Empirical investigation of an adapted fourth generation evaluation: The case of evaluating a secondary science teacher preparation program

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I certify that the substance of this thesis has not already been submitted for any degree and is not currently being submitted for any other degree or qualification.

I certify that any help received in preparing this thesis and all sources used have been acknowledged in this thesis.

Signature:

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I have learned silence from the talkative, toleration from the intolerant, and kindness from the unkind; yet, strangely, I am ungrateful to those teachers

Khalil Gibran

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ABSTRACT

> *Every sentence I utter must be understood not as an affirmation but as a question*.
>
> Bohr

Empirical studies on how program evaluation theories are enacted in practice are scarce (Mark, 2008; Miller, 2010; Smith, 2010). Evaluation scholars need to understand the connection between the theory and practice of program evaluation models to enhance these models and defend their merit. This research employed a case study to examine how the theory underlying an adapted version of Guba and Lincoln's (1989) Fourth Generation Evaluation (4GE) model was enacted in the context of evaluating a secondary science teacher preparation program in one rural university in New South Wales, Australia.

This study comprised two components, the second of which is directly informed by the first. The first component was a case study evaluation of the Graduate Diploma in Education for Science Teaching using an adapted version of the 4GE (A4GE). The second component was an investigation of the implementation of the evaluation model, which was carried out as component One, and an exploration of the relationship between the model's theory and its practice using an interpretive case study approach.

Drawing on the work of Miller (2010) and other seminal researchers (e.g. Shadish et al., 1991; Owen, 2006; Smith, 2010), I synthesized the literature and developed a conceptual framework which incorporates a theoretical tool, the Program Evaluation Models' Essential Dimensions (PEMED), to clarify the theory of the A4GE and organize data collection about its practice.

Data for both components were collected from 23 interviews with 14 participants (lecturers and graduate science teachers) as well as from a virtual negotiation forum. I used the constant comparison method (Charmaz, 2011; Glaser & Strauss, 1967) to analyze the data pertaining to the evaluation of the program, and a two-steps approach combining constant comparison and negative case analysis (Robinson, 1951) to analyze data for the investigation of the implementation of the A4GE.

Evaluation findings from component One, the program evaluation case study, consisted of the positive and negative statements about the program, issues related to the program, as well as suggestions for improvement that lecturers and graduate teachers from the GDE(ST) had expressed about the program.

The findings from the second component, the empirical investigation of the A4GE uncovered areas of congruence and incongruence between the theory and practice of the A4GE. These findings revealed that the theory of the A4GE was operationally specific and offered me sufficient guidance to conduct the evaluation using an interpretive, responsive and context-bound approach, and made me aware of my roles and the roles of other participants. The A4GE theory also clarified the range of application of the model and specified the necessary conditions for its implementation. Furthermore, I found that many of the processes described in the A4GE were feasible in my case study and that at least some impact can be attributed to the A4GE.

Interestingly, the findings indicated that two components of the A4GE were not feasible in my case study: authentic partnership and negotiations. I argued that these components constitute serious limitations to the sustainable implementation of the A4GE in the current governance regimes within tertiary education institutions.

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GLOSSARY OF TERMS AND ACRONYMS

4GE	Fourth Generation Evaluation
A4GE	Adapted version of the Fourth Generation Evaluation
AITSL	Australian Institute of Teaching and School Leadership
Aspects	Concepts that can be classified under one theme
CCIs	Claims, Concerns and Issues
Claims	Positive statements about particular aspects of an evaluand
Component	Term used to describe the constituent parts of the research
Concerns	Negative statements about particular aspects of an evaluand
Dimension	Term used to describe the constituent parts of the PEMED
Element	Term used to describe the constituent parts of the conceptual framework
Factor	Term used to describe the constituent parts of the context
GDE	Graduate Diploma in Education
GDE(ST)	Graduate Diploma in Education (Science Teaching) stream
HOS	Head of School
Issues	Aspects of an evaluand about which participants express mixed (positive and negative) statements
NSWIT	New South Wales Institute of Teachers
PEMED	Program Evaluation Models' Essential Dimensions
PREX	Professional Experiences
School of Education	Division within a university dedicated to scholarship in the field of Education and to the preparation of teachers
STPP	Science Teacher Preparation Program
TEQSA	Australian Tertiary Education Quality and Standards Agency
Themes	Concepts discussed by participants in the study