publishers through e-mail has greatly improved the flow and process of publishing academic research. Online submission of electronic papers has further enhanced the publishing process.

Technology enhanced learning (TEL) refers to the support of teaching and learning through the use of technology and can be used synonymously with e-learning, technology enhanced research has the possibility of supporting researchers and perhaps improving the quality of research. An e-learning module is stored in a predefined location on an e-learning platform and is dedicated to a particular subject area. Students are provided with user names and passwords to access and contribute to this module. Because the e-learning module is online students can access this module at any time from any place providing they have the appropriate computer equipment and broadband access.

While collaborating on papers and writing chapters of books, realisation dawned that a greater knowledge and use of research methods and statistical analysis was necessary to improve the quality of research and meet the requirements of peer reviewers. "Improving the quality of the student learning experience is a key issue in the higher education sector" (Dermo, 2009, p. 203). Power, Miles, Peruzzi, and Voerman (2011), and Parkinson (2009), suggest students can benefit from peer-to-peer mentoring in higher education. Hence, this book chapter proposes that an e-learning module on research methods and statistical analysis which encourages peer-to-peer mentoring could effectively support students and researchers and encourage peer-to-peer mentoring.

"Due to a lack of formal research training and experience, students can find completing research projects a daunting task. This, coupled with a fear of statistics, can culminate in quite an overwhelming experience for many students" (Chen, 2012, p. 1). When one commences study for a PhD (Doctor of Philosophy), generally a BSc (Bachelor of Science) and MSc (Master of Science) have already been acquired to a high level of academic achievement, conferred with a First or 2.1 Honours. Research methods and statistical analysis may not necessarily have been included in the subjects covered in the discipline undertaken or possibly some time has passed and a refresher course is required to update skills. Therefore there is perhaps a need for researchers to familiarise themselves with the correct application of research methods and statistical analysis techniques to their specific research area. Some researchers will have a good understanding of research methods and instinctively know which method or combination of methods to apply to specific research, while other researchers may need guidance and support in the correct application of research methods and statistical analysis for specific research undertakings.

Not all researchers will need an extensive knowledge of statistical analysis to present their research, but an awareness of the different methodologies available for analysing research will enable researchers to select the most appropriate methodology to do justice to their work. The objective of such an e-learning module is to enable researchers to keep up to date with changes in approach in the field of statistical analysis and satisfy personal changing needs as each individual researchers work evolves with time. The term e-learning refers to various forms of teaching and learning which are facilitated through the use of technology.