

What supervisors expect of Masters in Education students before they engage in Independent Study: A Delphi study

It has been suggested that teacher education does not produce in certified teachers the analytic turn of mind needed to do inquiry (Labaree, 2003; Lampert, 2000; Lortie, 1975). Page (2001) described the students in her school's doctorate program as being naïve about the nature of research—the students assumed real research was positivistic, that qualitative methods were friendlier and more enlightening, while quantitative methods were daunting and difficult. However, candidates entering postgraduate research preparation in education are generally certified or licensed practitioners who are competent classroom professionals.

This context is similar to that of practicing counsellors (O'Brien, 1995; Peacock, 2001), distance educators (Jones & Cleveland-Inners, 2004), or MBA students (Albright, 1996); it is quite different to that of 'hard' science disciplines (Eisenhart & DeHaan, 2005). Such practitioners, upon entry to postgraduate research, will most often have worked and become experienced, competent professionals in fields that require high levels of interpersonal and social skills where 'craft' or experience-based knowledge is most highly prized (Eisenhart & DeHaan, 2005; Labaree, 2003; Leder, 1995; O'Brien, 1995). Thus, many practice-oriented applicants have a limited understanding of and expertise in the steps of the systematic and rigorous research process; typically they have had little or no undergraduate preparation in research design or data analysis (whether it be quantitative or qualitative), and lack knowledge of the epistemological foundations for social science research (Jones & Cleveland-Inners, 2004; Zubrick, Reid, & Rossiter, 2001).

This creates a significant challenge for research supervisors in disciplines like education, since students are less likely to be ready for independent research and are probably much more dependent on supervisors. Under the British approach to postgraduate study implemented in New Zealand and Australia (Middleton, 2001), masters thesis or dissertation research preparation is modelled on an apprentice relationship with a supervisor (Evans, 1995). Hence, regardless of any course-work completed by the student prior to the thesis research, the real work of preparing students in research methods is done by the supervisor in the process of completing the research study. The supervisor, having taken on responsibility for methods training during the research process, may only expect that the student knows the basics of data collection and analysis, have theoretical competence in the domain being investigated, and have good skills at writing and literature searching.

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Thus, while supervision may be the main method of equipping students with methodological competence, it makes sense to establish what a community of supervisors consider the key research knowledge and skills students need prior to engaging in independent research. This paper examines this problem within the context of a single case study site.

Design of research preparation programs

Relatively little mention is made in the research literature of what masters students should be capable of knowing and doing before conducting independent research. This stands in contrast to the larger body of literature related to defining research preparation at the doctoral level. For example, Little, Lee, and Akin-Little (2003) argued that North American students are required to take courses with explicit attention to statistics. In counselling psychology a relatively limited range of methods were found in a survey of doctoral dissertations; that is, 45% used correlational, 31% survey methods, 30% experimental between-groups, and only 28% used any type of qualitative methods (Kopala, Suzuki, Goldman, & Galdi, 1996).

In a Delphi study of 21 United States professors of educational research, over 100 desirable skills and knowledge outcomes were described for introductory educational research courses at the postgraduate level (Todd & Reece, 1989). Of those, five were voted as essential by all 21 panellists: that is, 1) identify questions or problem statements that do NOT lend themselves to the scientific method of analysis, 2) understand the concept of internal validity, 3) understand the concept of external validity, 4) have familiarity with research-oriented periodicals in own field or area of interest, and 5) critically evaluate a research report. It should be noted that the essential and important lists in their research were dominated by quantitative skills and knowledge, whereas qualitative skills were largely considered at best useful, or no consensus was reached. Despite the similarity of content amongst introductory texts in educational research, Todd and Reece (1989) indicated that in practice there is great diversity in what is actually taught and implemented in such courses.

In the UK, doctoral programs emphasized generic and subject-specific research skills with just over half of universities requiring such preparation, while employment related skills, teaching and demonstrating skills, and inter-personal skills were required and provided to less than half the candidates (Metcalf, Thompson, & Green, 2002). More recently, recommendations for doctoral research outcomes have included seven skills, knowledge, and habits of mind: that is, 1) substantive knowledge of the field, 2) think critically and theoretically, 3) frame fruitful research problems, 4) appreciate research as socially situated, 5) design research, 6)

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collect and analyse data, and 7) communicate with various audiences about research (Richardson, 2006). Boote and Beile (2005) have argued that the doctoral candidate especially needs to be able to generate a meaningful synthesis of literature as part of the research preparation, rather than just a cursory list of all literature published on a topic. Although beyond the scope of this paper, a very useful illustration of how a joint qualitative-quantitative research methods preparation program at the doctoral level in an American university was developed and implemented is given by Page (2001).

In Britain, a framework of eight quality standards for research degree programmes have been developed and illustrated with case descriptions from various UK universities (Metcalf, Thompson, & Green, 2002). These include 1) institutional arrangements for research degree programmes; 2) research environment; 3) selection, admission, enrolment and induction of students; 4) supervisory arrangements; 5) initial review and subsequent progress; 6) development of research and other skills; 7) feedback mechanisms; and 8) appeals and complaints procedures. Of most interest to this study are the standards related to the research environment, supervisory arrangements, and the development of research skills.

However, currently there is little agreement or consensus as to what research preparation graduate students need at the doctoral level, let alone the masters level (Eisenhart & DeHaan, 2005). Yet every tertiary institution offering postgraduate qualifications in education provides research preparation; perhaps an examination of course descriptions, assessment schedules, and contexts of high-quality institutions may lead to consensus. Nevertheless, various recommendations have been made largely around three major areas of research preparation: diversity of methods and contexts, practice in multiple contexts, and inclusion of personal, social, and managerial skills.

Diversity of methods

Throughout the literature is an emphasis on multiple and plural or diverse methods (Cochran-Smith, 2005; Larson & Besett-Alesch, 2000; Page, 2001; Siegel, 2006) including a wide range of qualitative and quantitative methodologies (Berliner, 2006; Jones & Cleveland-Inners, 2004; Maxwell, 2004) and evaluation research (Peacock, 2001). One of the reasons for advocating methodological plurality is the incredible complexity of educational research environments and the difficulty in coming to robust findings without taking account of such complexities (Berliner, 2002). These need to be contextualized in the student's relevant discipline and require the student to integrate methods with content (Larson & Besett-

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Alesch, 2000; McMichael, 1993). The diversity must also include awareness and understanding of the commonalities across methodological differences (Berliner, 2006). Methodological diversity implies recognition and respect for both teacher, practice-oriented knowledge and theoretical, research knowledge (Labaree, 2003). Thus, masters research preparation faces the daunting challenge of preparing novice researchers into a field which makes use of a wide variety of methods and philosophies.

Practice in multiple contexts

In order to respond to the amount that must be learned and the low level of initial preparedness identified in the education post-graduate student community, much emphasis is put on the necessity of providing cumulative and repeated opportunities to be part of hands-on research practice (Barry, 1997; Berliner, 2006; Constas, 1998; Larson & Besett-Alesch, 2000; O'Brien, 1995) where methodological understanding is applied in real world professional situations (Berliner, 2006; Peacock, 2001) preferably in trans- or multi-disciplinary research teams or partnerships (Burkhardt & Schoenfeld, 2003; Connell, 2004; O'Brien, 1995). Preparation has to address the complex political pressures, processes, and interaction patterns involved in completing research; students need to know how to deal with ego, politics, and misunderstanding, and so on (Sipe & Doherty, 1993). Students must have an opportunity to enter into a community of research scholars (Pellegrino & Goldman, 2002).

Personal, social, and managerial skills

Beyond research skills, methods, philosophies, and contexts, research preparation requires the development of a range of personal, social, and managerial skills not often conceived of as part of research. Students need to develop the intangible components of curiosity and intellectual excitement (Jones & Cleveland-Inners, 2004), the appropriate skills to adapt to the great variety inherent in a research career and the ability to handle insecurities in a research career (Connell, 2004), develop a range of interpersonal and management skills (McMichael, 1993; Richardson, 2006), including the ability to evaluate one's own, and that of others, research performance (Connell, 2004). Students must also become able to attract research funding, manage projects, and understand the possibilities and hazards of intellectual property (Connell, 2004).

Jones and Cleveland-Inners (2004) have offered an extensive specification of research methods goals and content for distance education masters students. They outlined six program goals for practice-oriented

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students, including: 1) become informed interpreters of literature, 2) understand epistemologies underlying social science research, and 3) attain personal attributes of audacity, reasoning, curiosity, rigor, and wonder. They specified basic and advanced research methods content in both quantitative and qualitative domains. They signalled a clear warning that the list they provided could not be taught in a single course, nor could students who have not had previous research experience master this material in one-term or in a single course. The extent to which these recommendations apply to masters rather than doctoral degrees is a matter for discussion.

Perhaps more achievable, Peacock (2001) provided significant detail as to the research methods content taught in a practitioner-oriented masters program. Research-oriented objectives included making sure all students 1) understand the common research methods used in their discipline, 2) understand the scientific method and the process of scientific research, 3) can differentiate between quantitative and qualitative methodology and determine the appropriate applications of each, 4) gain exposure to computer analysis of data, and 5) experience guided development of their research proposals.

Thus, although there are clearly no formal standards to adopt in establishing expectations, aims, curriculum, pedagogy, or assessment of research preparation, there is a growing sense of two directions at the masters level. One track involves most post-graduate education students returning to professional practice with abilities to consume, commission, conduct, and cooperate with research in their own contexts; and the road less travelled leads post-graduate education students to the conduct of advanced, original, and substantial research in a research institute or in a doctoral program. Maintaining a one size fits all program largely modelled on the 'Baby-Doc' notion may result in significant frustration and failure for both faculty and students.

Context

In 2005, the Auckland College of Education and The University of Auckland, School of Education merged to form the Faculty of Education on the premise that evidence-based research would inform faculty teaching. Through having cooperated around postgraduate programs for three years prior to the merger, the role of research methods courses became a source of discussion. Research methods courses were made compulsory but faculty sought to include a wide range of courses within the 'research methods approved' category. It was generally agreed that research methods courses were 'required' because of the preparation they offered for independent research for a thesis or dissertation. However, the

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criteria for evaluating the suitability of particular courses remained ill-defined.

In response to these emerging concerns and with the intention of promoting high quality research within the Faculty, it was decided to formally evaluate the quality of research preparation provided by the Faculty. Thus, from September 2005 to December 2006, a series of studies and investigations into the preparedness of masters students in the Faculty of Education for independent study was conducted, including the Delphi study reported here. The study was conducted with the approval of the Human Participants Ethics Committee (Ref. Numbers: 2006/Q/004 and 2006/207) and data were collected through voluntary participation of the faculty's staff.

Methodology

Delphi studies involve collecting opinions from a range of participants, assembling those opinions, and reflecting them back to the collective body of participants (Linstone, & Turoff, 1975). Then, further opinion is elicited from the participants in response to the full range of collected responses. After a set number of iterations, the participants then establish priorities by a balloting system to establish consensus of opinion without one group or person dominating the process. Although originally devised for obtaining consensus among experts who were geographically distributed, the process has been applied into many contexts. In this study, two rounds were implemented.

Participants

All academic staff listed on the register of masters degree research supervisors ($N=75$) were eligible to participate. All responses were anonymous and so specific characteristics of participants is not available. In Round 1, 30 or 40% of the total list gave responses. In round 2, 20 participants (27% of total or 67% of Round 1 participants) rated the Expectations list and 16 participants (21% of total or 53% of Round 1 participants) rated the Actions list. Hence, there is considerable non-participation and drop-off in participation, reducing somewhat the generalizability of results even to the site context itself.

Procedures

In Round 1, all supervisors were asked to list as many as they desired of the expectations they had of students prior to their starting independent research. Participants were asked to focus on the skills, knowledge, and understanding students needed to commence a masters thesis. The responses were collated by the author into major categories for ease of consideration. Each response was listed, even if it seemed redundant or

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highly similar to a different response in order to maintain the integrity of the original participants' contributions. 317 expectations in 13 categories were recorded. A summary report of these expectations and actions was circulated within the faculty in mid-2006.

In Round 2, all 75 masters supervisors were asked to rate each expectation collected in Round 1. After removing duplications, a total of 210 expectations were assembled. Voting asked participants to indicate when the expectation of the student should be fulfilled relative to the commencement of the research masters. The three categories were Before, Later, or Not at all. The Before category was further sub-divided into three quality levels—Basic, Proficient, Advanced—to indicate the level of proficiency the student needed to attain prior to commencing research.

The classification of expectations into categories was done by the author, with confirmation of the categories given by three senior administrators in the faculty who were project advisors (i.e., the Associate Dean (Academic), the Associate Dean (Research), and the Head of Postgraduate Programmes). Each of these advisors, excluding the author, independently indicated how suitable each expectation was for teaching in the context of a research methods course.

Analysis

The findings from Round 2 were analysed in two ways. First the relative expectation rating of each statement and each category of statements was determined. Second, the suitability of each statement for teaching within the context of research methods courses was determined.

Each of the BEFORE rating points was given a score value (1=Basic, 2=Proficient, 3=Advanced), giving greater weight to items that have an advanced competence expectation before starting a thesis. Later or Not at all ratings were given zero values as these did not indicate the expectation should be met before the student commenced the research thesis. The summed score was found by multiplying the number of voters at each rating point by the score value for the expectation. The number of voters for each expectation was found and a proportion of the maximum 20 was found. Note only 22 expectations obtained 20 votes, suggesting great diversity in supervisor expectations. The effect of this is to reduce the absolute value of the summed score for most expectations but it prevents a few extreme raters from skewing the value of an expectation for which most raters were silent. A score of 1.00 or more suggests that there was strong agreement that a Basic level the skill set was expected prior to starting independent study.

The number of raters (range 0 to 3) indicating that the expectation was teachable and suitable for inclusion in a research methods course was recorded. The correlation between teachability score, the suitability for

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inclusion in a methods course, and the weighted rating was found as a way of establishing the relationship between agreed expectation and probability of being validly included in a research methods course.

Results

Only results from Round 2 are presented in this paper. Because of space constraints only the highest and lowest rated Expectations are reported. A full list is available upon request from the author. The 212 expectations were grouped into ten categories by the author.

The largest group of expectations (representing 59% of all expectations) revolved around data design, collection, and analysis techniques, including quantitative and qualitative approaches. The next largest category (13%) was a group of personal, social, and managerial skills called self-regulation ability. A further 10% of expectations revolved around writing skills for academic purposes, including mechanics and rhetorical organization. The remaining seven sets of categories accounted for 1 to 4% each. Abilities related to critical, logical reasoning and analysis were grouped as Thinking Skills, while ability to locate and evaluate information sources were group as Search Skills. Supervisor characteristics refer to attributes and experience of potential supervisors, while environment refers to factors in the institutional context which support students to carry out research. A strong concern within educational research in New Zealand is special attention to cultural considerations of the indigenous Māori people and Pasifika immigrants. Two expectations were generated anew in Round 2 and did not fit previous categories and were grouped as New. Ability to communicate and present orally were called Speaking Skills.

The mean adjusted score weighting for each expectation was 1.01 ($SD=.54$), suggesting that most items were valued at the basic level by the faculty involved. Items having a score more than 1 SD higher than the grand mean (i.e., 1.56) were considered highly rated, while those more than 1 SD below the mean for their own category were considered non-endorsed. Table 1 shows the 10 Expectations categories and basic descriptives. Six categories had mean ratings of >1.00 indicating as a whole the staff expected more than Basic ability in those groups. The two least endorsed categories were the New group and the Cultural consideration group, suggesting that these seven expectations were valued strongly only by one or two staff. Interestingly, the Data techniques and Environmental factors received similar but relatively weak levels of endorsement.

<<Insert Table 1 about here>>

Given the variability in ratings within categories and the large number of expectations, it is insightful to examine those expectations that

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received very high (>1.56) ratings and very low ratings (i.e., lower than 1 *SD* of the category mean). A total of 36 expectations were highly rated, falling into seven of the 10 major categories (Table 2). These predominantly focused around writing abilities (12 items), self-regulation ability (11 items), and literature and library search (6 items). A total of 32 expectations fell below 1 *SD* within each group. Perhaps unsurprisingly, two-thirds of the lowest rating expectations were in the domain of data design, analysis, and collection techniques—nine items were general research design issues, nine were specific statistical methods, and six were to do with a variety of qualitative techniques. Sensitivity to socio-cultural factors in conducting research with or in Māori and Pasifika designs were rated low as were three Writing techniques.

<<Insert Table 2 here>>

Teachability

Of the 212 expectations, 160 (75%) expectations were considered teachable by just one rater, 62 (29%) were selected by two raters, and 43 (20%) were selected by all three. Thus, 105 were considered teachable by at least two raters. However, only 126 expectations were selected as appropriate for a postgraduate RM course, with just 27 (13%) selected by all three. A further small group of items ($k=13$) were deemed by all three raters to be teachable and two agreed they were appropriate for postgraduate research methods courses. The correlation between the teachability of each statement and its suitability for research methods courses was $r=.69$, indicating a moderate level of agreement between the two dimensions. Nonetheless, these 40 expectations are provided in Table 3 as a plausible basis for the design of research methods preparation for independent study at the masters level. Ninety percent of the teachable expectations were within the data design, collection, and analysis techniques category, suggesting that how to do a wide variety of research is clearly considered teachable. Unfortunately, it also suggests that many of the highly valued expectations in Table 2 will need to be taught, if at all, elsewhere than in postgraduate research methods papers.

<<insert Table 3 here>>

The correlation of each statement's teachability score with the statement's expectation score was very weak ($r=.14$)—simply, what was expected by supervisors was only marginally considered teachable. The correlation of the expert's judgement that the expectation could be included in a research methods course with the adjusted expected score was fundamentally zero

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($r=-.02$)—in other words, there was no systematic agreement or disagreement between what was considered expected and what was considered teachable in a postgraduate research methods course.

Discussion

It would be very tempting to consider, from this study, that what supervisors expect of postgraduate students before they enter independent research cannot be taught and is not appropriate to postgraduate research methods courses. However, this result, based on combined ratings of just three judges, should be taken cautiously. Nevertheless, this sample of masters supervisors currently expect students to be able to do, know, or understand things that may not be legitimately expected to be taught in a postgraduate research methods course.

Education is a practice-oriented profession as well as being a scholarly discipline within the academy. The majority of students entering postgraduate studies in the Faculty of Education come from a strong practice-oriented experience and preparation. This means, perhaps unlike 'hard' sciences, that many students have little experience or knowledge of research and many of the lecturing faculty may themselves be new to postgraduate research. Furthermore, the essential skill set and epistemology brought to postgraduate study by practice-oriented educators is not predominantly analytic, conceptual, or inquiry-based—it is experiential, relational, holistic, and intuitive. At the same time, provision has to be made for students who come through undergraduate disciplines other than teaching (e.g., psychology, philosophy, sociology, psychology, mathematics, English, etc.) who are seeking early preparation for scholarly research in the academic disciplines within education.

It remains to be agreed as to the appropriate research methods curriculum for practice-oriented masters students and how to reconcile the differing purposes and applications. Some examples of practitioner-oriented masters research preparation programs were found in the literature and three major principles for the design of research methods preparation were elucidated from the literature. Research preparation programs should 1) ensure diversity of knowledge and skills are delivered, 2) give much opportunity is given for practice, and 3) aim for the development of a range of personal, social, and managerial skills.

This study has shown that a wide range of expectations concerning skills, knowledge, understanding, and attributes of students exist. Further, the data suggests that beyond the literature review and appropriate search strategies, there is very little agreement as to what should be taught in postgraduate research methods courses. Indeed, many of the important expectations may not even be teachable within a postgraduate research methods course. It may be that the dominance of the British model of

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supervisor-taught research methods during the conduct of the student's thesis research explains this pattern of results. If so, then the nature of research methods preparation may need to be redesigned to fit better with a 'learned-on-the-job' model supervisors seem to be practicing. Since there is such a wide gamut of research methods options for use within education research, it seems most unlikely that all the important methodological content can be taught within even a year-long course. Furthermore, since students have such a wide range of interests it seems highly unlikely that one course could meet all interests, needs, or requirements. What remains to be seen is whether supervisors can reach consensus as to what can actually be taught in research methods courses and whether that consensus can lead to the design of an appropriate and agreed curriculum and assessment scheme for the research methods courses.

Thus, any institution seeking to improve the quality of research methods preparation and seeking to improve student independence would do well to investigate and determine for itself what its expectations are and what its clients' requirements are. Clearly, this study would seem to indicate that no single generic course would be sufficient to produce practitioners who can consume research powerfully, let alone produce practitioners capable of investigating and evaluating practices within their own institutions, or engaging upon the much lengthier process of becoming a full academic researcher. Neither would such a generic course necessarily suit the needs of the education post-graduate student seeking to pursue advanced research methods knowledge, skill, or ability.

Whatever curriculum response may be taken for research methods preparation, a number of important research studies could be conducted. For example, an evaluation of current research methods assignments and examinations would determine the degree to which course assessments require the expectations identified as valuable by this study's sample. It would be interesting to determine the feasibility and validity of measuring candidates' research skills, knowledge, and understandings prior to their commencing independent research, so that well-prepared students might be exempted from unnecessary training. A survey of examiner's reports for completed masters theses, relative to the grade awarded, would help ascertain the nature and quality of the methodologies used. Nonetheless, this study has taken a small step toward understanding important issues around preparing education students for independent research at the masters level.

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Table 1. Weighted Mean Scores for 10 Expectations Categories

Category	N	M	SD	Range boundary	
				High >	Low <
1. Search Skills	7	1.78	.16	1.95	1.62
2. Speaking Skills	2	1.69	.36	2.05	1.32
3. Supervisor Characteristics	7	1.61	.26	1.87	1.35
4. Self-regulation Ability	27	1.50	.40	1.89	1.10
5. Writing	21	1.48	.70	2.18	.78
6. Thinking Skills	9	1.40	.16	1.57	1.24
7. Data Design, Collection, & Analysis Techniques	126	.77	.35	1.12	.43
8. Environment	6	.71	.14	.84	.57
9. Māori/Pasifika cultural considerations	5	.34	.39	.74	.00
10. New	2	.09	.04	.13	.05
<i>Grand Total</i>	<i>212</i>	<i>1.01</i>	<i>.54</i>	<i>1.56</i>	<i>0.47</i>

Table 2. Highest and Lowest Rated Expectations by category

Expectations by Category	Weighted 'Before' Rating
Highest Rated Expectations	
<i>Writing</i>	
1. Write coherent sentences	2.39
2. Ability to use word processor for writing & editing	2.22
3. Good academic writing skills	2.18
4. Construct well-structured paragraph	2.11
5. Accurate spelling and grammar	2.00
6. Write a well-crafted piece of work	2.00
7. Argue position cogently, cogent writing style	1.94
8. Can write summary of an article, or key findings or arguments	1.90
9. Write coherently, logically, and concisely	1.88
10. Use citation & referencing skills accurately (esp. APA)	1.82
11. Able to write appropriately structured and mechanically appropriate reports	1.67
12. Excellent citation & referencing skills	1.61
<i>Self-Regulation</i>	
1. Self-direction, independence, self-initiating, self-motivation, Self-sustaining	2.18
2. Commitment to put in effort & time	2.06
3. Desire to find things out; curiosity	2.06
4. Excitement about the topic, problem at hand	2.00
5. Time management	1.94
6. Require students to be demonstrably self-managing	1.86
7. Take responsibility for maintaining record of supervision meetings and act on agreed points	1.73
8. Independence at writing	1.67
9. Actively stay in contact with supervisor	1.65
10. Acceptance that writing is hard work	1.63
11. Independence at accessing literature	1.63
<i>Search Skills</i>	
1. Able to source literature	1.95
2. Use range of library catalogues & databases, bibliographic tools	1.95
3. Access literature wide range of sources	1.85
4. Know how to find relevant material	1.80
5. Know basics of literature review	1.79
6. Carry out systematic, focused literature searches	1.65
<i>Supervisor</i>	

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Expectations by Category	Weighted 'Before' Rating
1. Appropriate workloads set for supervision	1.93
2. Provision of actively researching and publishing supervisors	1.86
3. Structured interactions between supervisors and students	1.69
<i>Data Design, Collection, & Analysis Techniques</i>	
1. Some knowledge of own topic	1.67
2. Already taken courses in content area in which want to study	1.64
3.	1.56
4. In own research area, know field, discipline, theory, concepts, content, literature	
5.	
<i>Thinking</i>	
1. Ability to think critically	1.67
<i>Speaking</i>	
1. Ability to express ideas orally	1.94
Lowest Rated Expectations	
<i>Data Design, Collection, & Analysis Techniques (Threshold =0.44)</i>	
1. Know strengths & weaknesses of statistical techniques	.44
2. Identify whether research questions are answered and why	.44
3. Know common sampling frames & types	.44
4. Know features & suitability of using emancipatory research	.44
5. Understand features of research: questions examined, withstand scrutiny	.44
6. Able to conduct & interpret descriptive and univariate inferential statistics	.41
7. Completed ethics application	.41
8. Understand historiographic analysis	.39
9. Understand statistical growth & increases	.39
10. Epistemologically ecumenical	.35
11. Know how to derive coding categories	.35
12. Know how to establish reliability of coding	.35
13. Understand document analysis	.35
14. Engaged in qualitative analysis (e.g. discourse) in seminar or project	.33
15. Read & evaluate the statistical procedures current in the literature (SEM, HLM)	.30

Expectations by Category	Weighted 'Before' Rating
16. Analyze and evaluate data in diverse settings	.29
17. Passing understanding of non-parametric analyses	.19
18. Training in teaching of inquiry skills to school students within one curriculum area	.19
19. Understanding of appropriate analytic software	.19
20. Be aware of and/or apply modern psychometric models and methods (IRT & SEM)	.18
21. Develop and validate a wide variety of instruments	.17
22. Have taught inquiry skills to students within one curriculum area	.13
23. Deeper understanding of either quantitative or qualitative methodologies	.11
24. Understand rationale behind sophisticated multivariate inferential analyses	.06
<i>Socio-cultural considerations</i> (Threshold =0.68)	
1. Understand that in some Māori settings protocols are expected and consultation may be required	.06
2. Understand that not all Māori research requires consultation	.06
3. Understand that the implication of Māori research may have ongoing commitments from researcher	.06
4. Understand cultural judgement is required as to what is required within the setting	.06
<i>Writing</i> (Threshold =0.83)	
1. Be inculcated into writing articles for publications aimed at a variety of audiences	.25
2. Understanding of evolutionary nature of writing research	.24
3. Be familiar with grant writing and sources of funding	.17
<i>Self-regulation</i> (Threshold =1.08)	
1. Worked in collaborative group project	.41

Table 3. Teachable Expectations for Postgraduate Research Methods Courses in Education.

Expectations by Category
<i>Data Design, Collection, & Analysis Techniques</i>
1. Know common sampling frames & types
2. Know features & suitability of experiments
3. Know features & suitability of policy analysis
4. Know features & suitability of single-subject study
5. Know features & suitability of using action research
6. Know features & suitability of using case study
7. Know features & suitability of using emancipatory research
8. Know features & suitability of using field study
9. Know features & suitability of using participatory research
10. Know how to derive & frame research questions
11. Know sampling techniques
12. Have skills at questionnaire construction
13. Know about & skills to construct data collection tools
14. Know about, understand & able to read quantitative, qualitative, & mixed method research
15. Knows what counts as evidence
16. Select method/tools for problem appropriate to field or question or purpose or hypotheses
17. Understand different evidence/information provided by different methods
18. Understand threats to reliability
19. Understand threats to validity
20. Understanding of different philosophic bases for research
21. Engaged in qualitative analysis (e.g. discourse) in seminar or project
22. Know how to derive coding categories
23. Know principles & processes of qualitative data analysis
24. Know strengths & weaknesses of statistical techniques
25. Understand & able to use common methods of analysis
26. Understand Document Analysis
27. Understand Historiographic analysis
28. Understand research is not value free
29. Understand statistical growth & increases
30. Understand statistical probability
31. Overview knowledge about basic methodologies, methods, & strategies
32. Prepare appropriate ethics application
<i>Writing</i>
33. Able to present own views of literature
34. Know basics of literature review

Author

Expectations by Category

35. Can write summary of an article, or key findings or arguments

36. Write critical, scholarly review of literature; synthesis of ideas and answers research questions; with embedded argument

Search Skills

37. Use range of library catalogues & databases, bibliographic tools

38. Can determine relevance of article to chosen topic; discriminate selection

39. Carry out systematic, focused literature searches

Socio-cultural considerations

40. Understand that Pasifika and Māori research requires prior consultation and empowerment
