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Explicit Research Skill Development in Pre-service Teaching Modules in a Bachelor of Education Degree

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Introduction

The development of research skills has come to the fore in the debate regarding research capacity at universities in South Africa and globally. In South Africa, the National Plan for Higher Education (2001) placed emphasis on the development of postgraduate research outputs and highlights the fact that Higher Education has a critical and central role to play in contributing to the development of an information society in South Africa both in terms of skills development and research. One of the objectives of the National plan is that the quality of academic programmes, including teaching and research, be improved across the system. The ultimate aim of the National Plan is to meet, through well-planned and co-ordinated teaching, learning and research programmes, national development needs, including the high-skilled employment needs presented by a growing economy operating in a global environment.

The context in which this research project takes place is a Faculty of Education at a University of Technology, in the Western Cape Province of South Africa.

This university celebrates its tenth anniversary this year and as such is classified as a developing university within the context of the South African university structures.

Historically, the Faculty of Education existed as a Teachers Training College, where research was not seen as a priority, but rather that the emphasis in the course was placed on the practical application of knowledge.

This research project speaks to the gaps which exist in the teaching of research skills in the various courses and aims to bring the teaching-research nexus closer together, in order to achieve the aims of the National Plan. This project also serves to propose a research skill framework which will address the articulation gap that exists between undergraduate and postgraduate research outputs.

The purpose of this project is to explore how the Research Skill Development Framework (RSD) can be used to explicitly develop research skills of pre-service teachers (undergraduates) at a University of Technology. The conceptual framework for this project (the RSD framework) has been developed by Dr John Willison and his team at the Centre for Learning and Professional Development at the University of Adelaide and has been trialled at various institutions in Australia. The RSD framework is designed primarily as a conceptual tool for diagnosis and planning, promoting understanding and interpretation of both potential and realised student research skill development.

According to Willison (2012: 915) there are very specific advantages for lecturers who are able to integrate the RSD approach in their course modules.

Firstly, RSD is useful in developing, finding and evaluating skills. Secondly, RSD is useful in developing the skill of research question framing, thirdly, the RSD develops research skills which are useful for employment, fourthly, research skills which are useful for subsequent study and research are developed and finally, the RSD has had gains for academics.

It is then proposed that the Research Skill Development framework, when used as a conceptual model, can explicitly and incrementally develop undergraduate research skills, allow faculty members to adapt research skills to their own disciplines and is highly flexible. It has enabled the modification of assessments so that they fit the agenda of explicitly developing research skills (Willison, 2009:14).

Methodology

This study made use of a single, intrinsic, exploratory case study methodology in order to answer the following research questions:

- Does the RSD raise awareness of research skills in pre-service teaching modules?
- What are the lecturer's perceptions of the RSD framework?
- Furthermore, it needs to be determined if the lecturers experienced any problems with the design and alteration of their assessments in order to accommodate the RSD.

The participants were conveniently selected and worked on a voluntary basis on the project. There were 6 participants who were all lecturers in the General Education and Training Bachelor of Education degree.

Findings

- The findings of this study indicate that the use of the RSD framework in the design of assessments does raise the awareness of research skills in pre-service teaching modules.
- Lecturers indicated that they thought that research skills were primarily related to reading skills but that the RSD framework provided an outline on which to build the explicit research skills they wished to develop.
- It also made them more aware of different research skills.
- The personal successes related by lecturers were related to filling voids in their teaching, providing structure to research and motivating students to conduct research.
- Some of the challenges faced by the lecturers included the fact that students ignored the rubric.
- That creating a rubric from scratch is difficult.
- It is time consuming in an already full curriculum.
- And that translating the document into Afrikaans/Xhosa is difficult.
- Generally speaking, all the lecturers involved in this project indicated that the implementation of the RSD framework into their assessments and teaching practices was a positive experience and that the students also benefited from the experience.

Research Skill Development Framework					
A conceptual framework for the explicit, coherent, incremental and spiralling development of students' research skills					
Extent of Students' Autonomy					
	Level 1 (Prescribed Research)	Level 2 (Bounded Research)	Level 3 (Scaffolded Research)	Level 4 (Student-initiated Research)	Level 5 (Open Research)
What characterises the difference between 'research' and 'researcher'? More searching and more data generation is just a 'bigsearch'! Research is when students...	Highly structured directions and modelling from educator prompt student research	Boundaries set by and limited directions from educator channel student research	Scaffolds placed by educator shape student independent research	Students initiate the research and this is guided by the educator	Students research within self-determined guidelines that are in accord with discipline or context.
a. Embark & Clarify Respond to or initiate research and clarify or determine what knowledge is required, heading ethical/cultural and social/team considerations.	Respond to questions/tasks arising explicitly from a closed inquiry. Use a provided structured approach to clarify questions, terms, requirements and expectations.	Respond to questions/tasks required by and implicit in a closed inquiry. Choose from several provided structures to clarify questions, terms, requirements and expectations.	Respond to questions/tasks generated from a closed inquiry. Choose from a range of provided structures or approaches to clarify questions, terms, requirements and expectations.	"Generate questions/aims/hypotheses framed within structured guidelines".	"Generate questions/aims/hypotheses based on experience, expertise and literature".
b. Find & Generate Find and generate needed information/data using appropriate methodology.	Collect and record required information/data using a prescribed methodology from a prescribed source in which the information/data is clearly evident.	Collect and record required information/data using a prescribed methodology from prescribed source/s in which the information/data is not clearly evident.	Collect and record required information/data from self-selected sources using one of several prescribed methodologies.	Collect and record self-determined information/data from self-selected sources, choosing an appropriate methodology based on structured guidelines.	Collect and record self-determined information/data from self-selected sources, choosing or devising an appropriate methodology with self-structured guidelines.
c. Evaluate & Reflect Determine and critique the degree of credibility of selected sources and of data generated, and reflect on the research processes used.	Evaluate information/data and reflects on inquiry process using simple prescribed criteria.	Evaluate information/data and reflect on the inquiry process using given criteria.	Evaluate information/data and the inquiry process using criteria related to the aims of the inquiry. Reflect insightfully to improve own processes used.	Evaluate information/data and the inquiry process comprehensively using self-determined criteria developed within structured guidelines. Reflect insightfully to refine others' processes.	Evaluate information/data and inquiry process rigorously using self-generated criteria based on experience, expertise and the literature. Reflect insightfully to renew others' processes.
d. Organise & Manage Organise information and data to reveal patterns and themes, and manage teams and research processes.	Organise information/data using prescribed structure. Manage linear process provided.	Organise information/data using a choice of given structures. Manage a process which has alternative pathways.	Organise information/data using recommended structures. Manage self-determined processes with multiple possible pathways.	Organise information/data using student-determined structures, and manage the processes, within the parameters set by the guidelines.	Organise information/data using student-determined structures and management of processes.
e. Analyse & Synthesise Analyse information/data critically and synthesise new knowledge to produce coherent individual/team understandings.	Analyse and synthesise information/data to reproduce existing knowledge in prescribed formats. "Ask emergent questions of clarification/curiosity".	Analyse and synthesise information/data to reorganize existing knowledge in standard formats. "Ask relevant, researchable questions from the research".	Analyse and synthesise information/data to construct emergent knowledge. "Ask rigorous, researchable questions based on new understandings".	Analyse and create information/data to fill knowledge gaps stated by others.	Analyse and create information/data to fill student-identified gaps or extend knowledge.
f. Communicate and Apply Write, present and perform the processes, understandings and applications of the research, and respond to feedback, accounting for ethical, social and cultural (ESC) issues.	Use mainly lay language and prescribed genre to demonstrate understanding for lecturer/teacher as audience. Apply to a similar context the knowledge developed. Follow prompts on ESC issues.	Use some discipline-specific language and prescribed genre to demonstrate understanding from a stated perspective and for a specified audience. Apply to different contexts the knowledge developed. Specify ESC issues.	Use discipline-specific language and genres to demonstrate scholarly understanding for a specified audience. Apply the knowledge developed to diverse contexts. Specify ESC issues in initiating, conducting and communicating.	Use discipline-specific language and genres to address gaps of a self-selected audience. Apply innovatively the knowledge developed to a different context. Probe and specify ESC issues in each relevant context.	Use appropriate language and genre to extend the knowledge of a range of audiences. Apply innovatively the knowledge developed to multiple contexts. Probe and specify ESC issues that emerge broadly.
... spiral through the facets, adding degrees of rigour and discernment as they dig and delve.	Research Skill Development (RSD), a conceptual framework for Primary school to PhD, developed by John Willison and Kerry O'Regan ©, October, 2006/November, 2012. Facets based on: ANZIL (2004) Standards & Bloom's et al (1956) Taxonomy. * Framing researchable questions often requires a high degree of guidance and modelling for students and, initially, may need to be scaffolded as an outcome of the researching process (Facet E, Levels 1-3). After development, more students are able to initiate research (Facet A, Levels 4 & 5). The perpendicular font reflects the drivers and emotions of research. Framework, resources, learning modules and references available at http://www.rsd.edu.au . For info: john.willison@adelaide.edu.au				