

**GUIDELINES FOR GENERATING  
A BEST EVIDENCE SYNTHESIS  
ITERATION 2004**

**Ministry of Education  
Te Tāhuhu o te Mātauranga  
Aotearoa New Zealand**

**Iterative Best Evidence Synthesis Programme**

Prepared for the Ministry of Education  
Author: Dr Adrienne Alton-Lee, Medium Term Strategy Policy Division  
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# 1 Planning for a Best Evidence Synthesis<sup>1</sup> Iteration

These *Guidelines for Generating a Best Evidence Synthesis Iteration* are designed to assist prospective BES writers, advisers and formative reviewers of Ministry of Education best evidence syntheses. Each synthesis is called an iteration, in recognition of the ongoing and dynamic nature of the BES knowledge building approach that critiques and builds upon previous work and anticipates future iterations. These *Guidelines* are a tool to help achieve a fitness-for-purpose approach, that aims to build progressively and strengthen the evidence base that informs educational policy and practice in New Zealand.

Prospective writers should refer to the published BESs<sup>2</sup> to see how other writers have grappled with the challenge, and to consider how a new BES iteration would build upon, or add to, work done to date. The *Guidelines* have been prepared in consultation with the writers of the Ministry of Education's initial best evidence synthesis iterations (BESs), the BES Standards Reference Group, the BES Māori Educational Research Advisory Group, and the BES Pasifika Educational Research Advisory Group. Section 9 of the Guidelines acknowledges the invaluable advice given by these groups and lists their membership. The BES *Guidelines* have also been informed by a paper by Dr Brian Haig, that is available upon request: *Methodological Considerations for Generating Best Evidence Synthesis Iterations*<sup>3</sup>. A background paper on the Ministry of Education's iterative best evidence synthesis approach is also available: *Improving educational policy and practice through an Iterative Best Evidence Synthesis Programme*<sup>4</sup>. That paper explains the origin and rationale for the iterative best evidence synthesis methodology and is a resource for prospective BES writers and their advisers.

Generating a best evidence synthesis iteration will require one lead writer (or two working collaboratively), who takes responsibility for the synthesis project, and for ensuring continuity, rigour and coherence in the final report. The lead writer(s) will need to bring together an advisory group and to create sustained networks with, and collaborate with, educational researchers who bring a wide range of educational expertise and knowledge to the synthesis development task.

The *Guidelines* provide general guidance and a starting point that draws from the experience of those who have prepared previous best evidence syntheses, contributed to quality assurance, and/or brought particular expertise in educational research, or policy needs, to their development. These *Guidelines* will provide a foundation for a fitness-for-purpose approach given the specific focus of a particular best evidence synthesis iteration.

BES writer(s) in particular, will contribute to the evolution of the BES methodology. As writers, advisers, policy-makers and methodologists grapple with the new challenges arising

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<sup>1</sup> The New Zealand Ministry of Education's Iterative Best Evidence Synthesis Programme owes a debt of gratitude to, is inspired by, but is quite different from Slavin's best-evidence synthesis approach. See Slavin, R. (1986). Best-evidence synthesis: An alternative to meta-analysis and traditional reviews. *Educational Researcher*, 15(9), 5-11.

<sup>2</sup> For copies of published reports refer to: [www.minedu.govt.nz/goto/bestevidencesynthesis](http://www.minedu.govt.nz/goto/bestevidencesynthesis)

<sup>3</sup> Haig, B. (2004). *Methodological considerations for generating Best Evidence Synthesis Iterations*. Unpublished paper prepared for the Ministry of Education's Iterative Best Evidence Synthesis Programme. Christchurch; Department of Psychology, University of Canterbury. Available upon request from [adrienne.altonlee@minedu.govt.nz](mailto:adrienne.altonlee@minedu.govt.nz)

<sup>4</sup> Alton-Lee, A. (2004, April). *Improving educational policy and practice through an Iterative Best Evidence Synthesis Programme*. Paper prepared for OECD-US Seminar on Evidence-Based Policy. Washington D.C. Web site: <http://www.excelgov.org/displayContent.asp?NewsItemID=5205&Keyword=prppcEvidence>

out of each new best evidence synthesis endeavour, we are collectively able to benefit from the development achieved, and take our approach to knowledge building forward.

## 1.1 Getting to Grips with the BES Purposes

The most important requirement of a best evidence synthesis iteration is that it achieves its purposes. The primary purpose is given below in paragraph (i) and elaborated in paragraphs (ii) to (viii).

- i. The primary purpose of best evidence synthesis iterations is to systematically identify and bring together, evaluate, analyze, synthesise, and make accessible, relevant evidence linked to a range of learner outcomes in a timely manner, to facilitate the optimising of desirable outcomes for the diverse<sup>5</sup> learners in the New Zealand education system.
- ii. Best evidence synthesis iterations bring a systematic approach to evaluating what the New Zealand evidence and international research reveals works, in order to illuminate how different policies, contexts, systems, resources, approaches, practices, alignments and influences impact on diverse learners.
- iii. Best evidence synthesis iterations are intended to deepen understanding of what works in education, how context is significant, what the evidence suggests can make a bigger difference to optimise outcomes for diverse learners, and what the evidence suggests about effective educational development approaches.
- iv. The series of best evidence syntheses will help to strengthen education policy<sup>6</sup> and educational development in ways that effectively address patterns of systematic underachievement in New Zealand education and, simultaneously, make a bigger difference for the diverse learners in the New Zealand education system.
- v. Best evidence synthesis iterations have a key role to play in knowledge building that will strengthen system responsiveness to, and educational outcomes for, Māori.
- vi. Best evidence synthesis iterations have a key role to play in knowledge building that will strengthen system responsiveness to, and educational outcomes for, Pasifika.

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<sup>5</sup> New Zealand's education system is serving an increasingly diverse student population. To achieve our goals we need to develop a system that succeeds well with diverse students rather than with a narrower range of learners. The use of the term 'diverse' in best evidence synthesis affirms the status of Māori as tangata whenua. The use of the term diversity rejects the notion of a 'normal' group and 'other' or minority groups of children and constitutes diversity and difference as central to educational practice. Diversity encompasses many characteristics including ethnicity, socio-economic background, home language, special needs, including disability, and giftedness, and gender and sexuality. Teaching needs to be responsive to the diverse realities within 'groups', for example, diversity within Māori, Pakeha, Asian and Pasifika students. The use of the term 'diversity' rejects the stereotyping of individuals by group affiliation and denotes the diversity within individual students, influenced by intersections of gender, cultural heritage(s), socio-economic background, and talent, that contribute to learner identity. Evidence shows teaching that is responsive to student diversity can have very positive impacts on low and high achievers at the same time. The 'responsiveness to diversity framework' is elaborated further in Section 2.3.

<sup>6</sup> The BESs as a group constitute a resource for a wide range of policy development activities within the Ministry of Education and its inter-agency work. The production of a synthesis should be seen as focussed on synthesising relevant evidence in ways that make that evidence transparent and informative for policy development processes. BES writers are not required to engage with formal policy development processes in the production of a BES, although they may be invited to assist with such work subsequently.

- vii. The series of best evidence syntheses will make more transparent the evidence base that informs education policy and practice in New Zealand.
- viii. Best evidence synthesis iterations are intended to contribute to an ongoing evidence-based discourse amongst policy makers, educators, researchers, teacher educators, and educational leaders, that will in-turn inform dialogue with learners and the wider community about what works and what can impact positively on learners.

## 1.2 The Iterative BES Methodology as an Evolving Fitness-for-Purpose<sup>7</sup> Approach

The methodology for best evidence syntheses has been developed to enable the syntheses to meet the Ministry of Education's purposes (see Section 1.1). BES purposes require quite a different approach from those taken for many traditional or systematic literature reviews.

The following characteristics of a BES approach are addressed more fully throughout the *Guidelines*.

- Although the BES approach requires of writers depth of theoretical knowledge and expertise in the area of focus, the purposes of the BES require cross-paradigm knowledge building work, attention to theoretical pluralism, responsiveness to diversity, and understandings of the needs of multiple audiences. Such a challenging scope calls for collaborative and iterative development processes. Accordingly the Ministry of Education's BES Standards Reference and Māori and Pasifika Educational Research Advisory Groups have emphasised the importance of partnership, consultation, collaboration, interaction, dialogue, engagement, good will, iterative processes and tolerance in the development process.
- The best evidence synthesis approach is a knowledge building strategy that draws on New Zealand and international research to illuminate what works in the New Zealand context. This means paying attention to New Zealand contexts in the inclusion, analysis and interpretation of studies. Key considerations include attention to issues of language and culture for Māori as tangata whenua in Māori and English-medium education, the historical context of New Zealand education, the cultural diversity of the New Zealand population, current population patterns and demographic projections.
- A health-of-the-system framework<sup>8</sup> underpins the best evidence synthesis programme and focuses on what the evidence shows does work, what is sustainable, and why.
- A sustained focus on meeting the needs of diverse learners at the same time, affects the selection of research considered, the approach to analysis, and the need for attention to the complexity of any particular context;
- Current trend data shows relatively poor system performance for Māori educational outcomes, at primary level, and in retention and senior secondary schooling qualifications, along with evidence of relatively high achievement of many Māori learners, particularly in senior secondary Māori-immersion wharekura and at tertiary through to doctoral level. BES writers are required to familiarise themselves with current outcome trend data, the wider literature on influences on Māori educational achievement, and landmark international studies of influences on indigenous learners in order to

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<sup>7</sup> Boaz, A., & Ashby, D. (2003). *Fit for purpose? Assessing research quality for evidence based policy and practice*. Working Paper 11. University of London: ESRC UK Centre for Evidence Based Policy and Practice.

<sup>8</sup> The best evidence synthesis programme was initially developed within the Medium Term Strategy Policy Division of the Ministry of Education to ensure a policy focus on what can make a bigger difference in the development of education indicators.

ensure an embedded approach to relevance for Māori learners. These **Guidelines** include a companion paper that illustrates BES development strategies to strengthen such an embedded approach: *Working in Partnership on Knowledge Building BES Strategies that can Inform Approaches to Strengthening Māori Educational Outcomes*. A Māori Educational Research Advisory Group has advised upon on core background readings to support BES writers in their preparation for writing a BES, and an updated list will be provided for prospective BES writers.

- Current trend data shows relatively poor system performance for Pasifika educational outcomes. BES writers are required to familiarise themselves with the diversity of Pasifika, and to deconstruct what the ‘Pasifika umbrella’ means in terms of Pacific Nations backgrounds, diversity within Pacific groups, recency of immigration, proficiency in languages, multiple heritages, and intersections with gender, social class of family and so on, in order to ensure relevance to Pasifika learners in the BES. A companion paper has been prepared to ensure an embedded approach to relevance of Pasifika learners in New Zealand education: *Working Paper in Progress on Strategies Used for BES Knowledge Building that Can Make a Bigger Difference for Pasifika Learner Outcomes*. A Pasifika Educational Research Advisory Group has advised on core background readings to support BES writers in their preparation for writing a BES, and an updated list will be provided for prospective BES writers.
- Synthesis calls for a cross-paradigm and cross-disciplinary approach to investigating educational research literature. This approach requires researchers to consider a range of research outside their own area of interest or particular expertise.
- Attention to a body of evidence generated out of a range of research approaches that include evidence of influences linked to student outcomes, is a distinctive feature of the Ministry of Education's BES approach. BES writers are required to ascertain the degree of robustness of the knowledge claims synthesised
- Attention to the worth or goodness of explanatory theories, including their explanatory coherence is an important, but neglected, dimension of research synthesis.
- Strategies such as triangulation play a key role in making sense of a range of research findings from within and between different kinds of studies. Triangulation can take many forms in best evidence synthesis. For example: comparisons among studies where the data has been collected at different times, in different contexts for the same learners, or from different samples of learners, where different methods have been used to gather information on the same or similar research questions, and where researchers with different theoretical standpoints have examined the same issue. Triangulation can be used to interrogate educational processes working among and across different groups. For example, the higher performance of Māori in Years 11 and 12 in *wharekura*<sup>9</sup>, than that of Māori learners in English medium schooling, raises significant questions. Other examples include: triangulation of findings for Samoan learners who are recent immigrants to New Zealand with findings for Samoan learners who have been born in New Zealand; triangulation of findings for Pakeha boys from low socio-economic status families with those for Pakeha boys from high socio-economic status families; triangulation of findings for Tongan learners educated in Tonga with those for Tongan learners in New Zealand and so on. Further, specific examples of fruitful triangulation are provided in the Partnership papers in Section 10.

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<sup>9</sup> Ministry of Education (2001). *New Zealand Schools Nga Kura O Aotearoa. A report on the compulsory school sector in New Zealand 2000*. Ministry of Education: Wellington. (p.98). See also Ministry of Education (2002). *New Zealand Schools Nga Kura O Aotearoa. A report on the compulsory school sector in New Zealand 2001*. Ministry of Education: Wellington

- Considerable work is needed at the synthesis stage to translate the findings into a form that can be of most use to policy makers. (For example, this will include representing the relative strength of the range of influences identified.)
- The need for accessibility to multiple audiences (policy makers, educators, teacher educators, researchers) requires particular attention to these various audiences through writing style.

### **1.3 Building-in an Interactive and Collaborative Approach with the Ministry of Education**

Best evidence synthesis is iterative and involves bringing together academic research in ways that are useful for policy. It is focused on what works, and why (and in some cases what does not work<sup>10</sup>) rather than on a general critique, in order to inform policy and educational development. It is cognisant of the needs of policy.

The BES writers have reported that interaction and collaboration with the Ministry has been particularly critical to understanding the policy needs, bridging the different standpoints and anticipating audience. The BES Standards Reference Group has emphasised this interaction as integral to the methodological development.

Strategies that can support interaction and collaboration with the Ministry of Education in the development of the BES are:

- scheduling regular face-to-face meetings, particularly in the early stages;
- ringing or e-mailing to ask for help with issues arising;
- making available early scoping work for iterative feedback;
- accessing relevant data about achievement and other outcome trends;
- having access to a range of Ministry expertise as the work progresses; and
- keeping a systematic record of feedback received and action taken.

### **1.4 Selecting, and Working with, Advisers and Planning for Formative Peer Review**

BES writers will need to seek a range of advisory supports throughout the whole development. It is likely that BES writers will need different advisers and supports for different requirements of the BES development.

BES writers will need to give considerable thought to the make-up of a core Advisory Group who will take an advisory role throughout the BES development process. Most importantly the writers will need Advisory Group members who are prepared to get to grips with, and assist with, the iterative best evidence synthesis approach and who will put in sufficient time to take both a critical and constructive role in their advisory task. It is important that advisers can genuinely assist the writers with the best evidence synthesis methodology. The BES writers will need people who are, as a group:

- knowledgeable about the research area,
- able to bring knowledge of different paradigms to informing this specific BES development,

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<sup>10</sup> Where there is clear evidence that commonly used practices or approaches do not benefit learners, such evidence should be included in a BES. However, the predominant focus of a BES is on research findings about what works and what makes the largest positive effect for diverse learners in order to be of practical use to educators, teacher educators and policy makers. Knowing what doesn't work is important, but it is knowing what does work that can signal a constructive way forward.

- knowledgeable about a wide range of research designs and methods and issues of rigour,
- able to bring experience in the educational contexts of focus,
- able to help with the focus on diverse learners,
- able to inform the focus on Māori learners in Māori and English medium education, and
- able to inform the focus on Pasifika learners.

One or two members of the Advisory Group will be members of the Ministry of Education team working with the BES development process.

BES writers may find it helpful to seek advice also from recent graduates and new academics who may need encouragement to bring innovative contributions to thinking about the topic of focus.

Advisory processes should take the work forward, support and challenge the writer(s), and interface effectively with the sustained individual reading and analytic work needed to generate a best evidence synthesis iteration.

Because a formal Advisory Group will be contributing to the formative quality assurance for a BES, it is appropriate that BES writers plan and negotiate clear expectations and tasks for the Advisory Group to gain the most value from the substantial time these colleagues will spend reading and responding to the BES in progress.

To ensure an optimal advisory group process, it would be helpful for BES writers to develop brief terms of reference for their advisory group, that are agreed by the advisory group members. Such terms of reference should enable a fruitful and genuinely helpful process, that allows for critical dialogue, provides support, strengthens the BES development work, and is as efficient and time-effective as possible.

Some BES writers have indicated that working with a formally appointed critical colleague and selected individual advisers has provided a better model for progressing BES development, than would have been possible with an Advisory Group model. Such strategies are helpful and encouraged but insufficient. The Ministry of Education is seeking an Advisory Group approach (in addition to individual advisory supports) and is providing funding to support this approach. This funding is to recompense advisers who engage in a formal and sustained process of attending meetings, providing advice and reading and responding to drafts. The Ministry of Education is providing this funding not only to strengthen the BES development, but also to enable writers to use the BES knowledge building focus to strengthen professional networks across institutions (including Wananga) around the BES development, and to ensure wider ownership of the final synthesis. That is, this approach is intended both to strengthen BES development and to strengthen professional learning community and knowledge sharing amongst educational researchers and teacher educators.

New Zealand Centres of Research Excellence offer a valuable resource for BES writers seeking to understand the scope of recent and current work in the New Zealand context. For example, Nga Pae o te Maramatanga, The National Institute of Research Excellence for Māori Development and Advancement<sup>11</sup>, at the University of Auckland.

It would be useful to have an e-mail network of knowledgeable informants about relevant educational research across New Zealand universities, Wananga, Colleges of Education, and

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<sup>11</sup> [http://www.auckland.ac.nz/cir\\_faculties/index.cfm?action=display\\_page&page\\_title=TeWananga\\_CoRE](http://www.auckland.ac.nz/cir_faculties/index.cfm?action=display_page&page_title=TeWananga_CoRE)  
*Guidelines for Generating a Best Evidence Synthesis Iteration v10* Adrienne Alton-Lee 27-07-04 File No. IM85/07/00/2

other institutions, depending on the topic. Such a network could be of assistance with the initial and ongoing search for relevant New Zealand research. In our experience, an initial letter of request is insufficient to get the advisory input needed for the search of New Zealand research. An e-mail network with an iterative process will be more fruitful. BES writers report that telephone contacts are particularly valuable. Telephone contacts will also be important when published reports of New Zealand research provide insufficient information, and BES writers need to follow-up with personal contacts to get more information about the study of interest.

It is also important to have key international informants who can assist with identifying recent landmark work relevant to the topic. Again an e-mail network or specific e-mail queries may assist.

BES writer(s) should plan to present findings in progress at a relevant New Zealand educational research conference (most likely the New Zealand Association for Research in Education) and to a relevant international research conference with a view to seeking knowledgeable formative critique and transparency.

## **1.5 Time Management Strategies including a Checklist for Developing a BES Iteration**

Because the BES process is challenging and iterative, considerable time needs to be set aside in the early stages of the BES development process. BES writers and their advisers need to be iteratively involved in, and progressively guiding the scoping of the synthesis and the search strategy from its inception.

If there are two writers, or a lead writer collaborating with a wider development team working on a BES, a key issue of time management is the way in which different members of the team, including the lead writer(s), negotiate and perform their roles to achieve an ongoing and productive collaboration. The approach to collaboration should anticipate the nature of the synthesising process. Allocating each member of the team a separate stage, chapter or part of the best evidence synthesis task and collating contributions will not work, because of the nature of synthesis. The project requires an iterative and integrative approach at every stage. To date the most effective strategies have involved either a sole writer or a very close collaboration between two writers across the whole document, with a wider team and advisers helping with BES development.

The importance of planning for, and building into the development process ongoing dialogue between the writers, and with advisers, cannot be overstated.

From the outset, an EndNote database programme should be used as a tool to assist in the evaluation of studies, evidence sorting, accurate and systematic footnoting and referencing, and preliminary sorting and analytic work. The Ministry of Education is asking writers to use EndNote to ensure commensurability with Ministry of Education software and that used by other writers. If writers wish to use an alternative database programme, a case would need to be made that met the requirements for commensurability across iterations.

A time management strategy that has been particularly effective in the best evidence synthesis iterations produced to date has been the preparedness to have, and to respond to, input and feedback from the writer's Advisory Group and from the Ministry at early stages. For academic writers this can be very uncomfortable, because it involves getting feedback on early and incomplete work in progress, from varied perspectives and unknown Ministry or other agency audiences. What it means, however, is that wider feedback can be

taken into account from the earliest stages; feedback that will strengthen the synthesis accordingly. Mostly, such feedback will help with scoping, grappling with major conceptual issues such as responsiveness to diversity, ensuring relevance to Māori and Pasifika, issues of rigour, policy relevance, and identifying specific gaps in the research literature.

Even if the feedback reflects lack of understanding of the synthesis work in progress, it can broaden the writer(s)' perspective on policy needs, and provide valuable insights about audience response that can inform the writing approach and improve the synthesis.

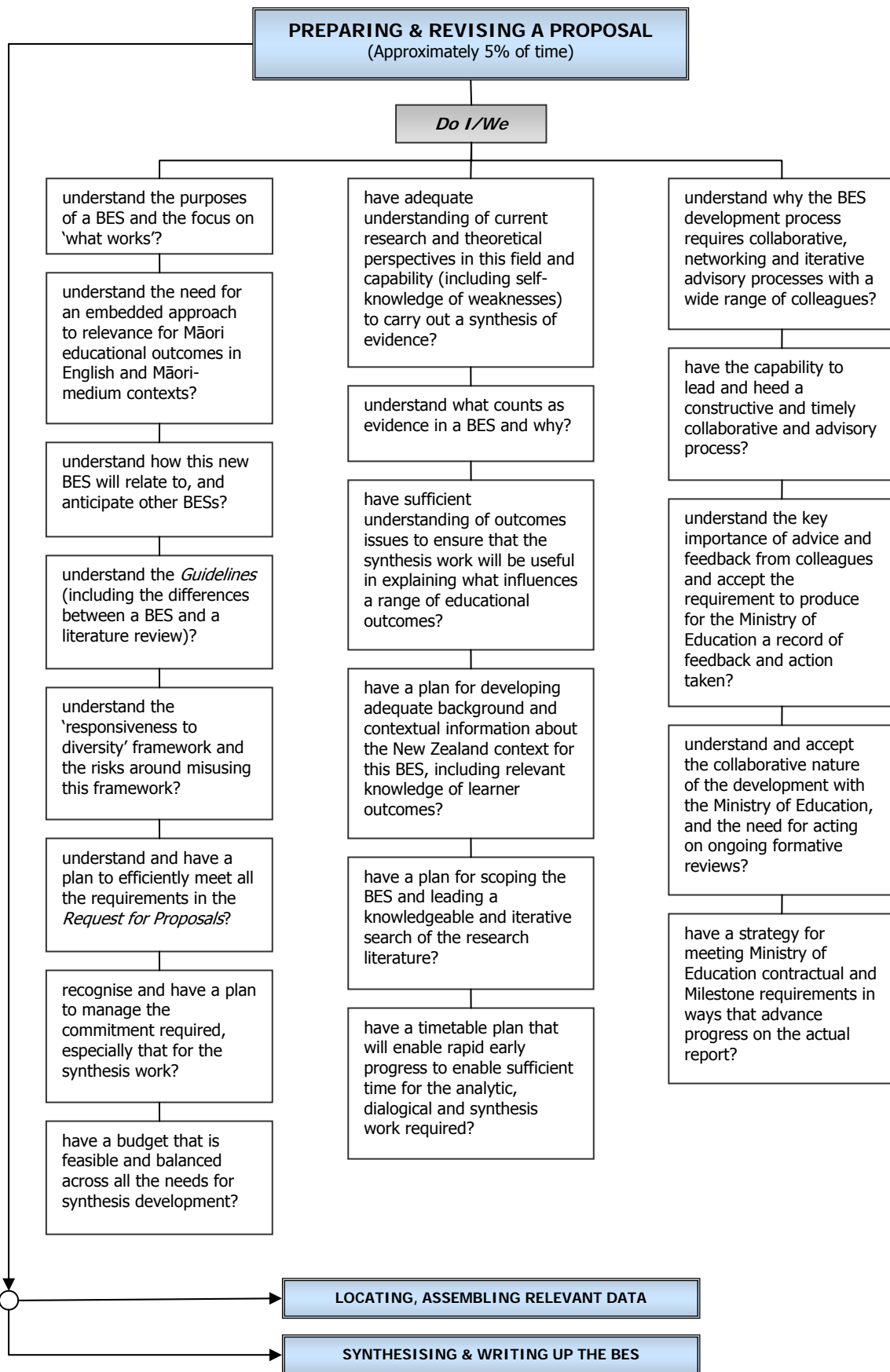
Considerable time (perhaps half of the contracted time period) also needs to be set aside for the analysis and synthesis stage of the BES development.

Figure 1 contains a checklist for developing a BES iteration. The checklist summarises approximate time allocation and requirements for:

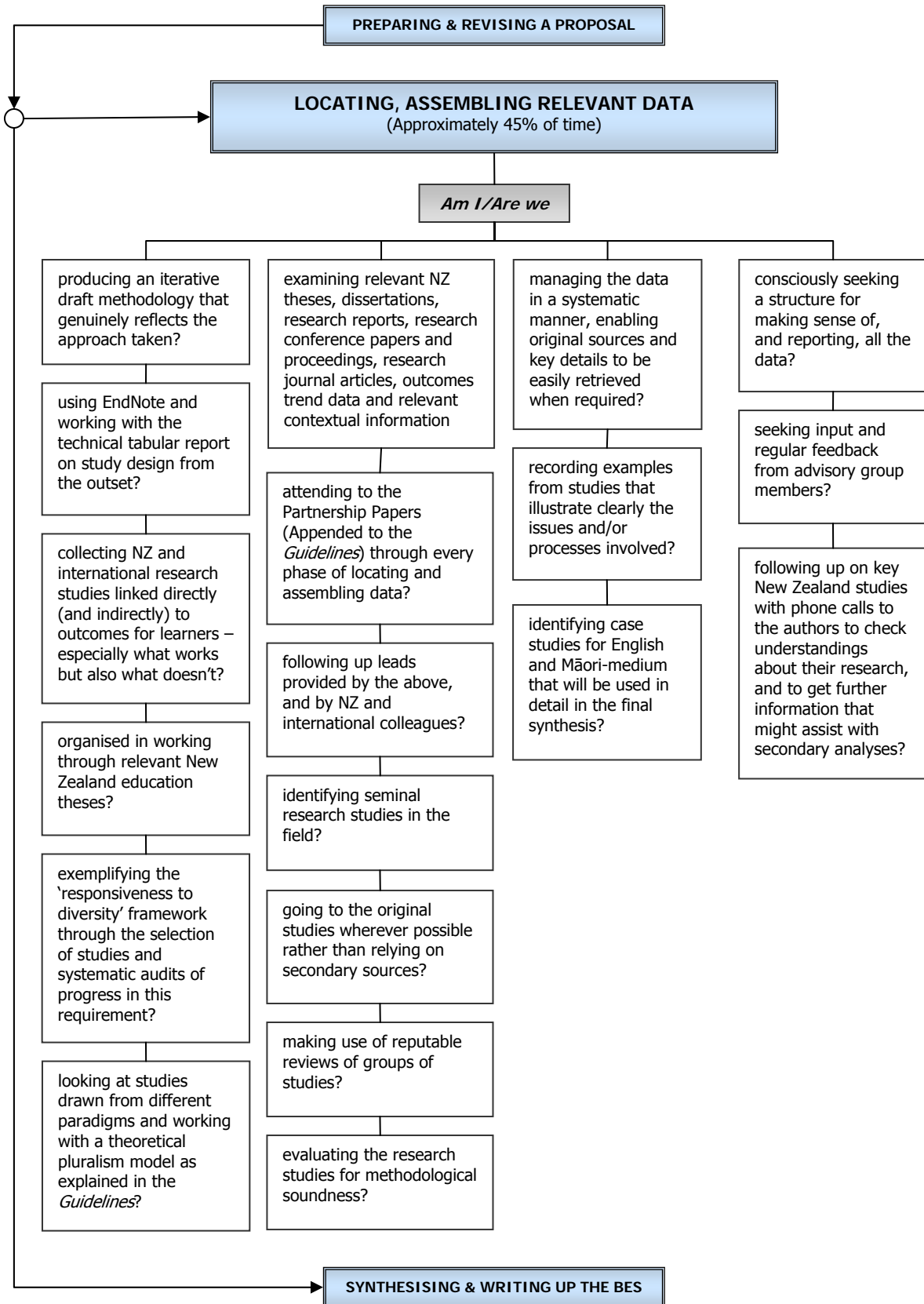
- preparing and revising a proposal;
- locating and assembling relevant data; and
- synthesising and writing up the BES

BES writer(s) should use the checklist as a self-audit tool throughout the development process.

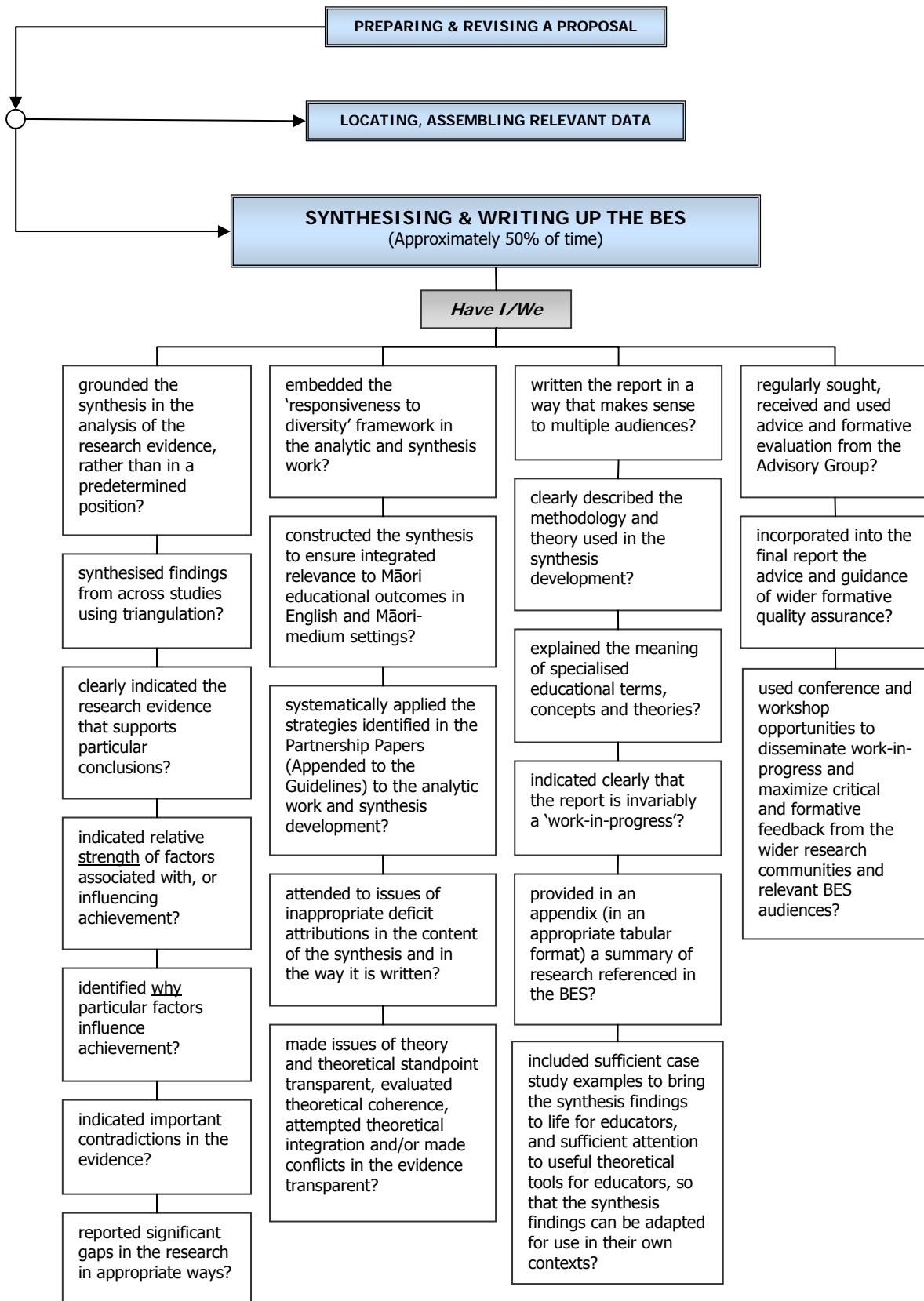
**FIGURE 1. CHECKLIST FOR DEVELOPING A BEST EVIDENCE SYNTHESIS ITERATION**



# CHECKLIST FOR DEVELOPING A BEST EVIDENCE SYNTHESIS ITERATION



## CHECKLIST FOR DEVELOPING A BEST EVIDENCE SYNTHESIS ITERATION



## 1.6 Evidence Management Strategies

The following hints derived from the experiences of BES writers will be helpful.

- It has been useful to develop and use an initial sorting strategy to classify the evidence. Such a strategy should emphasise methodological rigour. However, it will also be important to evaluate the extent to which research attends to educational development (i.e. a focus on, and explanation of, what works) relevant to the BES topic as well as to the evaluation of the development or approach. That is; the research should elaborate and explain the pedagogical or wider educational strategy. At very early stages just sorting studies by physical piles can be a useful strategy. The principles guiding the approach taken need to be made explicit in the methodological section of the synthesis from the outset.
- The sorting strategy evolves through the consideration of a wide range of evidence. Often particularly relevant evidence will not turn up through a search on descriptors but will be embedded within a larger study. This is likely to be the case with doctoral studies. As the guiding principles about evidence selection develop they should be immediately updated and made transparent.
- It helps to use an appropriate software database programme to assist with the bibliography and footnoting. Footnoting should be done from the earliest stages both for rigour and to inform formative quality assurance.

The Ministry of Education is asking BES writer to use an EndNote database, to ensure a systematic approach and because of the importance of such a resource in future BES iterations.

## 1.7 Formative Quality Assurance

The Ministry of Education sees the formative quality assurance process as critical to achieving a quality best evidence synthesis. The writers have the responsibility to ensure a formative quality assurance process, including formative audits against the *Guidelines*, throughout the synthesis development. The writing team should conduct, and involve their Advisory Group members in their own internal formative audit against the *Guidelines* in each stage of the synthesis creation process in order to take agency in the formative quality assurance of their own work. Different Advisory Group members will bring different strengths to the formative audit process.

The Ministry of Education will provide formative quality assurance throughout the process.

One lead writer needs to take responsibility for coordinating all feedback and formative quality assurance. A systematic list of the feedback given from various sources should be constructed from the outset, with an action plan about a specific response to the feedback. This list will be a tool in Milestone discussions. Feedback is a costly resource. Through systematic responsiveness to feedback given, the writers can ensure that the quality of the synthesis will be enhanced much more quickly.

Where the writer(s) disagree(s) with the feedback, there needs to be further discussion to identify the concerns of both the givers of the feedback and the receivers of the feedback,

and with reference to the *Guidelines*, to resolve the issues and determine the strategy adopted.

Even when feedback is inconsistent with the best evidence synthesis *Guidelines*, it can provide useful information about audience response. Such feedback may indicate a need for a change in the way writers approach, or provide background to, a particular sub-topic in the synthesis.

Formal formative quality assurance will also be carried out by the Ministry of Education when a final draft has been produced and is considered by the Ministry to be sufficiently advanced to go to formal quality assurance. Writers will be required to respond to the formal formative quality assurance by amending and developing the report accordingly.

If the final report is not considered to be consistent with the *Guidelines for Generating a Best Evidence Synthesis Iteration* by the external formative reviewers and the Ministry of Education, then the draft report will not be entitled a best evidence synthesis iteration or published by the Ministry of Education. External formative reviewers will be selected by the Ministry of Education in consultation with writers, from leading researchers in the BES topic of focus, in New Zealand and overseas, and from advisors who have been involved in developing the *Guidelines for Generating a Best Evidence Synthesis Iteration*.

## 2 Scoping a Best Evidence Synthesis

### 2.1 Scoping and Conceptualising the Topic

Scoping a best evidence synthesis is a considerable challenge because of the broad nature of each topic. The BES topics have been selected because information to date indicates that the areas of interest are significant influences on learner outcomes. For example, the focus is on teaching because differences between teacher/class variables have been found to account for up to 60% of the variance in learner outcomes<sup>12</sup>. The Ministry of Education is expecting writers to be deeply knowledgeable about the BES focus and to bring strong knowledge of current theoretical work in relevant fields to the best evidence synthesis work. The responsiveness to diversity framework (elaborated in Section 2.5) will be a critical tool in this phase of the BES development.

Approaches to scoping and conceptualising the topic will be constrained by the nature of the topic but should not be limited by the available research literature. The initial scoping and conceptualisation of the topic will be a critical tool in identifying gaps in the research literature that need addressing. Writers should have done substantial reading of relevant core papers identified by the BES Māori Educational Research Advisory Group and the BES Pasifika Educational Research Advisory Group to inform the initial scoping stage. The initial scoping will produce a tool that will help ensure an holistic approach to the synthesis development is not lost, as writers become caught up in the detail of analyses of particular studies.

Strategies that have been helpful to writers in the scoping phase include:

- identifying the synthesis focus as a problem to be formulated, clarified and addressed
- ensuring that, if research questions are used for clarity, they do not arbitrarily narrow the scope of the synthesis;
- identifying the degree to which the relationship between the influence and learner outcomes is direct, indirect, and/or mediated, and the implications of the nature of the relationship for the approach to the synthesis;
- drawing on landmark work in the field to provide initial structure in the conceptual mapping stage;
- repeatedly re-evaluating the gaps in the scoping;
- pro-actively seeking expert input to ensure paradigm inclusiveness;
- getting clarity in the definitions and terms used, without narrowing the scope inadvertently (at times this scoping work may require identifying a range of meanings associated with a key term used, and later in the synthesis, case studies may be required to convey depth of meaning);
- using brainstorm sessions with wider teams, and with the Ministry of Education representatives;
- checking that the scoping is consistent with the request for proposals, identifying emerging departures, and discussing these with the Ministry of Education;
- using iterative collaboration to reach an agreed conceptual framework with the Ministry of Education and the Advisory Group;
- representing the early conceptual work, and iterative development, in diagrammatic form;

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<sup>12</sup> <http://www.minedu.govt.nz/index.cfm?layout=document&documentid=8679&indexid=1004&indexparentid=1072>  
*Guidelines for Generating a Best Evidence Synthesis Iteration v10* Adrienne Alton-Lee 27-07-04 File No. IM85/07/00/2 17

- making transparent the rationale behind the scoping when seeking feedback; and
- making transparent the rationale for any decisions made to restrict the scope of the synthesis.

## 2.2 Using a Health-of-the-System Framework

The health-of-the-system framework requires BES writers to focus on what works in education and to attend to all the learners in a system. This means interrogating the relevant body of research for evidence about the influences on effective development and about approaches to strengthening and sustaining the health of the system. The term ‘system’ is used here to signal:

- an ecological model<sup>13-14-15</sup> that encompasses links between what is happening at the micro-level and what is happening at a macro-level, including links between educational policy and practice and families, communities and the wider society;
- a model that attends to relations amongst different parts of the system and their impact on educational outcomes<sup>16</sup> (for example, the inter-relationships between the role of the research and development, initial teacher education, and the functioning of the larger system);
- a model that makes transparent the educational impact of culture, and cultural mismatches between educational institutions and families and communities;
- a model that calls for attention to provisions for all learners; and
- a model that includes attention to changes in system impact over time, particularly in trend data, and to the interrelationships within a system that influence sustainability of approaches that work for diverse learners.

The focus on educational development means that it would be insufficient to focus on system underachievement for some groups, and/or weaknesses in the system and policy levers or interventions to address these, although those areas of focus will be important in a BES. Rather, BES writers should attend to the bigger picture and synthesise evidence that is informative about a healthy education system and inclusive of the diversity of learners in a sector.

The health-of-the-system framework requires orienting the BES to a positive focus on what works. It can be easier at times to find evidence about what doesn’t work for learners than evidence about what does work. Because the BESs will inform policy development and educational practice, a predominant focus on what works is critical to their value. However, where there is significant evidence about negative impacts on learners of a current or widespread practice, then it is important to include evidence about what does not work, and why. The goal of the best evidence syntheses to bring together our knowledge about what

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13 Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press. For an example of the use of Bronfenbrenner’s model in New Zealand research see McNaughton, S. (1995). *Patterns of emergent literacy: Processes of development and transition*. Auckland: Oxford University Press.

14 See also Hoban, G. F. (2002). *Teacher learning for educational change*. Buckingham: Open University Press.

15 See also Pere, R.R. (1982). *Ako: Concepts and learning in Maori tradition*. Working Paper 17. Department of Sociology, University of Waikato, Hamilton.

16 The Education Indicators Framework that helps guide the selection of BES topics provides a simplified way of thinking about system impacts and inter-relationships. Alton-Lee, A. (2004, April). Improving educational policy and practice through an Iterative Best Evidence Synthesis Programme. Paper prepared for *OECD-US Seminar on Evidence-Based Policy*. Washington D.C. Web site: <http://www.excel.gov.org/displayContent.asp?NewsItemID=5205&Keyword=prppcEvidence>

can strengthen education policy and practice, and it is this goal that should shape the framework and development of a BES.

Because the BES approach requires the interrogation of a body of evidence for implications about system effectiveness, and sustainability, BES writers will need to be mindful of linkages to other best evidence syntheses.

### **2.3 Addressing the Context of the New Zealand Education System**

It needs to be explicitly stated within the BES that the purposes relate primarily to strengthening education for diverse learners in the New Zealand education system or context. Wherever possible, New Zealand research should be used. Where research from other countries is used, the applicability of findings needs to be explored and interrogated rather than assumed. Even when using New Zealand research, writers should attend to issues of local context, and exercise caution in claiming generalisability.

The specific context of focus in a BES (whether early childhood education, schooling, tertiary, family and community influences, or some other context) needs to be briefly explained with background information provided. BES writers should be knowledgeable about the historical context for New Zealand education, and use this knowledge in the analysis of evidence. This contextual background is not only helpful for the reader at the outset of the BES, but it also provides an introduction to the policy context, and information about the New Zealand context, that will provide a tool to assist the lead writer(s) and the readers to be cautious in making links between overseas settings and the New Zealand context.

Attention to the New Zealand context in BES work requires thoughtful attention to the implications of the status of Māori as tangata whenua in a focus on what works. Examples of implications for BES teams include the need to attend to issues of the provision of kaupapa Māori education, access to Te Reo, language/s, language of instruction and assessment (including Māori medium from Nga Kohanga Reo through to Wananga, and English medium) and the ways in which educational processes affirm Māori identity.

Other examples of BES consideration of the educational implications of the status of Māori as tangata whenua include attention to: the ways in which educational institutions complement whānau and local communities in strengthening knowledge of whakapapa; linkages with whānau, hapū, and iwi; linkages with ancestral lands (including ancestral landmarks); learner relationship to the environment and involvement with marae. BES writers should ensure that there is consideration of Māori educational aspirations, including tino rangitiratanga, not only in the selection of studies but also in consideration of the kinds of learner outcomes considered in the source research. When searching international research literatures, research on influences on educational outcomes and educational development for indigenous peoples (for example, in Hawaii, Alaska and North America) should be included, where relevant, and critically evaluated for possible implications for the New Zealand context.

Attention to the New Zealand context also requires consideration of the implications of the Treaty of Waitangi for New Zealand education. A key consideration will be the implications for partnership work within BES that ensures rigorous and comprehensive attention to influences on desirable educational outcomes for Māori learners across educational settings. In particular, BES writers should embed within their work consideration of examples that illuminate how implications of the Treaty of Waitangi have been translated into

educational practices that have impacted positively on learners. Māori have a treaty relationship with the Crown that protects Te Reo and tikanga and guarantees Māori the same educational opportunities as non-Māori. Bevan-Brown (2003)<sup>17</sup> has developed an applied cultural input framework for working with Māori learners that exemplifies the kind of analytic tool BES writers could draw upon, and adapt, depending on the BES focus, to ensure a systematic approach.

BES writers should become knowledgeable about achievement patterns for Māori and non-Māori, and the complexity of such achievement patterns relevant to the best evidence synthesis topic of focus. A range of educational achievement outcomes, in particular, the achievement of senior secondary qualifications show that on average, and despite very high achievement by some Māori (for example, the relatively high achievement in wharekura), Māori achievement over the past decade has been markedly and persistently lower than that for other ethnic groups. Critically important to the BES will be examples of evidence showing approaches linked to higher achievement for Māori.

Within the Ministry of Education, partnership between Medium Term Strategy Policy Division and Group Māori has been critical to the early and subsequent development of the iterative best evidence synthesis approach. The BES Māori Educational Research Advisory Group is assisting in strengthening the best evidence synthesis development to address the New Zealand educational context. Further resources to strengthen BES development work have been prepared to assist writers. BES writers should seek specific assistance from Māori educational researcher advisers who have strengths in the BES topic of focus and advisers who have broader theoretical or methodological expertise relevant to a particular BES.

BES writers should be theoretically informed and able to bring informed analytic work to the task of identifying when, and the ways in which, culture is influential in impacting on learning outcomes. This will include interrogating the evidence about educational impacts of cultural practices, the ways in which education mediates cultural heritages and identity, cultural capital, and cultural matches and mismatches between institutions and family/whānau.

As background to the analytic work described above, BES writers may find it helpful to consider recent writing about education not only in New Zealand but also in the Pacific. For example, the University of the South Pacific Institute of Education's (2002) Colloquium proceedings: *Tree of opportunity: Re-thinking Pacific education*<sup>18</sup>. Key resources in providing background about Pasifika perspectives in the New Zealand educational context are Coxon, Anae, Mara, Wendt-Samu, & Finau (2002)<sup>19</sup> and the *Pasifika Education Research Guidelines*<sup>20</sup>. Members of the BES Pasifika Educational Research Advisory Group (including Diane Mara at the New Zealand Council for Educational Research and Dr Airini,

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<sup>17</sup> Bevan-Brown, J. (2003). The cultural self-review: Providing culturally effective, inclusive, education for Māori learners. Wellington: NZCER. This work derives from her doctorate: Bevan-Brown, J. (2002). *Culturally appropriate, effective provision for Māori learners with special needs : he waka tino whakarawea*. Unpublished doctoral dissertation, Massey University. Palmerston North.

<sup>18</sup> Pene, F., Taufe'ulungaki, 'A, M., & Benson, C. (Eds.). (2002). *Tree of opportunity: Re-thinking Pacific education*. Colloquium conducted at the Institute of Education, University of the South Pacific, Suva, Fiji.

<sup>19</sup> Coxon, E., Anae, M., Mara, D., Wendt-Samu, T., & Finau, C. (2002). *Literature review on Pacific education issues. Report prepared for the Ministry of Education* by Auckland Uniservices Limited. Wellington: Ministry of Education. (see Ministry of Education website [www.minedu.govt.nz](http://www.minedu.govt.nz)).

<sup>20</sup> Anae, M., Coxon, E., Mara, D., Wendt-Samu, T., & Finau, C. (2001). *Pasifika Education Research Guidelines: Final Report*. Prepared for the Ministry of Education by Auckland Uniservices Ltd. Wellington: Ministry of Education. (see Ministry of Education website [www.minedu.govt.nz](http://www.minedu.govt.nz)).

and Tanya Wendt Samu<sup>21</sup> at the Auckland College of Education) are exploring possibilities for making more accessible, and developing for BES writers, the range of Pasifika framework and theoretical work relevant to New Zealand education.

A future-focused orientation is important for policy reasons. In particular, it is suggested that writers include demographic projections relevant to the focus of the study, to show likely changes that educators and policy makers alike need to be anticipating and responsive to, in efforts to strengthen the health of the system. New Zealand Statistics provides a good source of current data. The Data Management and Analysis Unit of the Ministry of Education will assist with specific demographic projections where possible.

BES writers are required to attend to relevant trends and patterns of systematic underachievement in NZ education, to communicate these to readers, while accurately representing the complexity of within-group variance, as well as between-group variance. Attending to the complexity of within-group variance in the way these trends are represented should avoid inappropriate stereotyping or deficit portrayals of learner groups. BES writers will be able to access relevant trend data from a range of sources including international assessment studies, the National Education Monitoring Project, the Education Review Office, NZQA and the Ministry of Education. The Ministry of Education will assist with access to relevant trend data.

## **2.4 The Importance of Group Settings as a Contextual Feature for Learners in Education**

In taking a health-of-the-system approach, a key contextual feature is that learners within the educational system (whether in early childhood education, schooling or tertiary) engage in much of their formal learning in group settings.

Because a key challenge for the New Zealand education system is the wide dispersion of achievement outcomes apparent in a range of national and international studies, attending to the evidence about how the educational processes in group settings work simultaneously for diverse learners in those settings, is critically important in the best evidence synthesis iterations. For example, in considering influences on student learning in schooling, it is important to pay attention to how the teaching is working for lower and higher achievers, how classroom practices have been set up to intensify peer supports for learning (including tuakana teina supports), what kind of supports are most effective, and when they are needed for those students with special needs, including students who are gifted in particular ways.

The issue of simultaneous responsiveness to diverse learners in the group context is particularly critical in early childhood education where there are marked developmental differences in learner needs from infants to young children.

Attention to the issue of effectiveness in group settings should pervade every phase of the BES development including the selection of evidence to be included, the contextual description, the interpretation of findings and the writing. When using illustrative case studies BES writers should interrogate articles to work out what was happening to a wider group, or the peer group, if the focus narrows to the way an educator is interacting with just one learner.

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<sup>21</sup> Wendt Samu, T. (2004 work-in-progress). *'Hot chocolate. Just add water': The need to develop richer images of Pasifika learners*. Unpublished presentation, Auckland College of Education, Auckland. (See forthcoming on [www.ace.ac.nz](http://www.ace.ac.nz))

## 2.5 Clarifying and Using the ‘Responsiveness to Diversity’ Framework

To achieve our goals as an effective education system, we need to develop a system that succeeds well with diverse learners rather than with a narrower range of learners.

While current trend data shows areas of high average performance for New Zealand learners, by international standards the evidence does not reveal an education system that is responding well to the diversity of its learners. The findings of markedly wide variance in learner achievement for New Zealand in both the recent PIRLS<sup>22</sup> (nine-year-olds) and PISA<sup>23-24</sup> (15-year-olds) international studies indicate that the New Zealand education system, across early childhood education and schooling at least, is insufficiently responsive to the diversity of our learners. This pattern is also apparent in a range of national achievement outcomes monitored by the National Education Monitoring Project.

Evidence from the published BESs<sup>25</sup>, OECD country comparisons<sup>26</sup> of learner achievement on equity/quality scales and the *Handbook for Improving Student Achievement*<sup>27</sup> shows at the system-level and group teaching level, approaches that are responsive to learner diversity can have very positive impacts on low and high achievers at the same time.

From a policy perspective, the wide variance in New Zealand learner achievement creates an imperative to do better for all of our learners. Further, there is a double-imperative from a medium term strategy perspective. Demographic projections<sup>28</sup> indicate that New Zealand's education system is serving an increasingly diverse student population. Whereas Pakeha learners have comprised the majority of our student population, within the next three decades it is likely that Māori and Pasifika will comprise the majority of learners in early childhood education and schooling. Many of these students have been served least well by the education system.

The use of the term ‘diversity’ rejects the notion of a ‘normal’ group and ‘other’ or minority groups of children/learners, and constitutes diversity and difference as central to educational practice. That means all learners, including Pakeha, Māori, Pasifika, Asian and learners of many ethnicities and heritages, including high and low achievers, including boys and girls, and so on. This point is important because the word ‘diversity’ can be inappropriately co-opted as a way of constructing an ‘us’ and ‘other’ distinction around an assumed ‘norm’. Diversity does not mean Māori and Pasifika. Within the ‘Responsiveness to diversity framework’ the term ‘diversity’ is inclusive of all learners, and the term ‘us’ includes those of ‘us’ who are male, those of us who are Pakeha, those of us who are Māori, those of us who are Tokelauan, those of us of Sri Lankan heritage, and so on – restricted only by who is part of the community of focus.

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<sup>22</sup> Mullis, I.V.S., Martin, M. O., Gonzalez, E. J. & Kennedy, A. M., *PIRLS 2001 International Report (2003)*, International Study Center, Lynch School of Education, Boston College, MA, USA.

<sup>23</sup> OECD (2001), *Reading for Change: Performance and Engagement Across Countries*, OECD Publications, Paris, France.

<sup>24</sup> OECD (2001), *Knowledge and Skills for Life: First Results from PISA 2000*, OECD Publications, Paris, France.

<sup>25</sup> Alton-Lee, A. (2003). *Quality teaching for diverse students in schooling: Best evidence synthesis*. Wellington: Ministry of Education.

<sup>26</sup> OECD (2001). *Knowledge and skills for life*, Appendix B1, Table 2.3a, p.253, Table 2.4, p.257

<sup>27</sup> Cawelti, G. (1999) (2nd edition). *Handbook of research on improving student achievement*. Arlington, VA: Educational Research Service. (This is the handbook selected for use by UNESCO).

<sup>28</sup> *Ethnic Populations Projections*, [www.stats.govt.nz](http://www.stats.govt.nz), Department of Statistics, Wellington, New Zealand.

Diversity encompasses many characteristics including ethnicity (and increasingly, multiple ethnic heritages), socio-economic background, home language, gender and sexuality, and special needs (including disability, and giftedness). Teaching needs to be responsive to the diversity and the diverse realities within groups, for example, diversity within Pakeha, Māori, Pasifika (the Pasifika ‘umbrella’) and Asian students (who are arguably the most diverse ‘ethnic’ group categories by cultural and linguistic heritage). A core aspect of BES analysis is identifying the evidence about when difference is and is not relevant in mediating, or moderating, educational outcomes.

Equity policies are informed by, and rely on the use of group categories, and summary statistics such as averages to interrogate system performance. While group categories are useful in assessing relative achievement levels and the health of the system, the reality of individual identity in educational practice is complex. The use of group stereotypes in educational practice can in itself contribute to inappropriate deficit attributions rather than responsiveness to the needs of learners. While critically considering the role of stereotypes, it is important also to caution against inappropriate fragmentation of identity and heritage that can occur if the concept of ‘diversity’ is not used thoughtfully. This issue is addressed more fully by Professor Linda Tuhiwai Smith in Appendix A: Working in Partnership on Knowledge Building BES Strategies that can Inform Approaches to Strengthening Māori Educational Outcomes. Professor Arohia Durie advises the use of the term ‘diverse realities’ as a way of acknowledging the diversity within Māori that is not fragmenting of cultural identity.

The use of the term ‘diversity’ emphasises the importance of cultural identity in education, but counters the stereotyping of individuals by group affiliation, and denotes the diversity within individual students influenced by intersections of gender, cultural heritage(s), socio-economic background, and talent. At the level of individual learners, identity is far more complex, and it is responsiveness to that complexity in both individuals and groups that is integral to successful educational practice.

In the scrutiny of education achievement data, and in identifying influences on learners, particular attention should be given to the role of socio-economic status of family, cultural practices related to social class, and in particular, the influence of poverty, in mediating, or moderating, outcomes. Wherever possible, writers should be specific about how lower socio-economic status mediates outcomes.

Iterative working papers<sup>29</sup> are being developed to document the specific strategies used within the BESs to date to ensure rigorous and integrated attention to Māori and Pasifika learners within the ‘responsiveness to diversity’ framework. The Ministry of Education's Group Māori and Group Pasifika have assisted in the development of the strategies. The purpose of these working papers is to build capability through making transparent, opening to critique, and iteratively developing specific methodological strategies. The Ministry of Education is further developing this work through consultation with Māori and Pasifika consultative groups and educational researchers. Because these working papers contain specific examples they are particularly helpful to new BES writers and their advisers.

A key aspect of the ‘responsiveness to diversity framework’ is the implication that BES writers need to pay particular attention to the cultural interface between educational institutions or provisions, and families/whānau and the communities in which learners live.

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<sup>29</sup> Consultation is ongoing about the naming of these strategy-focussed working papers.

The responsiveness-to-diversity framework has been developed as a transformative tool in the best evidence synthesis programme. This framework should influence the conceptualisation of a synthesis, the search strategy, the evaluation of each study, the use of triangulation, the approach to analysis, the actual synthesis and the written report. Accordingly, it is critical that best evidence synthesis development teams grapple with this issue from the outset. BES writers have reported that it has been necessary to do a wide range of background reading in order to effectively utilise this framework.

## 2.6 Identifying a Range of Desirable Outcomes within the Evidence

BES writers and their advisers need to be clear from the outset about the kinds of learner outcomes to be considered in the synthesis, because they will affect every aspect of synthesis development from the early scoping and selection of evidence. For example, consideration needs to be given to a range of outcomes including academic outcomes, skill development, social outcomes, cultural identity, disposition as a learner, self-regulatory skills, enjoyment of learning and success and well-being post-formal education, rather than just a narrow focus on particular measures of academic achievement. Where attention is being given to learner processes as exemplifying desirable outcomes, there needs to be careful consideration of the relevant evidence and rationale for the inferences made. The range of outcomes of focus for the synthesis will guide not only the selection of studies and identification of gaps in the research literature, but also the analysis and the actual synthesis work. Throughout the synthesis development process it is likely that BES writers and their advisers will need to carry out self-audit checks to ensure that the consideration of outcomes is focussed on desirable outcomes, and attends to a range of desirable outcomes, in order to highlight important omissions and adjust the iterative process accordingly.

In a democracy, desired outcomes from an education system are part of an agreement within the wider society and between educational institutions and their communities. Desired outcomes are by nature subject to a contested and evolving discourse about what parents, whānau, fono and wider communities want for all our learners. Accordingly, specified outcomes in national curriculum or other relevant policy documents or processes (such as the Hui Taumata Matauranga) that have been arrived at through a process of consultation or review should be considered in identifying a range of desirable outcomes to highlight in the selection of research for the synthesis.

For example, learning outcomes for early childhood education derived from the early childhood curriculum, Te Whāriki<sup>30</sup> include:

- knowledge and understanding;
- skills, and attitudes;
- dispositions to learning;
- a sense of cultural identity and citizenship;
- a sense of belonging (Mana Whenua);
- contribution (Mana Tangata);
- well-being (Mana Atua);
- communication (Mana Reo); and
- exploration (Mana Aotūroa).

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<sup>30</sup> Ministry of Education. (1996). *Te Whāriki. He Whāriki Mātauranga mō ngā Mokopuna o Aotearoa. Early Childhood Curriculum*. Wellington: Learning Media.

Learning outcomes for schooling derived from the New Zealand Curriculum include:

- achievement in the essential learning areas (language and languages, mathematics, science, technology, social science, arts, and health and physical well-being)<sup>31</sup>;
- essential skills (communication skills, numeracy skills, information skills, problem-solving skills, self management and competitive skills, social and co-operative skills, physical skills and work and study skills)<sup>32</sup>;
- commonly held values including the development of respect for others, tolerance (rangimārie), non-racist behaviour, fairness, caring or compassion (aroha), diligence and hospitality or generosity (manaakitanga).
- attitudes to learning, and behaviours and other outcomes demonstrating the shared values.
- cultural identity,
- well being,
- whānau spirit
- preparation for democratic and global citizenship.

Currently there is wider discussion through the *Pathways to the Future: Ngā Huarahi Arataki: A 10-year Strategic Plan for Early Childhood Education* (2002)<sup>33</sup>; the *Schooling Strategy* (2004)<sup>34</sup>, the *Tertiary Education Strategy* (2002/07)<sup>35</sup> and the Māori Tertiary Education Framework<sup>36</sup> about desirable outcomes from the New Zealand education system. BES writers focussed on tertiary contexts should identify ways in which tertiary experiences, and linkages between tertiary education and the wider community, contribute to such outcomes as student achievement, transitions to work, and graduate capability for success, innovation, ethical practice, well-being and skills to support ongoing learning.

Learning outcomes sought for Māori learners from Māori-medium and English medium schooling have been contested and explained through the philosophy of Kura Kaupapa Māori, and the outcome goals for Māori students advanced by Mason Durie (2001, February<sup>37</sup>; 2001, November<sup>38</sup>) at the Hui Taumata Mātauranga. These are:

Goal 1: to live as Māori.

Goal 2: to actively participate as citizens of the world.

Goal 3: to enjoy good health and a high standard of living.

For example, with respect to Goal 1, there will be a range of aspects of Māori cultural identity that could be considered in the interrogation of evidence about influences on learner outcomes. For example, knowledge of whakapapa, linkages with whānau, hapū, and iwi, linkages with ancestral lands (including ancestral landmarks); relationship to the

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<sup>31</sup> Ministry of Education. (1993). *The New Zealand Curriculum Framework*. Wellington: Ministry of Education.

<sup>32</sup> Ministry of Education. (1993). *The New Zealand Curriculum Framework*. Wellington: Ministry of Education, (p. 17).

<sup>33</sup> Ministry of Education. (2002). *Pathways to the Future: Ngā Huarahi Arataki: A 10-year Strategic Plan for Early Childhood Education*. Wellington: Ministry of Education.

<sup>34</sup> Ministry of Education (2004). *Making a bigger difference for all students: a schooling strategy discussion document*. Wellington: Ministry of Education.

<sup>35</sup> Ministry of Education (2002). *Tertiary Education Strategy*. Wellington: Ministry of Education.

<sup>36</sup> Contact [paula.rawiri@minedu.govt.nz](mailto:paula.rawiri@minedu.govt.nz) Manager, Māori Tertiary Education, Ministry of Education for information about the Māori Tertiary Education Framework.

<sup>37</sup> Durie, M. (2001, February). *Hui Taumata Mātauranga: A framework for considering Māori educational advancement*. Opening address to the Hui Taumata Mātauranga. Turangi/Taupo.

<sup>38</sup> Durie, M. (2001, November). *Progress and platforms for Māori educational achievement*. Address to the second Hui Taumata Mātauranga. Turangi/Taupo.

environment, involvement with marae, involvement in Māori social institutions, Māori language skills, and knowledge and application of tikanga Māori.

Desirable outcomes may be regionally specific. This could mean investigating how educational institutions have worked with whānau, iwi, business and wider communities to strengthen learning in local knowledge in different parts of New Zealand. For example, for those living on the East Coast of the North Island this could mean developing knowledge of Ngati Porou tanga.

An important outcome for Māori, whatever the learning context, is self-identification and pride in one's identity as Māori. BES writers will need to attend to complexity and the diverse realities of Māori including urban Māori and Māori with multiple cultural heritages, in the consideration of these outcomes.

In attending to Māori cultural identity, BES writers should not make cultural identity of learners of other ethnic heritages, including Pakeha cultural identity, invisible or taken as a given through omission. Consideration of cultural identity outcomes for learners with a range of ethnic heritages including Asian, Cook Island, Pakeha, recent immigrant European, African, 'international student', and whatever is the ethnicity of the learners who are the focus of study, should attend to educational processes that developed confidence and pride in identity, not only by ethnicity but also by gender and other aspects contributing strongly to human identity. For example, church membership, religion and links between individual and community identity are issues that may have significant implications for educational processes. Issues of learner identity also intersect in specific and complex ways with curriculum. For example, what does it mean for younger or older learners to take on an identity as scientist, artist, mathematician, social scientist, craftsperson, entrepreneur, musician or guardian of the environment? And, to what extent do shifting or reciprocal roles, such as reciprocal mentoring through tuakana teina positionings or between different contexts, influence learner identity, agency, well-being and success?

A key consideration arising out of early BES work is the importance of outcomes for groups of learners (as well as for individual learners) that intensify supports for learners within the peer culture. Relevant evidence is specific about educator agency in structuring tasks and learning environments, and equipping learners with skills, to producing a safe environment for the flourishing and resolution of cognitive conflict within the peer culture<sup>39</sup>. For example, what kinds of educational processes generate a learning community that achieves sustainable supports for learning and innovation? What kinds of pedagogical approaches enable learners to understand multiple perspectives on an issue?

Synthesis writers should integrate into the synthesis development process consideration of research relevant to appropriate, challenging and meaningful outcomes (including functional living skills) for a range of learners who have special education needs that result in achievement well below that of their age peers.

While synthesis writers need to be mindful of wider social compacts, and current debates, the team should not exclude consideration of other desirable outcomes. The synthesis writers, in consultation with the Ministry, and their advisers, should advance an explanation for the range of outcomes of focus in a synthesis iteration (See, for example, Biddulph, Biddulph & Biddulph 2003, pp. 3-5).

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<sup>39</sup> Alton-Lee, A. (2003). *Quality teaching for diverse students in schooling: Best evidence synthesis*. Wellington: Ministry of Education. p. 24-25.

What is critical in the development of a synthesis, is sustained attention to what can make a bigger difference to diverse learners in promoting a range of desirable outcomes, and what the evidence reveals about the influences on particular outcomes.

## 2.7 Critical Evaluation of Assessment Data

Writers should be critically evaluative of the measures that are used to indicate, or infer, evidence about learner outcomes. Research that has triangulated a range of different sources of evidence to assess outcomes (for example, student performance on authentic tasks, data from interviews with learners, observational data of learner behaviour) before and after learning opportunities is likely to be particularly informative. Research that provides evidence of longer-term impacts is also very informative about what works for learners. Often quite simple assessment data (for example, student answers to a question about how often they have been afraid of being hurt at school during the past week) can provide significant insights into student well-being, especially when trend, and internationally comparative data is available.

Attention should be paid to issues of validity and reliability. For example, it is important to consider the evidence about the relationship between the number of years in which a learner has been immersed within the instructional context in the language of assessment and the validity of that assessment. Pereira (2001<sup>40</sup>; 2002<sup>41</sup>) provides a helpful consideration of these issues, and a discussion of international perspectives<sup>42, 43</sup> in the light of the New Zealand context.

Educator assessments have often been found to under-estimate or over-estimate student achievement, or to inappropriately reflect teacher deficit attributions, when compared with independent assessments<sup>44</sup>, and it will be important to critically evaluate the basis upon which assessments of progress are made, by educators and by researchers. Educator and researcher inferences about learner attitudes need to be interrogated against evidence from learners themselves, and the ways in which learners may wish to present themselves, given the context of assessment. Where necessary, writers should draw upon educational assessment expertise to ensure that interrogation and use of outcome data in the BES is considered and valid.

The consideration of assessment issues needs to be specific to the kind of outcome assessed. For example, learner self-perception is critical to the ways in which learner cultural identity is understood. BES writers will need to give consideration to theoretical work on identity formation. See for example, Durie (1997)<sup>45</sup>. A key resource for consideration of issues of

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<sup>40</sup> Pereira, J. (2001). Māori-immersion students in the National Education Monitoring Project Part 1: Translation of tasks for cross-language assessment. *Many Voices*, 18, 10-15.

<sup>41</sup> Pereira, J. (2002). Māori-immersion students in the National Education Monitoring Project Part 2: Assessment of Second-language and bilingual students. *Many Voices*, 19, 4-11.

<sup>42</sup> For example, La Celle-Peterson, M., W. & Rivera, C. (1994). Is it real for all kids? A framework for equitable assessment policies for English language learners, *Harvard Educational Review*, 64(1) 55-75.

<sup>43</sup> Cummins, J. (1984). *Bilingualism and special education: Issues in assessment and pedagogy*. Clevedon: Multilingual Matters.

<sup>44</sup> For example, see Millward, P., Neal, R., Kofoed, W., Parr, J., Kuin Lai, M., & Robinson, V. (2001). Schools learning journeys: Evaluating a literacy intervention at Dawson Road Primary School. *SET Research Information for Teachers*, 2, p. 39-42.

<sup>45</sup> Durie, A. (1997). Te Aka Matua – Keeping a Māori identity. In P. Te Whaiti, M. McCarthy, & A. Durie (Eds.). *Mai i Rangiatea – Māori well-being and development*. Auckland: Auckland University Press & Bridget Williams Books.

assessment in relation to cultural identity is the report by Durie, Fitzgerald, Kingi, McKinley and Stevenson (2002)<sup>46</sup>.

## 2.8 Informed Use of Evidence of Outcomes and Trends in BES

One aspect of BES development that is of particular importance for the Ministry of Education, and has occasioned concerned feedback from members of all three national BES advisory groups, is the use of national or other trend data on educational outcomes.

The Ministry of Education is seeking informed, accurate and fit-for-purpose consideration of national trend data within the BESs. There are areas of system performance that are relatively strong for many learners, and there are areas of poorer system performance. There are also myths that prevail in educational discourses and the media that need to be challenged in the light of a careful consideration of the evidence. Also, there is a strong pattern of evidence emerging about the role that evidence about learner achievement has played (when used appropriately) in improving the quality of teaching<sup>47</sup>. BES writers are required to become knowledgeable about relevant trend data to ensure that the available evidence about learner outcomes is clearly presented. BES writers should, where possible, triangulate different sources of trend evidence. For example, triangulation of the National Education Monitoring Project assessments on authentic tasks, with New Zealand assessment outcomes on international comparative studies, will provide a richer picture of national data than use of either assessment type alone. The international evidence provides important comparative information about system effectiveness, especially where there is careful interrogation of points of comparison with contexts in other countries. For example, it is useful to compare New Zealand's PISA results with those of Canada because Canada, which has widespread bilingual education, many indigenous languages and similarly high immigration patterns, achieves high mean performance and high equity (low variance).

The nature of BES is to juxtapose consideration of what works and what made a larger positive impact on diverse learners, with informed use of national trend data. Despite the perspective that the consideration of trend data is intended to reflect on system effectiveness, the careless use of trend data can be counterproductive. For example, superficial use of trend means without attention to variance, and system effectiveness, including attention to cultural match between the educational institution and the learner's home, can contribute to reinforcing and entrenching unfounded deficit attributions to groups of learners. On the other hand, trend data (for example, that monitoring untreated hearing loss), can identify critical influences on educational outcomes that need to be highlighted for policy makers, educators, families and the wider community.

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<sup>46</sup> Durie, M., Fitzgerald, E., Kingi, T.K., McKinley, S., & Stevenson, B. (2002). *Māori specific outcomes and indicators*. A report prepared for Te Puni Kōkiri, The Ministry of Māori Development. Te Pūtahi a Toi, School of Māori Studies, Massey University. [http://www.tpk.govt.nz/publications/research\\_reports/outcomes.doc](http://www.tpk.govt.nz/publications/research_reports/outcomes.doc)

<sup>47</sup> Alton-Lee, A. (2003). *Quality teaching for diverse students in schooling: Best evidence synthesis*. Wellington: Ministry of Education.

BES writers are required to collate, critically evaluate, and to carefully present summaries of accurate and relevant national trend data with knowledgeable attention to issues of validity and complexity. BES writers are required to use this data in ways that interface with the evidence of what works in order to advance, rather than undermine, the central purpose of BES to strengthen responsiveness to diverse learners. BES writers should seek assistance and advice from their advisory groups and other advisers (including practising educators) knowledgeable about issues of culture and assessment, to ensure optimal and appropriate use of relevant trend data in a BES iteration.

## **3 Ensuring Transparency of Approach**

### **3.1 Methodological Transparency**

The best evidence synthesis programme is committed to making the BES approach transparent, and making transparent the methodological approach taken to any particular synthesis. Such transparency is important for enabling informed evaluation, critique and iterative development of the syntheses.

The key strategy to achieve transparency is the inclusion of a sufficiently detailed and accurate account of the methodology for an informed reader to understand how the synthesis was constructed. These *Guidelines* and other Ministry of Education working papers in progress on the best evidence synthesis methodology will assist in balancing this strategy with the need to be concise. However, where particular methodological development has been required of the topic under focus, the lead writer(s) need to be vigilant to make the approach transparent. Such transparency will be expected from the outset of synthesis development. The Ministry of Education will expect a draft of the methodology section to be developed from the outset of the synthesis development approach.

### **3.2 Inclusion of a Technical Report on Research Characteristics**

BES writers are required to include, as an appendix, a technical report summarising critical information about the research approach and rigour. The report should use a tabular format and identify research questions, theoretical framework, context, design, methodology, appropriateness of the methodology to address the research questions, participants/sample, nature of data, number and nature of observations, assessments, approach to analysis of outcomes-linked data, findings, evidence of magnitude of impact on learning processes or learner outcomes. The categories selected for the report format will need to be negotiated according to the BES focus, and the Ministry of Education will be seeking commensurability across BES iterations in the format developed. This report has been requested by members of the BES Standards Reference Group to facilitate critical evaluation of evidence by the research community.

### **3.3 Theoretical Transparency**

BES writers need to make the theoretical perspectives informing their approach transparent. BES writers will need to allocate time in the early days of BES development to read relevant theoretical work by Māori educational researchers and by Pasifika educational researchers, in order to strengthen their understanding, interpretation and analysis of the evidence. Theoretical perspectives used should be constantly interrogated against, and reviewed in the light of, the consideration of evidence. Through the BES development process, principles of theoretical coherence (such as breadth, depth and simplicity) and theoretical integration should drive the way in which explanatory theory is advanced as helping to understand what works and what makes a larger positive impact on diverse learners.

### **3.4 Explicit Links between Claims and Evidential Source**

The ways in which the evidence supports claims made in the text should be made transparent to ensure rigour and validity in all of the claims made. The Ministry of Education asks of writers that, from the outset of the writing process, they footnote the link between a claim made in the text and the evidential source. Whenever a BES is used, the reader should be able to readily identify the actual research study or source that is underpinning the claims made in the text, even if a BES is broken into sections (as is frequently the case when educators use the BESs), and the bibliography is not available at the time of use. The footnotes then serve two functions. First, they allow readers to follow up on the full research reports to get further detail about the education development or insight of focus. Second, they enable scrutiny of the source of the evidence to enable educational researchers or others to evaluate for themselves the strength of the evidence-base underpinning any particular claim.

### **3.5 The Use of Language to Convey Status of Claims**

A best evidence synthesis brings together a wide range of research evidence in a concise form. An important function of a synthesis is to convey the weight behind the claims made. Accordingly, precision in the use of language when making claims about the evidence is a fundamental tool to support both rigour and effective communication through each synthesis report.

The lead writer(s) will need a deep understanding of the range of evidence identified, in order to explain those findings which showed greater impact over a wide range of studies, those that show a lesser or even negative impact, those findings which illustrate the caveats around what works and under what conditions, those findings that show a pattern of contradiction, and the exceptions that raise important questions. The use of questions in a BES will be important when there are significant areas for which the evidence is unclear. Occasionally a BES writer will need to use language that makes explicit the lack of evidence.

The lead writer(s) will need to grapple constantly with the challenges of subtlety, consistency and accessibility in the language used.

### **3.6 Best Evidence Synthesis as an Iterative Process**

The best evidence synthesis programme aims to progressively build and strengthen the evidence base that informs educational policy and practice. Strategies that writers can use to recognise the iterative status of their work and to contribute to further iterative development are to:

- report work-in-progress to knowledgeable colleagues through conference presentations in order to encourage wide, critical, formative comment;
- arrange opportunities to present the findings to a range of different audiences at the final draft stage, in order to get feedback from those audiences that will inform the clarity and accessibility of the writing;
- conceptualise and describe their synthesis as iterative work that anticipates future iterations;
- show how their synthesis links to other syntheses in the best evidence synthesis

- programme, or other relevant literature reviews linked to learner outcomes;
- invite readers to communicate with the Ministry of Education using the best evidence synthesis e-mail if they know of other significant work linked to learner outcomes that could be included in a subsequent iteration;
  - after completion of the final BES report, prepare, in consultation with the Ministry of Education, one or more related publications for a suitable peer-reviewed academic journal.

## 4 Identifying and Retrieving Relevant Evidence

### 4.1 Selection of Evidence about Impacts on Learners

The Ministry of Education is using the term ‘best’ within the best evidence synthesis programme to describe a *body of evidence* that provides credible evidence, and explanations for, influences that have made, and can make a bigger difference to desirable learner outcomes for diverse learners simultaneously. The criterion for selection of evidence for a best evidence synthesis is that the research provides evidence about impacts on learner outcomes. This criterion means that much research that might be focussed on the educators or other influences in an educational setting, without reference to the impacts on learners, should not be included in a best evidence synthesis unless there is a defensible reason for including this research (and that is made explicit and open to scrutiny). In the Ministry of Education’s best evidence synthesis programme we are using the term ‘evidence’ to distinguish unfounded, anecdotal, ideological or even popular beliefs about what is effective, from evidence-based findings about what is effective. Notwithstanding the foregoing, the best evidence synthesis programme acknowledges that what counts as evidence is highly contested in social science research. Accordingly, the process and criteria by which BES development teams and writer(s) evaluate and judge research evidence need to be credible, well-justified and transparent.

The best evidence syntheses are not intended to displace the wider consultation that is part of the policy development process; rather they provide a tool in the wider debate<sup>48</sup>.

This criterion for selection of evidence means that research from a wide range of methodological designs (including for example, action research studies, case studies, microgenetic studies of classroom processes, ethnographic-outcome focused studies, quasi-experimental research, multiple regression studies, longitudinal studies and experimental research) can make valued contributions to a best evidence synthesis. The point of synthesis is that a cumulative body of research, carefully interrogated, provides more explanatory power than findings from any one research study or design type. When there are so many studies in a field linked to learner outcomes that BES writers need to be very selective about what should be included, preference should be given to those studies that put emphasis on evaluated educational development in the research study, rather than just evaluation with scanty information about the educational approach being evaluated. In the case of significant New Zealand research, BES writers may have to track down the authors to get more elaboration. Also, studies that show bigger positive impacts for diverse learners, at the same time, should be given particular preference.

Research that pays attention to the impacts on diverse learners simultaneously is of most value for a best evidence synthesis. For example, if a case study demonstrates particularly effective interaction between a teacher and learner, BES writers should, wherever possible, make transparent what the teacher or educator had organised for the other learners to enable that one-to-one interaction to occur.

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<sup>48</sup> Nutley, S., Davies, H., & Walter, I. (2003). *Evidence-based policy and practice: cross-sector lessons from the UK*. Keynote paper for the social policy research and evaluation conference, Wellington, New Zealand. St. Andrews, Scotland: Research Unit for Research Utilisation.

## 4.2 Using a Knowledgeable Search Strategy

The search for research literature cannot be solely dependent on a search of key descriptors using electronic databases (although several such searches will be a key strategy) as such an approach will not only exclude a substantial amount of relevant research, it will also privilege particular types of evidence. Accordingly, the BES development team needs to develop and use a knowledgeable search approach. Advice from the BES writers and the BES Standards Reference Group has emphasised the importance of writers contacting researchers directly in order to become as informed as possible about the nature and availability of relevant research. Whatever the strategy, it is critical that, from the outset of the search, the writer(s) provides, and systematically updates, a detailed account of the approach taken to searching and deciding what is in scope and what is in the methodology section.

Some characteristics of a knowledgeable search strategy are:

- planning and developing the search strategy on the basis of the initial scoping and the iterative development of a conceptual framework;
- identifying and retrieving outcome-linked studies from landmark reviews on the topic, in particular those that have been selected and peer-reviewed by professional research communities e.g. as in the *Handbooks of Research on Teaching* published by the American Educational Research Association (The American Educational Research Association is selected here because it holds one of the largest international meetings of researchers each year, but other significant international research communities relevant to the area of BES focus should also be considered);
- identifying relevant, rigorous and systematic reviews commissioned by education policy agencies elsewhere in the world that can be considered and used, with cautious attention to issues of comparative context and applicability;
- ensuring up-front that the team identifies the highest ranking relevant journals internationally and a broad range of relevant peer-reviewed journals that should be searched;
- using professional knowledge and landmark reviews to identify landmark studies in the field or other relevant fields;
- using bibliographies and reference lists from landmark reviews and studies to generate a map of significant previous and recent studies in the research literature in the field;
- developing lists of descriptors that are sufficiently wide-ranging and paradigm inclusive;
- carrying out a physical scan of copies of academic journals relevant to the topic that will assist in identifying commonly used relevant descriptors;
- attending to the reality that significant New Zealand research work may not emerge through a systematic search (use the list of theses as a key resource here and search by the names of New Zealand educational researchers who have worked in relevant areas);
- ensuring, when searching the Internet, that the article retrieved is not just a summary prepared for lay audience, and following through to retrieve the detailed research report(s) behind easily accessible summaries;
- using a pro-active search strategy for retrieving studies that can inform attention to Pasifika learners; and
- after assiduously searching and retrieving the New Zealand research, identifying and making transparent gaps in the available evidence, and research areas where further work is needed to inform educational policy and practice.

Notwithstanding all that has been said about a knowledgeable search strategy, the Ministry of Education is taking the view that theoretical pluralism is valuable to allow consideration

of a wide range of research evidence. Accordingly, BES writers are likely to be challenged to consider theoretical work outside of their area of particular expertise, in order to do justice to the range of research evidence available. To ensure that the search strategy includes research evidence informed by a range of theoretical perspectives, BES writers should be using advisers who can assist with a range of theoretical perspectives.

### **4.3 Importance of NZ Education Theses and Postgraduate Reports**

The Ministry of Education is building a knowledge base about what works in the New Zealand educational system, and in New Zealand settings. Accordingly, the substantial body of unpublished educational research in New Zealand doctoral and masters theses and other postgraduate research reports is a particularly valuable resource that BES writers are expected to access and use knowledgeably. Many of these research studies have been carried out by practising educators, educational psychologists, educational leaders, or others working directly or indirectly with learners in New Zealand. In particular, there are many doctoral and masters theses by Māori educational researchers that illuminate system performance issues for Māori. The BES Māori Educational Research Advisory Group and the BES Pasifika Educational Research Advisory Group are assisting with the task of identifying relevant research and landmark theoretical work that can assist BES writers.

Doctoral theses will be an important source of knowledge about what works and why. There are instructions on the inside cover of New Zealand doctorates about restrictions on the use of quotations from these doctoral theses without the permission of authors. BES writers will need to be mindful of these restrictions and the requirements to consult with the authors. Lists of New Zealand educational theses have been prepared and will be updated in the Iterative Best Evidence Synthesis Programme to assist BES writers. These lists are just one kind of resource. BES teams should not underestimate the time, networking and effort required to access the wider fugitive educational research literature, especially access to action research studies carried out by teachers in New Zealand schools.

## 5 Evaluating the Evidence

The BES development team needs to consider what counts as evidence in high-quality educational research, and to seek expertise where necessary to assist them in evaluating the evidence. A best evidence synthesis reader will be relying on the BES team's rigorous and careful consideration of each study. Before team members begin an in-depth evaluation they should consider whether the document is an actual report of the research, or whether it is necessary to source a more detailed report on the research, or original thesis.

In evaluating the evidence a BES team needs to consider issues such as:

- which outcomes have been considered and how the evidence has linked influences to outcomes;
- whether the research design was appropriate to address the research question;
- whether there are untenable assumptions framing the study;
- the nature of the data, and whether the kind of data gathered could answer the research questions (e.g. survey data may be informative about people's view but unhelpful in explaining links to outcomes for learners);
- whether the research is robust according to the method followed (for example; whether experimental study, meta-analysis, ethnography, or action research study);
- who has been included in the sample or focus of the research and whether the analysis of outcomes, or educational processes, has attended to all the learners in a setting, and issues of diversity;
- the role of context (for example: geographic, temporal, cultural, linguistic, political, institutional - including provisions for students with special needs in both specialist and mainstream education);
- credibility;
- validity;
- verifiability;
- confidence in the findings (internal validity);
- how issues of causation have been addressed;
- how issues of agency and change processes have been addressed;
- insights about what did and did not work;
- how the findings illuminate influences on lower and higher achieving learners, and how issues of diversity are implicated in the educational processes or influences considered;
- the range of findings about what did and did not influence learner outcomes, and the potential for making inter-links with these across other studies considered;
- degree of applicability to New Zealand contexts; and
- specificity or generalisability of findings, with cautious attention to the significance of context.

When considering the body of evidence that they have accumulated, the BES team will need to evaluate whether the process has:

- retrieved sufficient New Zealand research to inform policy about different contexts. For example: Māori-medium and English medium; a range of institutional settings such as the particular type of early childhood setting; primary, intermediate and secondary schools; the type of tertiary setting; samples that include attention to the range of socio-economic backgrounds of families;

- retrieved sufficient New Zealand and international research to be helpful (including case studies) to address issues of learner and centre, class or learning group diversity (for example: by learner age, by gender, by ethnicity and multiple ethnic heritages (including indigeneity), by special needs (including special abilities), by achievement (including social outcomes), by recency of immigration (including refugees), by learner language(s) and instructional language(s), by match of family cultural capital with the education system, and by specific at-risk status of learner by health, family dynamics or other influence);
- inadvertently excluded research from less familiar and different paradigms;
- been sufficiently comprehensive of potential influences;
- included landmark studies that have shaped the discourse and an educational research community, and significant Handbook reviews or other reviews commissioned by major educational research or professional educational research organisations (for example: the American Educational Research Association);
- achieved currency (it is expected that the body of research will cover a substantial time period and that the search will attend to very recent studies, including those completed during the early development of the synthesis);
- allowed for particular consideration of significant emergent research that would not normally be included in a BES, but because the research is particularly significant can be included, through careful strategies such as triangulation with other outcomes-linked evidence (see Partnership papers, Section 10, for examples); and
- identified and attended to gaps, and in particular, made significant gaps transparent to readers, rather than invisible through omission.

## 6 Analysing the Evidence

### 6.1 Analytic Approaches

Writers and advisers have highlighted the need to bring an holistic perspective through a range of strategies, such as attending to background readings about historical perspectives, being theoretically informed, and mapping available outcomes data as a context for considering approaches that made a bigger difference. Writers are likely to experience a tension between getting a conceptual overview and paying meticulous attention to specific findings.

We have used the metaphor of a 'jigsaw puzzle' to describe the best evidence synthesis methodology because pieces of the puzzle about the links to student outcomes are often spread over and embedded within a range of research studies. Accordingly, the search and the analytic and synthesising approaches are iterative across research studies, rather than carried out and reported study by study, as can be the case in traditional literature reviews.

The 'jigsaw puzzle' approach also calls for attention to apparently conflicting evidence. Such conflicts can provide clues about the important differences in context, and help to illuminate and deepen our understanding of those processes and influences.

What does become apparent in the course of this 'jigsaw puzzle' approach is that when the 'bits of evidence' are brought together some strong patterns emerge from the research literature, for example, the key role of metacognitive strategies in the research on quality teaching for diverse learners in early childhood and schooling.

An important element of the 'jigsaw puzzle' approach is the analytic work carried out to help interpret the implications of the evidence for heterogeneous groups of students, for Māori and Pasifika, and for the particular learners in New Zealand settings.

The jigsaw puzzle metaphor for BES development is limited, but may be helpful for the early stages of the BES development. At later stages of the synthesis development, attending to theoretical coherence and theory integration are likely to be fruitful strategies for resolving 'puzzles' and genuinely taking our knowledge forward.

The BES team needs a systematic process for interrogating studies. At the point of analysis it is critical that the researchers carrying out the syntheses put aside a priori views they might hold and use a grounded or bottom-up approach based on the strongest findings emerging from the cumulative analysis of the research, including the consideration of conflicting findings apparent in the research. The BES development team may need to seek external expertise to grapple with the methodology and findings of particular kinds of studies. Denzin's (1989)<sup>49</sup> account of multiple triangulation provides a useful analytic tool when synthesising very different kinds of research. For example, the analysis could attend to data triangulation (time, space, and person/collective); investigator triangulation; and/or methodological triangulation, in evaluating rigour not only in individual studies but across the body of evidence.

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<sup>49</sup> Denzin, N. (1989). *The Research Act: A theoretical introduction to sociological methods*. (3<sup>rd</sup> ed.) New Jersey: Prentice-Hall.

Questions that may be helpful in guiding the analysis:

- What works?
- What can make a bigger difference for diverse learners simultaneously? How is educator agency in influencing the peer learning culture implicated in the findings?
- What facilitates different learner outcomes? Why, and under what conditions?
- What doesn't work? Why not, and under what conditions?
- Has researcher/educator deficit thinking about learners inadvertently framed the research or has lack of attention to issues of disadvantage (such as health and poverty), inadvertently framed the research?
- How do findings from particular interventions contribute to a health-of-the-system perspective?
- What is the explanation for learners' changes? How is the change happening?
- What assumptions about educator or parent agency, systemic change and sustainability are underpinning the explanations?
- What is the educational impact of the influence/s in question? What is each influence's relative impact when considering other influences?
- How are influences inter-related, or mediating key levers?
- What is the educational significance of the influence in question?
- What is the explanatory power of the findings? (For example, action research or qualitative analysis and some field with evidence linked to outcomes may provide high explanatory power, and be consistent with other findings through triangulation. Caution is required re curvilinear relationships<sup>50</sup>.)
- What patterns are there emerging from the body of evidence?
- What theoretical tools (for example, the explanations of concepts of 'ako'<sup>51</sup>, 'whanaungatanga'<sup>52</sup>, 'co-construction', 'metacognition' and 'fa'aSamoa'<sup>53</sup>) best help explain these findings?
- What does a systematic analysis of how context is significant reveal? For example, how do different policies, contexts, systems, resources, approaches, practices, alignments and influences impact on diverse learners?
- In what ways do the international research findings inform the New Zealand context, and where can the links be made to ensure they are considered in the light of relevant New Zealand research? For example, do findings about Afro-Caribbean students in

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<sup>50</sup> Caution is needed in attending to curvilinear relationships where a certain amount of a particular influence is significantly helpful, but too little or too much of this influence is unhelpful (for example: teacher wait-time after asking questions).

<sup>51</sup> For example, see Pere, R.R. (1982). *Ako: Concepts and learning in the Māori tradition*. Working Paper 17. Department of Sociology, University of Waikato, Hamilton, New Zealand.

<sup>52</sup> For example, see Hohepa, M., Smith, G.H., Tuhiwai Smith, L., & McNaughton, S. (1992). Te Kohanga Reo Hei Tikanga Ako i Te Reo Māori: Te Kohanga Reo as a context for language learning. *Educational Psychology*, 12 (3 & 4), 333-346.

<sup>53</sup> For example, see Silipa Silipa's explanation: 'Fa'a Samoa or Samoan culture, in the context of this study, involves processes, systems of beliefs, values and ways of knowing. In every Samoan home, the total cultural package is transmitted to the next generation by word of mouth, observational learning and knowledge construction through fa'a Samoa' p. 12. See further Silipa Silipa's development of a 'Faletele model- Nurturing coolness and dignity' p. 157 as a theoretical tool to help explain the implications of fa'aSamoa for Samoan secondary students in a New Zealand school. Silipa, S. (2004). "Fanaafi o fa'amalama": A light within the Light: Nurturing coolness and dignity in Samoan students' secondary school learning in Aotearoa/New Zealand. Unpublished doctoral dissertation, University of Canterbury, Christchurch, New Zealand.

London<sup>54</sup>, findings about white middle class, white working class and black working class students in an American Appalachian mill town community<sup>55</sup>, Indo-Chinese refugees<sup>56</sup> in Australia, or Japanese Burakumin<sup>57</sup> students in the USA and Australia, have implications for New Zealand and why?

- Is there disconfirming evidence and what does this mean about context and specificity of effectiveness?
- What evidence is missing? Where is there a need for more New Zealand evidence?

The purpose of the analytic work is to develop a deepening understanding of what works for diverse learners.

## 6.2 Secondary Analyses

Many policy questions about the ways in which resources, environmental and wider conditions, educational change processes and so on influence and mediate learner outcomes are not directly addressed in studies of effective practice, but information about these important influences is embedded in research reports. In their best evidence synthesis iteration Mitchell and Cubey (2003)<sup>58</sup> exemplified a secondary analysis of the embedded conditions that supported the professional learning of early childhood educators (see *Structural Features of Effective Professional Development* page xii). The Ministry of Education is seeking to work with BES writers to carry out useful secondary analyses, especially of New Zealand research studies, that help to illuminate the conditions that support effective educational practices. It is likely that this kind of analytic work will require expert methodological advice relevant to particular BESs.

The strategy of ‘backward mapping’ may be used as a particular strategy in BES development, when the status of the strategy is made transparent, with caution, and only where empirical research is not available or very thin. ‘Backward mapping’ is a strategy wherein researchers identify key influences on learners, and use these to consider implications for what is needed in teaching or other educational provision. For example, strong evidence about what is needed for learners to learn may influence what is needed in

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<sup>54</sup> See Alison Jones’ argument about using British research about working class students as ‘points of contrast’ for New Zealand educational research because of marked contrasts in Pasifika and British working class students’ attitudes to schooling. Jones, A. (1991). *‘At school I’ve got a chance’: Culture/privilege: Pacific Islands and Pakeha Girls at school*. Palmerston North: Dunmore Press.

<sup>55</sup> See Heath, S. B. What no bedtime story means: Narrative skills at home and school. *Language in Society*, 11, 49-76. Although cultural practices in New Zealand are markedly different from many of those described in this research, middle class family practices of linking information in children’s stories to their everyday practices, working class community suspicions around the role of fiction as encouraging students to engage with untruths, working class families’ emphasis on alphabet and number books, and the mismatches between junior class reading practices and the sophisticated oral traditions of some communities, raise questions and provide theoretical tools for reflecting on New Zealand evidence.

<sup>56</sup> Hamilton, R., Anderson, A., Frater-Mathieson, K., Loewen, S., & Moore, D. (2000). Literature Review: Interventions for Refugee Children in New Zealand Schools: Models, Methods and Best Practice. Auckland: Auckland Uniservices Ltd In this review the authors described an Australian intervention to improve school-home linkages for Indo-Chinese refugees that were effective in addressing the same kinds of problems reported in research about adolescent Somali refugees in Christchurch. The Christchurch research highlighted problems but the Australian research outlined solutions that could be trialled and evaluated in New Zealand schools.

<sup>57</sup> See Cummins, J. (1986). Empowering minority students: A framework for intervention. *Harvard Educational Review*, 56(1). Cummins found a correlation between low family socio-economic status of Japanese Burakumin children and achievement occurring in Japan did not carry over to the achievement of Burakumin children whose families emigrated elsewhere. In other societies they did as well as any other student of Japanese heritage.

<sup>58</sup> Mitchell, L. & Cubey, P. (2003) *Characteristics of Professional Development Linked to Enhanced Pedagogy and Children’s Learning in Early Childhood Settings: Best Evidence Synthesis*. Wellington: Ministry of Education.

the preparation of teachers through initial teacher education. The ‘backward mapping’ approach was demonstrated at the report of the National Academy of Education Committee on Teacher Education at the American Educational Research Association Conference (April, 2004, San Diego)<sup>59</sup>. Linda Darling-Hammond, Guadalupe Valdes and Pamela Grossman (Stanford University); James Banks and John Bransford (University of Washington); Lorie Shephard (University of Colorado at Boulder) and Alan Schoenfeld (University of California) and other leading researchers are bringing together the available evidence about learning, teaching and initial teacher education that is relevant to improving teacher education. Part of this task requires systematic *backward mapping* from the research on learning to the implications for initial teacher education and so on. This work is systematically inferential and would have the status of secondary analysis of BES findings. The use of ‘backward mapping’, as secondary analysis, would need to be informed by expert methodological advice, and unequivocally transparent to readers.

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<sup>59</sup> Session 49.048.

## **7 Synthesising the Evidence**

### **7.1 Giving the Task of Synthesis Sufficient Time**

Consultation with the BES writers to date has indicated that the BES writer(s), should allow up to half of the contracted time period to work on the actual synthesis. The quality of the synthesis will depend upon the success of the search strategy, and the quality of both the primary and secondary analyses, so it is important that sufficient formative quality assurance has been carried out prior to the work of synthesis.

### **7.2 Taking a Systematic Approach to Synthesis**

At the synthesis stage it is particularly important that BES writer/s do not fall into the trap of selective exempling and superimposing pre-existing categories onto the synthesis activity. Because lead writers bring a strong professional, theoretical and research knowledge to the topic, they will need to develop strategies to ensure that their prior knowledge informs, but does not inadvertently shape and constrain, the synthesis. They may have to confront/interrogate beliefs and set aside those that have no evidence to support them. Strategies to evaluate theoretical coherence will be helpful. The aim is to generate genuinely new understandings and insights from the evidence, to serve the purposes of strengthening education for diverse learners in the New Zealand context.

### **7.3 Ensuring the Synthesis is Grounded in the Analysis**

A systematic and grounded approach to carrying out the actual tasks of generating categories and synthesising the findings needs to be developed and used. Ongoing attention to disconfirming examples, inconsistencies in the body of evidence, the role of context, and different patterns emerging for different outcomes, will be critical to the task of synthesising the findings.

Because the nature of the Ministry of Education's best evidence synthesis is to bring together a range of different kinds of evidence, there is no established method of synthesis that can readily be applied. Advisory input from an educational research methodologist will be particularly important for this task, and it will be necessary to be transparent about the approach taken to the synthesis process in the methodological section of the report.

### **7.4 The Role of Theory in Synthesis Work**

The role of theory is particularly critical as an organising tool in the task of research synthesis. BES writers should be scrutinising theoretical coherence within particular studies and across studies. The search for disconfirming evidence will be particularly critical to evaluating theoretical coherence. Consideration of the interplay between a range of theories and the evidence, and the inter-connections and disjunctions amongst these should help illuminate the question of what can make a bigger difference for diverse learners. In the later stages of the synthesis work, writers should be seeking to achieve theory integration as a critical dimension of research synthesis.

## 7.5 Representing the Relative Magnitude of Influence in the Synthesis Findings

The Ministry of Education is asking synthesis writers to assess and explain which influences the evidence indicates had a much greater impact on learner outcomes. Hattie's (1999) explanation of his use of a benchmark of 0.40 when evaluating effect sizes in a meta-analysis provides a useful example of a criterion and the thinking behind it<sup>60</sup>.

Assessing the magnitude of impact of a particular educational influence or approach in a case study will need detailed contextual consideration of information such as the nature of the learning, the period of time, previous achievement of the learners, and progress made (or not).

In considering magnitude of influence, it is important also to consider interdependencies amongst influences. The analysis and the synthesis should not assume just linear relationships between influences and outcomes. The nature of many relationships between educational influences and outcomes is curvilinear (too little is insufficient, too much is unhelpful).

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<sup>60</sup> Hattie (1999) argues for a threshold of .40 in educational research as an indication of a teaching approach that makes a substantial difference to student achievement over and above business-as-usual. Hattie points out that an effect size of 1.0 for an intervention or approach represents the equivalent of about one year of achievement gain for business-as-usual teaching. (See Hattie, J. (April, 1999). *Influences on student learning*. Inaugural professorial lecture, University of Auckland, New Zealand.) This approach differs from that taken in medicine. For example, in their landmark overview of meta-analytic results in psychological, educational and behavioural fields Lipsey and Wilson (1993) point out that in life-and-death situations in medicine small effect size differences - even 0.07 have important practical significance. See Lipsey, M. W., & Wilson, D.B. (1993). The efficacy of psychological, educational, and behavioral treatment: Confirmation from meta-analysis. *American Psychologist*, 48 (12), 1181-1209.

## 8 Writing up the Synthesis

No matter how much time has been spent on the generation of the BES content, if there is not sufficient time or attention given to crafting the actual report, then the whole project is at risk. The key challenges in the writing style are to maintain accuracy and rigour while achieving accessibility, and fitness-for-purpose.

### 8.1 Attending to Gaps

The initial and subsequent iterative work done on scoping and conceptualising the BES topic, and understanding the historical and policy contexts of education in New Zealand, will be an important tool in drawing attention to gaps in the evidence. Writers need to find innovative ways to ensure that ‘silences’ in the research, in areas that are significant for improved outcomes for diverse learners, are not compounded in a final synthesis. The ways in which such gaps are made transparent should assist educators, policy makers and researchers to reflect upon issues arising, and to positively identify research and development needs. Posing questions can be a useful strategy to engage reader audiences with significant issues that arise from gaps in the available knowledge base.

### 8.2 Style Issues: Making the Evidence Accessible to Multiple Audiences

Writing the BES so that it is accessible to policy makers, educators, researchers, teacher educators, and educational leaders is a formidable challenge. It is acknowledged that the aim to make each BES accessible to multiple audiences is a challenge that may be particularly difficult for researchers accustomed to writing for specific audiences. However, one of the key purposes iterative best evidence synthesis programme is to get a stronger shared discourse about evidence of what makes a bigger difference for learners. For writers, achieving accessibility of meaning is particularly dependent upon the support and iterative feedback that is possible through a wide range of advisers, particularly at the later stages of synthesis drafting.

Lead writers will need assistance from their Advisory Groups and other advisers, including practising educators and educational leaders, to ensure that their writing style is inclusive of the intended audience. Also, the writing style should be inclusive of audience by gender (rather than using either male or female generic language) and ethnicity (rather than assuming ‘us’ and ‘other’ positionings). Used appropriately the *responsiveness to diversity framework* should assist not only with the content of the report but also with responsiveness to the diversity of the intended audience.

Each best evidence synthesis is a technical report in the sense that it brings together research evidence about education. However, because the report has been commissioned for policy purposes, it will be necessary to make technical language transparent, through careful explanations of terms used, consistent usage, and clarity, simplicity and accessibility of style. Accessibility should not compromise rigour or accuracy.

Case studies will be particularly important, illustrating well-grounded theoretical arguments in ways that are useful for readers. Because the final report will be a synthesis, there will not be space to systematically include the kind of detailed case studies that would be of most use for educators: interested readers will be relying on the referencing to retrieve

relevant studies. However, within the synthesis there should be sufficient vivid and detailed case study examples included to bring the findings to life for readers. Where possible, such case studies should include New Zealand examples in English-medium and Māori-medium settings.

Writers should seek opportunities to give seminars and workshops to a range of audiences about the synthesis findings at later draft stages. The kind of questions, feedback and discussion that follow from ‘speaking the findings’ can assist in strengthening a writer’s sense of audience, and improve the effectiveness of the communication in the actual document.

The fitness-for-purpose criterion is critical to the development of style, because no one style text or manual is available to help with the Ministry of Education’s fitness-for-purpose requirements for the best evidence syntheses.

Notwithstanding the qualifications explained above, the *Publication Manual of the American Psychological Association*<sup>61</sup> provides much helpful information about clarity of style, and the citation and referencing standards for the BES should follow the APA style.

In addition to footnoting references throughout the synthesis, writers should add a list of references.

Writers should also include an index.

### **8.3 Communicating the BES as an iterative document/process**

From the outset of writing and throughout the text the lead writer(s) should make the status of the BES as an iterative document transparent. It is important to communicate the notion that knowledge building is constantly evolving. It is particularly important that the iterative status is restated in the final section of the best evidence synthesis, so that readers are reminded that the development of best evidence syntheses is by nature an ongoing process. BES Standards Reference Group members have emphasised the importance of the iterative process as signalling a ‘starting place’, ‘a gateway’ or ‘an opening’ and ‘a light to illuminate’ a body of knowledge, rather than a ‘full-stop’.

An important message for educators is that a synthesis of research cannot provide the detailed case studies that can help build depth of understanding of particular approaches. Rather, the synthesis can help direct educators to research studies that could be particularly useful for in-depth follow-up.

### **8.4 Ensuring the Validity of Claims Made in a BES**

The Ministry of Education requires the internal and external formative quality assurance to scrutinise and validate claims made in a best evidence synthesis. See *Section 3.5 Use of Language to Convey Status of Claims*.

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<sup>61</sup> American Psychological Association (2001). *Publication Manual of the American Psychological Association (5th ed)*. Washington DC: American Psychological Association.

## **8.5 Integrating Responsiveness to Diversity throughout the BES**

Checklist:

- Ensure that the use of the term ‘diversity’ includes all of our learners, not just particular groups, and that the ‘responsiveness to diversity’ framework is applied and unpacked throughout the writing. When unpacking, be specific about which learners are the focus.
- Ensure systematic attention is given to socio-economic status of learner family and the ways in which mediating influences (especially those at the interface between homes and educational institutions) impact on learner outcomes.
- Ensure inclusion of evidence about learners with special needs, with attention to when those special needs are salient, and when they are not.
- Avoid inappropriate stereotyping or deficit portrayals, yet specifically attend to learner disadvantage.

A working paper that identifies particular strategies BES writers can use to ensure inclusiveness in the way the ‘Responsiveness to Diversity Framework’ is addressed, will be prepared in consultation with BES writers later in 2004.

## **8.6 Inviting Readers to Engage with the BES in Ways that Attend to their Own Contexts**

Through attention to a wide range of New Zealand research and systematic interrogation of the impact of context, BES writers should illuminate what the synthesis reveals about the specific impacts of context, whether, for example, these are; institutional, cultural, geographical, curricula, linked to language(s) of instruction and so on. In this way, the synthesis should not only inform policy makers about what works and what can make a bigger difference in New Zealand education, but also signal the qualifiers, adaptations, and constraints around what can work for whom, when, and under what conditions.

Such transparent attention to context should also enable, and invite educators to consider and evaluate how the evidence might be relevant to, and helpful for, strengthening practice in their own contexts. In this way cycles of research, development and evaluation will continue to strengthen our knowledge building about what can make a bigger difference for all of our learners.

## 9 Acknowledgements: Reference and Advisory Groups

The Iterative Best Evidence Synthesis Programme acknowledges the invaluable assistance and advice received from the BES Standards Reference Group, the BES Māori Educational Research Advisory Group, the BES Pasifika Educational Research Advisory Group, and Dr Brian Haig, University of Canterbury. The process of feedback and advice will be ongoing to strengthen the work and its capability to meet its purposes. The members of the Reference and Advisory Groups are listed below.

### BES Standards Reference Group

Sandra Aikin, Senior Officer, Teaching and Learning, New Zealand Educational Institute, Te Riu Roa  
Dr Airini, General Manager, Pasifika Development, Auckland College of Education, Te Kura Akoranga o Tamaki Makaurau  
Judie Alison, Advisory Officer, The New Zealand Post Primary Teachers' Association, Te Wehengarua  
Dr Adrienne Alton-Lee, Chief Education Adviser, Iterative Best Evidence Synthesis Programme, Medium Term Strategy, Ministry of Education  
Ngairie Bennie, Senior Research Analyst, Research Division, Ministry of Education  
Jeanne Biddulph, Biddulph Educational Consultants  
Dr Fred Biddulph, Biddulph Educational Consultants  
Professor Joy Cullen, Department of Learning & Teaching, Massey University, Te Kunenga ki Pūrehuroa  
Dr Sarah Farquhar, Childforum  
Professor Richard Harker, Professor of Educational Research, Department of Social and Policy Studies in Education, Massey University, Te Kunenga ki Pūrehuroa  
Anne Jackson, Manager Research and Evaluation, Ministry of Social Development  
Frances Kelly, Senior Manager, Medium Term Strategy, Ministry of Education  
Karl Le Quesne, Senior Policy Analyst, Education Management Policy, Ministry of Education  
Paula Mato, Policy Analyst, Māori Tertiary Education, Ministry of Education  
Professor Stuart McNaughton, Director of the Woolf Fisher Research Centre, The University of Auckland, Te Wananga o Waipapa  
Dr Anne Meade, Consultant, Anne Meade Associates  
Mahina Melbourne, Senior Policy Analyst, Learning Policy Frameworks, Ministry of Education  
Linda Mitchell, Senior Researcher, New Zealand Council for Educational Research, Te Rūnanga o Aotearoa mō te Rangahau i te Mātauranga  
Dr Jenny Poskitt, Director, Institute for Professional Development and Educational Research, Massey University, Te Kunenga ki Pūrehuroa  
Ro Parsons, Senior Policy Analyst, Learning Policy Frameworks, Ministry of Education  
Dr Angelique Praat, Principal Analyst, Centre for Research and Evaluation, Representative, Ministry of Social Development  
Paul Rawiri, Manager Māori Tertiary Education, Ministry of Education  
Dr Kabini Sanga, Senior Lecturer, Humanities and Social Sciences, School of Education, He Parekereke, Victoria University of Wellington, Te Whare Wānanga o te Ūpoko o te Ika a Māui Aotearoa  
Josephine Tiro, Senior Adviser Pasifika Education, National Operations, Ministry of Education  
Professor Linda Tuhiwai Smith, Director, Ngā Pae o te Maramatanga, The National Institute of Research Excellence for Māori Development and Advancement, The University of Auckland, Te Wananga o Waipapa  
Dr Bryan Tuck, Auckland College of Education, Te Kura Akoranga o Tamaki Makaurau  
Dr Lynne Whitney, Senior Manager, Research Division, Ministry of Education

## **BES Māori Educational Research Advisory Group**

Fred Bishop, Research Analyst, Research Division, Ministry of Education, Te Tāhuhu o te Mātauranga  
Professor Russell Bishop, Assistant Dean, Māori Education, Te Kura Toi Tangata, Te Whare Wānanga O  
Waikato

Rawiri Brell, Manager Group Māori, Ministry of Education, Te Tāhuhu o te Mātauranga

Robina Broughton, Advisor, Teacher Education, New Zealand Teacher's Council  
Te Pouherenga Kaiako o Aotearoa

Maringi Brown, Manager, Kiwa Education Partnership

Garrick Cooper, Kairangahau, Te Wānanga Kaupapa Māori, New Zealand Council for Educational Research,  
Te Rūnanga o Aotearoa mo te Rangahau i te Mātauranga

Professor Arohia Durie, Head of Department, Department of Te Uru Maraurau, Massey University  
Te Kunenga ki Pūrehuroa

Dr Pip Ferguson, Manager, Te Whānau Manāki Rangahau, Te Wānanga O Aotearoa

Dr Helen Hayward, He Pukenga Matauranga, School of Education, University of Canterbury, Te Whare  
Wānanga o Waitaha

Huata Holmes, Kaumatua, Māori Advisor, Dunedin College of Education, Te Kura Akau Taitoka

Hugh Karena, Māori-medium Education Network Development Leader, National Operations, Ministry of  
Education, Te Tāhuhu o te Mātauranga

Frances Kelly, Senior Manager, Medium Term Strategy, Ministry of Education, Te Tāhuhu o te Mātauranga

Shane Martin, Senior Research Analyst, Comparative Education Research Unit, Ministry of Education, Te  
Tāhuhu o te Mātauranga

Jolanda Meijer, Senior Policy Manager, Group Māori, Ministry of Education, Te Tāhuhu o te Mātauranga

Mahina Melbourne, Senior Policy Analyst, Learning Policy Frameworks, Ministry of Education, Te Tāhuhu o  
te Mātauranga

Wally Penetito, Senior Lecturer, Humanities and Social Sciences, School of Education, Kaihau, He  
Parekerekere, Victoria University of Wellington, Te Whare Wānanga o te Ūpoko o te Ika a Māui

Dr Leonie Pihama, Director/Kaiwhakahaere, International Research Institute for Māori and Indigenous  
Education / Faculty of Arts - Māori Education, University of Auckland, Te Whare Wānanga o Tamaki  
Makaurau

Mereana Selby, Kaihau: Whakākoranga, Te Wānanga-o-Raukawa

Cheryl Stephens, Pou Taratu, Head of Education Faculty, Te Whare Wānanga o Awanuiāraangi

Paula Rawiri, Manager, Māori Tertiary Education, Ministry of Education, Te Tāhuhu o te Mātauranga

Rhonda Tibble, Representative of the New Zealand Post Primary Teachers' Association,  
Te Upoko o te Tari Māori, Lytton High School, Te Kura Tuarua O Ritana, Te Wehengarua

Liz Patara, Representative of New Zealand Educational Institute, Te Riu Roa, Principal, Clyde Quay School

Lavinia Tamarua, Senior Lecturer, Early Years Education, School of Education: Te Kura Matauranga  
Auckland University of Technology, Te Wānanga Aronui O Tamaki Makau Rau

Dr Sarah Tiakiwai, Research Fellow, Wilf Malcolm Institute of Educational Research, University of Waikato,  
Te Whare Wānanga O Waikato

Tony Trinick, Dean, Te Puna Wānanga, Auckland College of Education, Te Kura Akoranga O Tamaki  
Makaurau

Professor Linda Tuhiwai Smith, Co-Director, Ngā Pae o te Maramatanga, The National Institute of Research  
Excellence for Māori Development and Advancement, The University of Auckland, Te Wānanga o  
Waipapa

Pauline Waiti, Research Group Director, Māori Education, Te Wāhanga Kaupapa Māori, New Zealand Council  
for Educational Research, Te Rūnanga o Aotearoa mo te Rangahau i te Mātauranga

Dr Adrienne Alton-Lee, Chief Education Adviser, Iterative Best Evidence Synthesis Programme, Ministry of  
Education, Te Tāhuhu o te Mātauranga

## **BES Pasifika Educational Research Advisory Group**

Dr Airini, General Manager, Pasifika Development, Auckland College of Education, Te Kura Akoranga o Tamaki Makaurau

Professor Terry Crooks, National Education Monitoring Project, University of Canterbury, Te Whare Wānanga o Waitaha

Iosua Esera, Principal, Raetihi School, Raetihi

Amosa Fa'afoi, Christchurch College of Education, Te Whare Whai Mātauraka Ki Ōtautahi

Claire Harkess, Senior Analyst, Demographic & Statistical Analysis Unit, Ministry of Education

Roberta Hunter, College of Education, Department of Technology, Science and Mathematics Education, Massey University, Te Kunenga ki Pūrehuroa

Associate Professor Alison Jones, School of Education, University of Auckland, Te Wananga o Waipapa

Frances Kelly, Senior Manager, Medium Term Strategy Policy, Ministry of Education

Dr 'Ana Koloto, Koloto Associates

Pip Laufiso, Pacific Island Liaison Officer (ECE)/Lecturer – Pasifika Studies, Dunedin College of Education, Te Kura Akau Taitoka

Lata Laing, Assistant Principal, Owairaka School, Auckland, Representative of the New Zealand Educational Institute, Te Riu Roa

Nila Lemihio, Facilitator, Social Studies and Pasifika Literature, Team Solutions, Auckland College of Education, Te Kura Akoranga o Tamaki Makaurau

Lesieli MacIntyre, Department of Social and Policy Studies in Education, Massey University, Te Kunenga ki Pūrehuroa

Lucy Makaua, Lecturer, School of Early Childhood Teacher Education, Wellington College of Education, Te Whānau o Ako Pai ki te Upoko o te Ika

Diane Mara, Senior Researcher, New Zealand Council for Educational Research, Te Rūnanga o Aotearoa mō te Rangahau i te Mātauranga, Wellington

Dr Eci Nabalarua, Chairperson and Senior Lecturer, Development Studies, University of Waikato, Te Whare Wānanga o Waikato

Teura Pokoati, Policy Analyst, Learning Policy Frameworks, Ministry of Education

Tanya Wendt Samu, Pasifika Faculty, Auckland College of Education, Te Kura Akoranga o Tamaki Makaurau

Dr Kabini Sanga, Senior Lecturer, Humanities and Social Sciences, School of Education, He Parekereke, Victoria University of Wellington, Te Whare Wānanga o te Ūpoko o te Ika a Māui Aotearoa

Dr Silipa Silipa, University of Canterbury, Te Whare Wānanga o Waitaha

Dr David Small, Senior Lecturer, School of Education, University of Canterbury, Te Whare Wānanga o Waitaha

Ma'anaima Soa, Policy Analyst, Ministry of Pacific Island Affairs

Fa'asaulala Tagoilelagi-Leota, Pacific Liaison Co-ordinator, Early Childhood Primary Link Project, Woolf Fisher Research Centre, The University of Auckland, Te Wananga o Waipapa

Lavinia Tamarua, Senior Lecturer, Early Years Education, School of Education: Te Kura Matauranga Auckland University of Technology, Te Wananga Aronui O Tamaki Makau Rau

Maree Telford, Research Analyst, Comparative Education Research Unit, Ministry of Education

Vern Tile, Rongotai College, Wellington Representative of the New Zealand Post Primary Teachers' Association, Te Wehengarua

Josephine Tiro, Senior Adviser Pasifika Education, National Operations, Ministry of Education

Meaolo Toloa, School of Education, The University of Auckland, Te Wananga o Waipapa

Lesieli Tongati'o, Senior Manager, Pule Maata Pasifika, Ministry of Education

Dr Elaine Vine, School of Linguistics and Applied Language Studies, Victoria University of Wellington, Te Whare Wānanga o te Ūpoko o te Ika a Māui.

Dr Adrienne Alton-Lee, Chief Education Adviser, Iterative Best Evidence Synthesis Programme, Medium Term Strategy, Ministry of Education

## 10 Partnership Papers

*Appendix A: Working in Partnership on Knowledge Building BES Strategies that can Inform Approaches to Strengthening Māori Educational Outcomes* [Iterative work-in-progress available from [adrienne.altonlee@minedu.govt.nz](mailto:adrienne.altonlee@minedu.govt.nz)]

*Appendix B: Working Paper in Progress on Strategies Used for BES Knowledge Building that Can Make a Bigger Difference for Pasifika Learner Outcomes* [Iterative work -in-progress available from [adrienne.altonlee@minedu.govt.nz](mailto:adrienne.altonlee@minedu.govt.nz)]