

CERI/CD/RD(2001)2

NEW ZEALAND'S EDUCATIONAL RESEARCH AND DEVELOPMENT SYSTEMS

BACKGROUND REPORT

MINISTRY OF EDUCATION, NEW ZEALAND

June 2001

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INTRODUCTION

1. The Centre for Educational Research and Innovation (CERI) at the OECD has initiated a set of reviews of national educational research and development systems. The purpose is to review the extent to which the educational research and development system within a country is functioning as an effective means for creating, collating and distributing the knowledge on which practitioners and policy makers can draw. The aim is broader than a review focused on the quality of the research delivered, rather, the Review Team is interested in the contribution of educational research and development to the knowledge base of education in a learning society.

2. Educational research and development is broadly defined for the purposes of this Review. The Review Team endorses this definition of educational research and development offered in the 1995 OECD report *Educational research and development – trends, issues and challenges*.

Educational research and development is a systematic, original investigation or inquiry and associated development activities concerning the social, cultural, economic and political contexts within which educational systems operate and learning takes place; the purposes of education; the processes of teaching, learning and personal development of children, youth and adults; the work of educators; the resources and organisational arrangements to support educational work; the policies and strategies to achieve educational objectives; and the social, cultural, political and economic outcomes of education. (OECD 1995 p37)

3. The Review emphasises that educational research and development is conceived as a multidisciplinary research field and much research and development that is relevant to education will be occurring within other disciplines.

The context

4. There are several important contextual features within which a review of educational research and development in New Zealand needs to be placed.

Political, economic and social change

5. In the mid 1980s New Zealand entered a period of dramatic economic and social change. It moved quickly from being a country with a protected economy, to one which demonstrated a commitment to a market model by removing tariffs on imports and subsidies for exporters. In line with the removal of government protection of the economy, there was a move to cutback the size of the government bureaucracy and to reduce the role of central government in social as well as economic affairs.

6. Along with the reduction in the government bureaucracy emerged a greater emphasis on accountability for government spending, and a move towards contracting – particularly in health and social services. While contracting has not gained as firm a foothold in education as in health and social services,

educational research and development is one part of the sector that has been strongly influenced by a shift from institutional funding to contract funding.

Education reforms

7. As part of the economic and social reforms education administration was decentralised to individual schools through the Education Act of 1989. Each school is now governed by an elected board of trustees, which is responsible for the effective management of the school. The board of trustees – usually comprising 3-7 parent representatives, the principal and a staff representative – is the employer of all staff, responsible for teacher performance, oversees the implementation of the curriculum and manages the school finances and property. All of these were previously the responsibility of the government through the Department of Education. Boards of Trustees are accountable to the Crown, and their performance is monitored by the *Education Review Office (ERO)*.

8. Schools receive a bulk grant based on pupil numbers to cover running costs. During the 1990s there was a government initiative towards the bulk funding of teachers' salaries as well, however this was resisted in some quarters and has been discontinued by the current Government.

9. Concurrent with these major changes to schools' organisation and management was the implementation of a new curriculum covering the span of compulsory schooling. *The New Zealand Curriculum Framework: Te Anga Matauranga o Aotearoa* (1993) sets out the overall policy direction for the school curriculum. It includes the principles that underpin the curriculum and describes seven essential learning areas, eight sets of essential skills and the commonly held attitudes and values which should be developed and reinforced through the school-based curriculum. National curriculum statements which detail what students are expected to learn at each age level in each of the essential learning areas have been progressively introduced through the 1990s. The curriculum statements are published in English and in Te Reo Maori for use in Maori-medium education.

Tertiary sector reform

10. Tertiary sector reform has also been dramatic through the 1990s. The sector has been transformed from one with a small number of academically focused universities, and a number of vocationally focused polytechnics, to one with a much greater number and diversity of institutions, including private training establishments, offering a wide range of academic and vocational courses. The entitlement to award degrees is no longer solely in the hands of the established universities.

11. One significant development is that all universities, colleges of education, polytechnics or wananga (a tertiary institution that maintains, advances and disseminates knowledge regarding Maori tradition and Maori custom) established under the Education Act 1989 are required to undertake research as well as teaching.

12. As with early childhood centres, tertiary institutions are bulk funded for running costs and salaries. Government funding has been reduced and student fees have been significantly increased to make up the shortfall. Tertiary institutions are under much more pressure than previously to generate revenue.

Bi-culturalism

13. Aotearoa-New Zealand is a bi-cultural nation. The document which defines the relation between the Crown (as represented primarily through the New Zealand Government) and the indigenous Maori

people is the Treaty of Waitangi. The importance of its bi-cultural heritage has emerged over the last 20 years or so as a critical issue underpinning national activities in New Zealand.

14. In education this is most obvious through the emergence of kohanga reo – Maori language early childhood centres, and kura kaupapa Maori – primary schools offering education completely in the Maori language, and, more recently, wharekura – a new kura kaupapa Maori secondary option which accommodates students wanting to continue in kura kaupapa Maori beyond the primary school level. Maori language immersion classes and bi-lingual classes can also be found in some schools.

15. In relation to educational research and development, the appropriateness of education initiatives for Maori children is of prime interest to educators and virtually all research and development projects include some investigation of this dimension. In addition, kaupapa Maori research is a thriving strand of research with its own distinct research methodology.

This paper

16. This background paper has been prepared for the Review Team prior to its visit to New Zealand. The paper is designed to provide the information specifically requested by the Team, and is organised under the four key themes of the Review. These are:

- the extent to which there is a national policy, and or national agenda for educational research and development;
- how the educational research and development system is organised and funded;
- evidence that educational research and development is contributing to improvements in practice and is informing policy;
- the nature and extent of formal and informal interactions between researchers, policy-makers and practitioners.

17. This paper was prepared primarily from material gathered in recent interviews with a small number of key informants (listed in Appendix 1) identified by the Ministry of Education, and from examination of a range of documents from both government and non-government sources. Documentary sources that discuss educational research and development are scarce however, and their contribution to this report has been secondary to that made by key informants.

1.0 A NATIONAL POLICY AND AGENDA FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

1.1 Is there a national policy and agenda for educational research and development?

18. Informants agree that until very recently there has been nothing resembling a national policy or agenda for educational research and development.

19. Historically, educational research and development has been fragmented, largely small-scale and often driven by short-term policy agendas, or by the interests of individuals or groups of researchers. There have been some attempts to establish research priorities with the collaboration of the educational research community, policy-makers and practitioners (NZCER 1997), but such initiatives do not appear to have been sustained or reviewed.

20. More recently however the Minister of Education has indicated that government-funded education research should be more in tune with long-term objectives, and has given the Government's commitment to strengthening the research base that underpins robust, evidence-based policy.¹

21. In line with the Minister's commitment to establishing longer-term objectives for educational research and development, the Ministry of Education has recently been involved in a *Strategic Research Initiative* (SRI). The SRI was designed to ensure that current policy work continues to be underpinned by sound research, and that the Ministry of Education's strategic information base enables it to anticipate future policy initiatives.

22. Two important phases of the SRI have been completed:

1. The Ministry commissioned nine 'state of the art' literature reviews to provide an understanding of current thinking and developments in a range of key areas. The reviews took a broad look at the literature as well as identifying gaps in knowledge and the nature of research that might address those gaps. Details of the nine reviews can be found in Appendix 2.
2. A formal consultation with educational researchers, policy-makers and practitioners on priorities for research and the establishment of a research agenda. Held as a stand-alone consultation, there was considerable enthusiasm from informants for further consultation and collaboration on national educational research and development priorities.

23. The SRI relates solely to Ministry of Education commissioned educational research and development. However, despite a relatively small budget, a high proportion of research is funded by government and this gives the SRI the status of a de facto national policy.

¹ Hon Trevor Mallard. Press Release 4/10/00

24. With such a recent development no comment can be made about monitoring and evaluation, nor about how effectively it steers educational research and development.

1.2 The main themes and topics in educational research and development.

25. The nine state-of-the-art literature reviews commissioned by the Ministry of Education in 1999 give a good indication of what the Ministry considered to be the main themes within educational research at that time. Full details of the reviews are in Appendix 2. The topics covered by the reviews are:

- the effects of family and community resources on education outcomes
- early childhood education
- the effects of curriculum and assessment on education outcomes
- the effects of school governance, ownership, organisation and management on education outcomes
- the effects of school resourcing on education outcomes
- post compulsory education
- human capital development in organisations
- influence of peer effects on learning outcomes
- enterprise based education and training.

26. Informants for this report were asked about themes in educational research and development over the last 10 years. There was much consistency between the list above and informants' identification of prevailing and emerging themes.

Prevailing themes

27. The following themes were identified by informants as having been to the forefront of educational research and development over the past decade.

28. *Education reforms.* One strand of research that has been well-developed over the past decade has been measuring the impact of the educational reforms. A prime example of this type of research is the *Smithfield Project* (Lauder et al 1994), a longitudinal study of the impact of educational reforms on students' choices and outcomes. There is a view that some of this research has been ideologically driven as a critique of government policy. Another example is NZCER's longitudinal NZCER monitoring the impact of the 1989 education reforms - *The Impact of Education Reforms from 1989*. Between 1989-99, the research project repeatedly surveyed principals, trustees, parents and teachers about the impact of the reforms on primary and intermediate schools.

29. *Assessment.* Another theme that has received attention has been assessment practices both at a national and an individual level. This reflects a growing interest in educational outcomes. Some examples include research towards a coherent strategy of national assessment; participation in large scale

international studies such as the *Third International Mathematics and Science Study (TIMSS)* and the *Programme for Internal Student Assessment (PISA)*; research into the performance of a sample of children across the country to provide national monitoring of the education systems; and the development of *Assessment Resource Banks (ARBs)* designed as a very practical resource for teachers.

30. *Students at risk.* Students at risk of failure and of under-achievement have been the subject of much research. In particular, research and development into how to improve the school achievement of Maori students has been a consistent theme over the past decade. Gender and socio-economic class, as well as ethnicity, have received attention and have moved from being explanatory variables in educational research to being the subject of investigation in their own right in relation to their impact on student achievement.

31. *School improvement.* Customised school improvement projects have been initiated in areas of the country where students were considered to be at risk through the poor quality of some of the schools. Some of these projects are being evaluated concurrently, supporting another strand of the research agenda – school improvement.

32. *Indigenous education.* Alongside the development of the kura kaupapa Maori model for indigenous education has run a strand of research into indigenous education, which as well as being of great value to New Zealand is considered by several people interviewed for this report to be of international standing.

Emerging themes

33. *Teaching and learning.* A theme in the research currently enjoying something of a resurgence of interest is the impact of teaching on learning. While there has since 1992 been a substantial research project investigating the link between teaching and learning in New Zealand, informants felt that research around issues of teacher quality and the quality of teaching have been somewhat eclipsed in that period but are again gathering momentum in educational research and development.

34. *Literacy and numeracy.* Improving both the literacy and numeracy of New Zealand students is currently receiving attention at policy level, and this is being reflected in the research agenda.

1.3 How much attention is given in the educational research to trends in the economy and society?

35. The informants interviewed were confident that educational researchers in this country do take account of trends in economy and society. Examples given include the emphasis placed by the sector on research into student under-achievement and its link with socio-economic status; and the research interest in education management and leadership which has sprung directly from the education reforms of the late 1980s and early 1990s.

36. That said, there was an agreement that the sector is much stronger on ‘snapshot’, rather than longitudinal research and that this limits the analysis of the impact of trends in economy and society. The view was also expressed that in general education researchers are more open to, and in sympathy with, the interests of social scientists than those of economists, and that there could be a better dialogue between education research and economists.

1.4 Initiatives to collect and present information on evidence-based research results for use in practice

37. There are few concerted initiatives to present research results for use in practice. Two that were mentioned are the long-standing *NZCER* publication *SET*, designed for practitioners, and the more recent Ministry of Education on-line resource *Te Kete Ipurangi (TKI)*, a bi-lingual portal education website which aims to provide New Zealand school communities with easy access to useful information, including research information, on the Internet.

38. There are other more project-based examples of research that has presented its findings in such a way as to make them immediately useful to practitioners.

39. The reports produced by the *National Education Monitoring Project (NEMP)* are considered by informants to be a good example of evidence-based research results presented in a way that makes them immediately available for use by practitioners. Informants agreed however, that there are challenges in presenting research findings to practitioners in a way they see they can use and are prepared to spend time absorbing.

40. The evaluation running concurrently to the *SEMO* project is considered to be producing evidence based results that are influencing practice in the area as well as policy.

1.5 Initiatives to collect and present information on evidence-based research results for use in policy-making

41. The *SRI* is a concerted attempt to enhance the links between policy and research by ensuring that the research commissioned is of direct relevance to policy, and that in turn policy development can be informed by quality research.

42. Informants had specific examples of research results that directly informed policy prior to the *SRI*. These include:

- The *Third International Mathematics and Science Study (TIMSS)* which indicated that at some levels the achievement of New Zealand's students in mathematics was below that of students in comparable countries. The *TIMSS* led to the establishment of the Maths and Science Taskforce, and from there to policy initiatives within the primary school sector.
- The evaluation reports of the *SEMO* work in South Auckland is considered to be a good example of a research project directly informing policy and implementation and thereby influencing practice.
- The findings of the *NEMP* directly inform policy development. An example given is the Literacy Taskforce established by the Government following some of the findings of the *NEMP* which indicated areas of underachievement in New Zealand students' literacy. The Literacy Taskforce in turn established the Literacy Experts Group charged, amongst other responsibilities, with summarising research results to inform policy development.
- The *Competent Children* study has been and is a significant resource – this longitudinal study looks at what effects early childhood care and education contexts have for children. It has tracked a cohort of children since before they turned 5 years of age – the current phase of the

study is investigating the sample of children at age 12. The study is the only one of its kind in the New Zealand context and has, over an extended period, influenced policy and practice.

1.6 Is educational research and development evaluated?

43. The *SRI* has been peer reviewed nationally and internationally in a way that has exposed the research agenda of the major funder of educational research and development to international scrutiny. The state-of-art literature reviews underpinning the initiative have also been peer reviewed.

44. Currently the Ministry of Education and the *New Zealand Association for Research in Education (NZARE)* have jointly commissioned a project to map the educational research and development capacity and capability throughout New Zealand. Although largely descriptive, the project has an evaluative component. The findings are to be delivered shortly.

45. At a project level educational research is evaluated. Academic research is exposed to peer review, especially at the point of publication. Research commissioned by the Ministry of Education is increasingly subject to peer review by experts either within New Zealand or in other countries. Development projects are less likely to have formal external review, although are likely to be the subject of evaluation.

46. At an institutional level, research centres may be evaluated, for example an internal university review of a faculty or department, but the indicators would not normally include the quality of the research produced. NZCER research is peer-reviewed.

1.7 Does the national policy encourage the internationalisation of the research endeavour?

47. Informants were of the view that while educational researchers in this country recognise the importance of the internationalisation of education research and seek to play an active part in it, their motivation is largely individual and not as a result of being encouraged to do so by a national policy.

48. Educational researchers tend to have particularly good links at a regional level in Australia and the Pacific. Beyond this region the points of reference for education tend to be the United Kingdom, Canada and to a lesser extent the United States. Giving papers at or attending conferences is the main way of participating in the international research community.

49. As well as the set of state-of-the-art literature reviews, the Ministry of Education on occasion commissions international literature reviews to inform research or policy initiatives.

50. Some universities are seeking to be part of international coalitions of institutions to enhance and internationalise their research and teaching efforts. For example, both Auckland University and AUT are part of international tertiary education groups.

51. Indigenous education is one area in which some informants consider that New Zealand has a high level of expertise and could be making a more substantial contribution internationally. They felt more could be done to encourage New Zealand researchers and policy makers in this area to participate internationally.

2.0 ORGANISATION AND FUNDING OF EDUCATIONAL RESEARCH AND DEVELOPMENT SYSTEMS

52. The educational research and development sector in New Zealand was described by several informants as 'fragmented' or 'piecemeal' meaning that the sector has lacked coherence and, until recently, any form of national policy or agenda. Research expertise is concentrated in a few pockets of excellence, generally in the larger universities, and NZCER. Centralised contestable funding has created an environment where much of the research effort is determined by the policy agenda, and funding for longer term research can be hard to find.

2.1 Centres of educational research and development

53. Educational research expertise is largely concentrated in the established universities, and in the *New Zealand Council for Educational Research (NZCER)*, with the new universities, polytechnics and the colleges of education beginning to build a research capacity. Development work is more evenly spread, with the colleges of education often taking a leading role.

54. As well as research undertaken by academics within departments or schools of education, some of the larger universities also have centres or institutes with a particular research focus. Examples include: in Auckland, *IRI – the International Research Institute for Maori and Indigenous Education* and the *Woolf Fisher Centre*; in Waikato, the *Institute for Research in Learning and Teaching* and the *Centre for Science, Mathematics and Technology Education Research*; the *Educational Research and Development Centre* at Massey University; and the *Educational Assessment Research Unit* and the *Children's Issues Centre* at Otago University.

55. Research in universities is funded from income generated by student numbers, research contracts and, if applications are successful, grant funding. Universities also have access to graduate students which enhances their research capacity.

56. With the possible exception of the University of Auckland, in international terms the institutes and departments of education are small, and informants felt that research expertise is in many cases still based around the interests and efforts of individuals rather than being institutionalised.

57. *NZCER* is a recognised centre of expertise in educational research, although in recent times considered by some informants to have been somewhat eclipsed by the larger universities. *NZCER* is an independent statutory body which aims to foster educational research of a high standard and to disseminate its results. *NZCER's* main funding sources include a purchase agreement with the Government, income from research contracts, and revenue from sales. (NZCER 2000)

58. The Ministry of Education has its own research expertise, however much of the capacity of the Ministry's Research Division is directed towards contributing to international assessment projects and to the establishment and management of research and evaluation projects. Other divisions of the Ministry also undertake research but if it is of any scale this is likely to be contracted out and managed by the Research Division.

2.2 Substantive programmes of educational research and development

59. A range of substantive educational research and development programmes were mentioned by the people interviewed for this report. They include research directed towards better assessment of educational outcomes such as:

- The *NEMP* – based at Otago University the project aims to get a broad picture of the achievements and other educational outcomes of a representative sample of students in New Zealand at school years 4 and 8.
- *ARBs* – this *NZCER* managed project is developing assessment resources for mathematics, science, and English from levels 3 to 6 of the curriculum. *ARB* items are designed to assist schools to monitor student performance against typical performance of student's nationally.
- *The Development of Literacy and Numeracy Instruments for students in Year 5 and Year 7 in English and Maori* – this is a joint project between the University of Auckland and the Education Testing Centre of the University of New South Wales. The project involves the development of literacy and numeracy tools that teachers will be able to use with students to assess their skills and knowledge in relation to the New Zealand English and mathematics curricula, and for students learning in Maori-medium settings, their skills and knowledge in Te Reo Maori and pangarau.

60. Another substantive programme is the evaluation of this school improvement project:

- Evaluation of initiatives to strengthen education in Otago and Mangere *SEMO* – this evaluation consists of four studies designed to cover how the initiatives and their implementation have unfolded, and the extent to which initiatives have improved the quality of relationships in the interests of better education and increased the capacity of schools and the community to sustain progress.

61. Four other large scale research projects, the last two of which are largely complete are:

- An integrated research programme established by the Ministry of Education and designed to inform and evaluate the development and implementation of *Special Education 2000*, a new policy for learners with special needs which began in 1997. The research programme includes: database validation exercises; a series of literature reviews on resourcing, effective practice and provision; evaluations of specific programmes; and a longitudinal evaluation of the policy.
- *Competent Children* – this *NZCER* longitudinal study looks at what effects early childhood care and education contexts have for children's learning and development.
- *Understanding Teaching and Learning (ULT)* – a University of Canterbury Department of Education longitudinal project, *ULT* first developed a descriptive model of classroom learning processes and has subsequently analysed the effects of gender and ethnicity on children's learning and is moving to identify the impact of teachers and curriculum on pupil learning.
- *Educational Performance and Opportunities (The Smithfield Project)* - This longitudinal study examines the impact of education reforms on primary and secondary students' choices and outcomes. (Ministry of Education 1998, 1999a, 2000b)

2.3 The funding of educational research and development

62. The funding of educational research and development in New Zealand is highly centralised, with the Ministry of Education being the primary funder. Some education research and development is also funded through the Research, Science and Technology Vote, however with that funding stream there is no strand dedicated to educational research and development. Funding strands available under Research, Science and Technology include the *Foundation for Research, Science and Technology (FRST)*, the *Health Research Council (HRC)*, the *Public Good Science Fund (PSGF)* and the *Royal Society of New Zealand* administered *Marsden Fund* for university-based research. The researchers interviewed for this report indicated that in reality it is extremely difficult for researchers in education to access funds from any of these sources.

63. University departments, polytechnics and colleges of education draw some research funding from student tuition fees (*EFTS*). Some university departments have also been successful in achieving funding from overseas foundations for specific research projects, however attracting offshore funding is uncommon. Some researchers have also had success in obtaining small amounts of funding for projects from other government agencies such as the Ministry of Social Policy, Ministry of Justice and the Department of Labour.

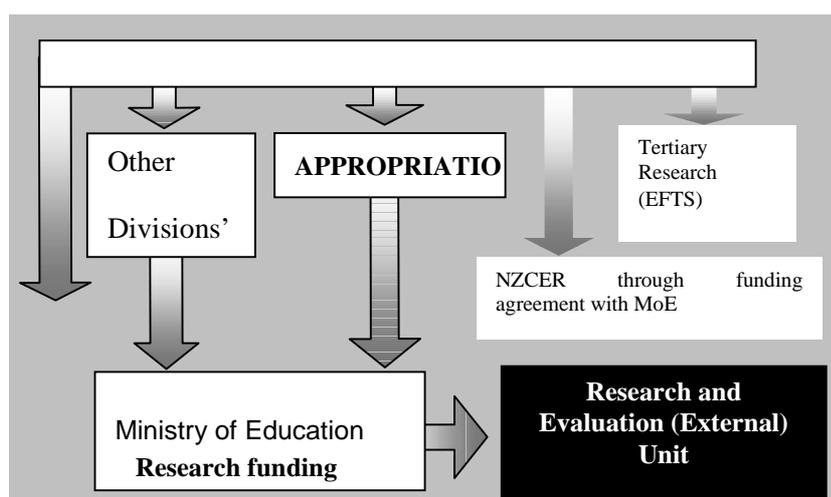


Figure 1: Funding for educational R&D delivered through Vote Education

64. Figure 1 shows how Vote Education funding for educational research and development is delivered through EFTS funding, the New Zealand Council for Educational Research and the Ministry of Education.

65. The Ministry has an internal research capacity (i.e. personnel who undertake research) and also contracts research to external providers. Commissioned research and development projects are funded by appropriations attached to specific policy initiatives and the budgets of Ministry Divisions. The Ministry's Research Division also has a small budget for commissioning projects with a strategic policy focus. The Ministry's SRI is the process being used to develop a set of research priorities to determine how to best use this resource.

66. Table 1 provides a summary of funding distributed to the educational research community from 1 July 1997 (start of 1997/8 financial year) to 30 June 2001 (end of 2000/1 financial year) through the

Ministry of Education's Research Division. This summary includes all educational R&D activities funded in that five-year period.

Source of funding	NZ Dollars
Budget appropriations	16,500,000
Budget appropriations for specific programmes and or policies	(2,300,000)
Assessment pool – reviews, R&D and evaluations	(3,200,000)
Assessment Resource Banks	(4,000,000)
National Education Monitoring Project	(7,000,000)
Funding from Research Division Operations	3,600,000
Funding from other Division Operations	1,200,000
Other (includes external funds and inter-agency)	200,000
Total	21,500,000

Table 1: Ministry of Education expenditure on educational R&D 1 July 1997 – 30 June 2001 (through Research Division)

Note: Costs of individual projects are listed in the Research Division's Annual Research Reports. As projects span financial years, figures have been rounded to the nearest \$100,000.

67. The Ministry of Education is also responsible for negotiating annually a purchase agreement with *NZCER*.

68. The project-based nature of research funding, and the operational focus of the primary funder are seen by some as having significant implications for the type of educational research and development undertaken in New Zealand, as well as for workforce development.

69. Research over time, and research into areas that are not seen as having current operational relevance find it hard to attract funding. One area that is currently attracting the interest of policy-makers is the contribution of teaching to learning outcomes. However, longitudinal studies into the relationship between teaching and learning which have produced results of great value, have in years past struggled for funding as the policy priorities and research effort have been directed elsewhere.

70. The difficulty of building the capacity of the educational research and development workforce is seen as in large part related to project-based funding that does not support the development and maintenance of centres of research expertise which can train and supervise new researchers.

71. In the view of some informants the fact that the Ministry of Education funds the most significant proportion of educational R&D aside from EFTS funding and the small size of the research community make it easier for more established researchers to attract funding than for their less experienced colleagues.

2.4 The educational research and development workforce characteristics

72. A research project mapping the capacity and capability of the educational research workforce is soon to present its findings and should be available when the Review Team visits.

73. The educational research and development community in New Zealand is small. Researchers are based in tertiary institutions or allied institutes, *NZCER*, the Ministry of Education, or work independently as contractors providing research services. The workforce profile is characterised by some established, experienced researchers, either working in comparative isolation, or as part of larger teams for specific projects. The people interviewed for this report were concerned that the sector is not currently building sufficient capacity for the future by developing the skills of younger researchers. The reasons for this are two-fold, a lack of educational research centres with enough of a critical mass to enable such development to take place; and an approach to contracting and funding research that does not support the infrastructural costs such development would require.

74. There is a range of discipline backgrounds amongst educational researchers. Historically research was dominated by educational psychologists but, partly as a result of the requirement in the 1989 Education Act for all tertiary institutes to be undertaking research, the workforce is now more diverse.

75. One informant expressed the view that there seems to be a weakening of some of the traditional disciplines such as education history, philosophy and sociology, in favour of new emphases including post-modernism, feminism, kaupapa Maori research and practitioner effectiveness.

76. Informants interviewed for this report noted some gaps in expertise. They identified a need for more Maori researchers and other researchers who can work effectively with Maori, and a need for more researchers with well developed quantitative analytical skills.

77. Collaboration between disciplines is increasing at a project level, however, in the view of some people interviewed for this report, seldom is it systemic or embedded in the infrastructure.

3.0 THE IMPACT OF EDUCATIONAL RESEARCH AND DEVELOPMENT ON PRACTICE AND ITS INPUT TO POLICY-MAKING

3.1 Evidence that educational research and development is improving the quality of teaching and learning, of educational institutions, or of the management of education

Teaching and learning

78. Informants for the report were divided as to whether there was evidence that educational research and development is improving the quality of teaching and learning. Most agreed that there was some evidence that research was improving practice but that the evidence was not extensive.

79. New National Curriculum Statements have been progressively replacing old syllabuses since 1992. The Ministry of Education is currently undertaking a curriculum stock take which will provide more information about how changes in the curriculum over have been put into action and ways of improving its implementation. One element of the stock take is a *National School Sampling Study* that will seek feedback from teachers about the effectiveness of the curriculum in practice.

80. Informants commented that the longitudinal research necessary to demonstrate the impact of an initiative on teaching and learning is uncommon in New Zealand. The new curricula that have been introduced over the last 10 years are a good example of a major initiative with an enormous potential impact on teaching and learning, yet no systematic, large-scale evaluation has accompanied their implementation.

81. Evaluations of individual projects have been commissioned for some time. Only more recently has it become more common for evaluations to be initiated at the time programmes are implemented in a way that allows systematic evidence to be gathered about whether research-based initiatives are improving outcomes.

82. Informants cited some examples of evidence. They include:

- the evaluation of the *SEMO* initiative in South Auckland which has intensive collaboration between researchers and practitioners and from which there is clear evidence that the findings of the evaluation are influencing practice;
- piloting of programmes for literacy gain which are strongly research based are showing promising results;
- an evaluation of the *Books in Homes* project which provides children in schools in the lowest socio-economic areas with books of their own to take home. The literacy skills of students are assessed when they join the programme and then again one year later;

- the research-based development work undertaken by *IRI – The International Research Institute for Maori and Indigenous Education* has been shown to be influencing practice in kura kaupapa Maori;
- the *ARBs* are influencing assessment practices in schools;
- later phases of the *NEMP* have demonstrated that deficits identified in earlier phases have been addressed in the classroom;
- developments in the early childhood sector, particularly the new curriculum *Te Whariki* and the emphasis on professional development are clearly related to research which began in the 1980s.

Educational institutions

83. Other than *SEMO*, a school improvement/research partnership, informants were hard pressed to think of specific examples of evidence that research had improved the quality of educational institutions. However, some commented that there is now much more emphasis on the environment within which education is provided, and a recognition of the need to provide appropriate environments – such as kura kaupapa Maori.

The management of education

84. The management of education has received considerable attention in the research following the significant changes introduced by the 1989 reforms. Whether the research has contributed to improving the quality of management, or simply documented the changes, is less clear.

85. Research into the governance, organisation and management of education is a good example of research following a major shift in policy and practice rather than informing it – something several informants consider to be a characteristic of educational research in New Zealand.

86. One example of research into management, which is also an example of research following a policy decision, is a project commissioned by the Ministry of Education into school ‘clusters’. A cluster in this context is where small self-managing schools, often with very limited management capacity, form a local grouping for some administrative purposes thus reducing the workload for each school. The research showed that clustering did reduce the administrative workload for each principal, but not the overall workload.

3.2 Evidence that educational research and development is contributing to policy making

87. Informants considered that there is evidence that educational research and development is contributing to policy-making at a national level. This is in part because the Ministry of Education, with its policy focus, is frequently the funder and has had a major influence on setting the educational research agenda.

88. Recently, through the *SRI* the Ministry of Education has demonstrated a keener interest in a wider range of research activity than had previously been shown. The *SRI* has also signalled a commitment to ensuring that research will more directly inform policy, and that policy-makers can play an active part in determining research questions.

89. Researchers acknowledge that the link between research and policy cannot always be a direct one. Research findings are seldom unequivocal, and often raise as many questions as they answer. The researchers interviewed for this report, however, consider that education policy-makers take an active interest in research, and that frequent citation of the evidence base when preparing policy papers is a demonstration of their willingness to use research findings.

90. The Taskforces and subsequent initiatives in literacy and numeracy were cited as evidence that policy in those areas has been responsive to research findings.

91. Policy changes within the early childhood sector, particularly in the area of qualifications are another example of educational research making a direct contribution to policy development.

3.3 Evaluation of the contribution of educational research and development to practice and to policy-making

92. There are no ongoing or systematic initiatives that evaluate the contribution of educational research and development to either practice or to policy-making.

93. A culture of evaluation is now becoming more established in New Zealand. Until recently, despite evaluations of individual projects there has been, in the view of informants, a lack of systematic and substantive evaluation programmes or meta-evaluations that can provide good information on the sector's contribution to practice or to policy.

94. There are isolated examples of overview and commentary on the contribution of educational research and development at papers presented at *NZARE* and *NZCER* conferences.

4.0 INTERACTION BETWEEN PRODUCERS OF RESEARCH, PRACTITIONERS AND POLICY-MAKERS

4.1 The relationships between researchers, practitioners and policy-makers

95. Informants interviewed for this report spoke positively of relationships between researchers, practitioners and policy-makers. The small size of the education research and development community supports strong relationships. It is clear however that these relationships are largely informal, often project related, and with practitioners in particular, most well developed at a local level. Relationships are supported by a history of practitioners moving into policy and of researchers being welcome in schools.

96. Established researchers are known to one another, and are aware of work in progress throughout the country. Researchers also know the key policy-makers in their fields, and several indicated they feel quite free to initiate discussion with those policy-makers and feel confident their opinions will be taken seriously.

97. Having national education policies and programmes and a relatively homogenous compulsory schooling sector means that funds permitting, research projects can be on a national scale. It also means that research undertaken anywhere in the country is likely to have relevance throughout the nation. This creates a high level of interest in research findings researchers, policy-makers and some practitioners.

98. Few formal channels of communication exist between the three groups. The *NZARE* conferences were mentioned as an opportunity for communication between researchers and policy-makers, but few practitioners attend. The forum to discuss the draft statement of *SRI* research priorities was highly regarded as an opportunity for dialogue between stakeholders and the hope was expressed that it will be repeated.

4.2 How the findings of educational research and development activities are disseminated to practitioners and policy makers

Dissemination to practitioners

99. Disseminating research findings to practitioners in a way that is meaningful to them and useful to their practice is regarded as one of the greatest challenges facing the educational research and development sector.

100. Educational research findings and development findings are currently disseminated to practitioners (and others) in a range of ways including through:

- academic journals such as the *New Zealand Journal of Education Studies*;
- weekly general circulation newspapers such as *The New Zealand Education Review*;

- *SET*, a publication produced by *NZCER* three times a year for schools contains summaries of research relevant to teachers;
- brief summaries of current and completed research produced by the Research Division for the Ministry of Education's *Annual Research Report*;
- *Te Kete Ipurangi (TKI)* the Ministry of Education's website for teachers;
- summaries of research produced by the teacher unions the *New Zealand Educational Institute (NZEI)* and the *Post-primary Teachers Association (PPTA)* and distributed to members;
- seminars on research and topics of current interest, for example *National Assessment Regional Seminars* jointly organised by the Ministry of Education, *NZEI*, and the University of Canterbury were held in 2000;
- researchers often give presentation to professional organisations and educators' conferences and seminars;
- research reports, and associated bulletins, targeted directly to practitioners such as those produced by *NEMP* and sent, free of charge, to all schools;
- over the Internet, schools can register their interest in the resources produced by the *ARBs* project and download these free of charge;
- 'Input' – the *NZARE* newsletter contains summaries of current and recently completed research;
- a wide range of research-based publications are produced by *NZCER* and available for purchase, these are promoted in schools through a regular newsletter and targeted promotions;
- summaries of research findings are often given to participants in research;
- a range summary reports produced by the *ERO*, drawn from observations made by Education Review Officers during school reviews.

101. There was agreement among those interviewed that disseminating research findings in written form has limited appeal to practitioners. Approximately two-thirds of schools have a subscription to the highly regarded *SET* publication, however it is not known how widely read it is once it is in the school. Many of the other publications available from *NZCER* are also purchased by between a third and two-thirds of schools.

102. Informants agreed that there needs to be more work done on translating research findings from 'researcher-speak' and 'policy-speak' to 'practitioner-speak'.

103. Informants were unsure who the key 'mediators' of research findings are, beyond those who produce the resources listed above. Some were of the view that the small size and relative informality of the educational research and development community allows researchers, practitioners and policy-makers to communicate directly without the need for mediation.

104. There was no clear view about the role of the professional development community in mediating research results, but it needs to be acknowledged that none of the informants interviewed is primarily

involved in teacher professional development. Some informants commented that prior to the education reforms, school inspectors would often fulfil this role, linking teachers to research and development that was relevant to their practice. A recent review of the *ERO* proposed a closer alignment of assessment and improvement functions, and that the advisory functions of the Office be enhanced. (State Services Commission 2000) Another view holds that Colleges of Education play a part in mediating research results – advisors in schools work base their practice on recent research, and advanced qualification courses run by colleges include applied research components.

Policy-makers

105. Reports of all research commissioned by the Ministry of Education Research Division are made available to the Division as a contract requirement. This ensures they can be made available to relevant policy-makers within the Ministry. Research and development projects of any size are overseen by an advisory committee which will include key policy-makers who will therefore be familiar with the progress and development of a project as well as having access to the final report.

106. When major research findings are available the Ministry of Education develops a communications strategy that will include press releases and summaries of the research made available to education journalists. Research reports completed for the Research Division are published by the Ministry and are available on request.

4.3 How receptive are teachers, school managers and policy-makers to research results?

Teachers

107. Informants interviewed for this report regard New Zealand teachers as innovative and willing to try new things. However, they are perceived as being largely interested in developments with an immediate application to their own practice. The most obvious reason for this focus on utility is their heavy workload, but also perhaps a lack of weight given to research in pre-service and in-service teacher training. With an increased focus on research within colleges of education this may change, and that teachers may become more confident in their ability to absorb and use research findings.

108. Informants recognised the need to involve teachers more in setting the agenda for research, and to create more opportunities for them to participate in projects in order to maximise their ownership of the findings.

School managers

109. In New Zealand school managers are principals, and over half of them are teaching principals which means they carry a teaching load as well as taking responsibility for the management of the school. With devolution central to the education reforms, the management and administrative responsibilities of principals have increased substantially. It is inevitable that this will have required principals to reprioritise their workload and it may be that keeping abreast of current educational research and development has a lower priority amongst their responsibilities than was the case prior to the reforms. Even so, principals use invite researchers to speak to them, and increasing numbers are undertaking Masters of Education, and as a result, using more research, understanding what is available and what is good quality research.

110. The culture established in the school by the principal is seen as being crucial to whether teachers are aware of and receptive to research findings. Teachers need to be encouraged to see research as relevant and to incorporate findings of research in their practice.

Policy-makers

111. As discussed elsewhere in this report policy-makers are seen as receptive to educational research, although this is to be expected when the policy agenda has a major influence on the research and development commissioned, or when researchers themselves initiate research that influences national policy.

4.4 Does the educational research and development community draw from and contribute to the international debate?

112. Most informants consider New Zealand's educational researchers and developers to be active participants in the international educational debates. New Zealand is a committed participant in *OECD* and *UNESCO* initiatives, and an active member of the *International Association for the Evaluation of Educational Achievement (IEA)*.

113. A dissenting view was strongly expressed by one informant who considers the educational research community in New Zealand to be insular, and not making the contribution internationally that it should be, given the calibre of the work taking place here.

114. Specifically, informants considered that New Zealand is making and could possibly make further contributions internationally in the areas of early childhood education, indigenous education, teaching and learning, literacy, assessment and monitoring, and education organisation and management.

5.0 KNOWLEDGE MANAGEMENT IN THE LEARNING SOCIETY

115. This background report is asked to reflect on whether this country is moving towards Mode 2 knowledge production in education, and to identify initiatives which may increase its capacity for successful production, mediation and application of knowledge.

116. Mode 2 knowledge production as defined by Gibbons et al. (1994) as knowledge production which can be described as:

- applied
- problem-focused
- trans-disciplinary
- demand-driven
- entrepreneurial
- accountability tested, and
- embedded in networks.

117. The report is asked to report New Zealand's progress by identifying initiatives under eight themes.

5.1 Developing a commitment to knowledge management.

118. In terms of the management of knowledge within educational research and development, the *SRI* is one attempt to bring some coherence and direction, and the widespread awareness of this initiative may enable it to act as a focus for knowledge management.

119. The requirement in the 1989 Education Act that all tertiary institutions undertake research has given knowledge production a new profile in colleges of education. Raising the awareness and increasing the research skills of practitioners in pre-service training may support them to see their professional knowledge as a resource that can and should be shared.

120. One example of a more global commitment to the management of knowledge gained through research and development is the Foresight Project. The Foresight Project began in 1998 and was scheduled to enable revised priorities for publicly funded research, science and technology to be implemented mid 2000. The Foresight Project was not a strategic planning exercise, but rather, an attempt to provide a conceptual framework for plotting paths to a desirable future and for identifying the core competencies needed to create such paths. By developing a focus on foresight the desire was to build an ability to adapt strategically to events and trends as they unfolded.

121. The Foresight Project had two broad goals:

1. Encourage an ongoing process of strategic thinking across diverse communities, as a basis for developing a coherent and forward-looking view of needs and opportunities for new knowledge and technological change.
2. Using the insights gained, develop a new set of priorities for the Government's investment in research, science and technology, to take effect in July 2000, in order to complement the diverse strategic intents of other investors. (Ministry of Research, Science and Technology 1998)

122. The Foresight Project led directly to the Government establishing four high level goals for research, science and technology June 2000. Of these, one is the 'innovation goal'. This goal is described thus:

Investments under this goal help the overall innovation system to run as effectively as possible. It includes the costs of developing and running the system, ensuring the flow of new ideas through basic research and initiatives to promote the results of research and innovation. (Minister of Research, Science and Technology 2000)

5.2 Expanding the role of practitioners in knowledge management

123. *SEMO* is one example of a high profile project in which teachers and researchers are collaborating to improve the quality of schools across a region. The partnership has stimulated the active participation of practitioners in schools, and has demonstrated the value of sharing knowledge and experience across schools.

124. The requirement for all tertiary institutions including colleges of education to undertake research is a clear message to the profession that practitioners must engage with, if not engage in, research.

5.3 Establishing and using networks for knowledge management

125. Anecdotal information suggests that rapid developments in the use of information technology in schools, and the increased use of the Internet as an easily accessible source of information and resources is reducing the insularity of some schools.

126. At a more local level, schools are encouraged to 'cluster' to take advantage of professional development opportunities and other forms of support.

127. However, information from informants suggests that teaching is becoming less of a collective and outward looking endeavour than in the past, and that schools have tended to focus energy inwards in response to the demands of boards of trustees.

5.4 Using ICT to support knowledge management

128. In 1998 the Government launched *Interactive education: an information and communication technologies (ICT) strategy for schools*. This three year strategy costing \$16.2 million had two parts: building infrastructure and increasing school capability that welded together existing and new initiatives. (Ministry of Education 1999b)

129. The *Assessment Resource Banks (ARBs)* are collections of assessment resources located on the Internet. They have been developed to help schools and teachers assess students' achievement in mathematics, science and English. Exemplars – available on-line – are also being developed to support literacy programmes by providing teachers with examples of what students might be expected to achieve at each level of the curriculum.

130. *Te Kete Ipurangi (TKI)*, the Ministry of Education's on-line resource for teachers, is an example of another use of ICT to support knowledge management (<http://www.tki.org.nz/>).

5.5 Forging new roles and relationships between researchers and practitioners to better support educational research and development

131. New science and technology fellowships to allow teachers to spend time working in research institutions and in industry. A first round of applications in 1999/2000 resulted in 35 applicants meeting the required quality standard. A further 30 fellowships were made available later the same year. (Ministry of Education 1999a)

132. *SEMO*, discussed elsewhere in this report, is a good example of an initiative that has forged new relationships between researchers and practitioners.

5.6 Devising new forms of professional development that reflect and support knowledge management priorities

133. One result of the education reforms requiring greater accountability to the parent community is that schools perceive that parents are not willing to have teachers out of the classroom for extended periods (more than 1 or 2 days) of professional development. This has led to the abandonment of some successful past initiatives such as drawing together 'seed' teachers for professional development. These able and enthusiastic teachers undertook week-long professional development as a group, and then returned to their schools to inspire other teachers.

134. With the progressive introduction of new curricula, much of the recent professional development has had a curriculum focus, and been delivered through Ministry of Education contracts with colleges of education and other providers.

135. The professional development aspect of the ICT strategy (see 5.4) is one example of professional development focused on knowledge management.

5.7 Integrating knowledge capital and social capital

136. One of the thrusts of the education reforms was to promote a greater degree of community 'ownership' of education. The intention was to make schools more responsive to their communities, and to provide a structure for community input into schools. Research suggests that most schools are able to attract a sufficient number of parent trustees, but that the profile of those trustees reflects the communities from which they are drawn, and that lower decile schools are more likely to have Maori trustees, and trustees without qualifications, than are higher decile schools. (Wylie 1999)

5.8 Designing an infrastructure to support knowledge management

137. *Knowledge management in the learning society* describes the elements of the infrastructure to support knowledge management. (OECD 2000)

138. New Zealand has made more progress towards some of these elements than others have. Evidence of progress can be seen in:

- ICT networks linking educational organisations to one another and to other knowledge management resources;
- establishing forums to provide strategies and guidance for education research and development and research foresight exercises;
- developing partnerships between schools and educational researchers.

139. Less well developed are models of professional development to support knowledge management amongst educational leaders and managers, and establishing and using networks for knowledge management. However, some forms of advanced professional training (e.g., diploma courses in educational management) tend to have a significant research orientation.

6.0 WHAT COULD BE DONE BETTER IN THE EXISTING EDUCATIONAL RESEARCH AND DEVELOPMENT SYSTEM

140. This report is also asked to comment on what could be done better in the existing research and development system. The key informants interviewed for this report identified several improvements that could be made. These have been grouped under the four themes of this Review.

National policies and agenda for educational research and development

- fostering other funding sources in order to pursue research that may not have current priority on the policy agenda;
- more debate between stakeholders – including government, schools, researchers and communities – to develop a shared view of the current concerns in education;
- more active participation by educational researchers and those involved in educational development projects from New Zealand in international education debates.

Organisation and funding of educational research and development

- more diverse funding sources;
- more active pursuit of overseas funding and international collaboration;
- funding that support the development of a research and development infrastructure;
- funding that encourages more longitudinal studies and more replication of research;
- further analysis of the rich data sets collected by the Ministry of Education.

The outcomes of educational research and development

- more systematic evaluation of research-based development projects;
- more meta-evaluation to establish progress towards goals and to give feedback on the performance of the educational research and development sector.

Strategies for producer-user interaction

- greater engagement of researchers and with practitioners

- more creative dissemination of research findings and research-based developments
- greater collaboration between research institutions and amongst disciplines within institutions
- raising the profile of research in teacher pre-service and in-service training
- more formalised opportunities for contact between researchers, policy-makers and practitioners.

GLOSSARY OF ACRONYMS

ARBs – Assessment Resource Banks

EFTS – Equivalent full-time student (as in EFTS funding)

ERO – Education Review Office

IRI – the International Research Institute for Maori and Indigenous Education

NEMP – National Education Monitoring Project

NZARE – New Zealand Association of Researchers in Education

NZCER – New Zealand Council for Educational Research

NZEI – New Zealand Educational Institute

PPTA – Post Primary Teachers Association

SEMO – Initiatives to Strengthen Education in Mangere and Otara

SRI – Strategic Research Initiative

TKI – Te Kete Ipurangi

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APPENDIX 1

Key informants interviewed for this report

Sandie Aiken – Executive Officer Curriculum, New Zealand Educational Institute

Robyn Baker – Director, New Zealand Council of Educational Research

Jacky Burgon – Research Division, Ministry of Education

Brian Findsen – Associate Head, School of Education and Social Science, AUT.

Alison Gilmore – University of Canterbury

John Hattie – Professor, Department of Education, University of Auckland

John Langley – Director, Teacher Registration Board

Rob McIntosh – Group Manager, Ministry of Education

Stuart McNaughton – Director, Woolf Fisher Research Centre

Roger Peddie – Associate Professor, Dept of Education, University of Auckland

Melissa Weenink – Research Division, Ministry of Education

Lynne Whitney – Senior Manager, Research Division, Ministry of Education

Cathy Wylie – Chief Researcher, New Zealand Council of Educational Research

APPENDIX 2

‘State of the art’ literature reviews

The Impact of Family and Community Resources on Student Outcomes: An Assessment of the International Literature with Implications for New Zealand, **Stanford University**: Thomas Nechyba; Patrick McEwan; and Diana Older-Aguilar.

Early Childhood Education Literature Review, **Children’s Issues Centre – Otago University**: Anne Smith, Grace Grima, Michael Gaffney, Kim Powell, with input from Len Masse and Steve Barnett.

The Effects of Curriculum and Assessment on Pedagogical Approaches and on Education Outcomes, **University of Waikato**: Malcolm Carr; Clive McGee; Alister Jones; Elizabeth McKinley; Beverly Bell; Hugh Barr; and Tina Simpson.

Influence of Peer Effects on Learning Outcomes: A Review of the Literature, **University of Auckland**: Ian Wilkinson; John Hattie; Judith Parr; Michael Townsend; Martin Thrupp; Hugh Lauder; and Tony Robinson.

Literature Review of the Effect of School Resourcing on Education Outcomes, **BERL/Infometrics**: Peter Norton; Kel Sanderson; Tony Booth; and Adolf Stroombergen.

The Effects of School Governance, Ownership, Organisation and Management on Educational Outcomes, **John Rentoul and John Rosanowski**, with Neil Dempster, Darrell Fisher, Neville Hosking, Roger Hunter, Geoff Pugh, and Geoffrey Walford.

Human Resources Issues in Education, **Ontario Institute for Studies in Education of the University of Toronto**: Michael Fullan and Blair Mascal.

Monograph on Quality in Post-compulsory Education, **Education Directions**: Jeremy Baker; Dave Guerin; and David Woodhouse.

Enterprise-based Education and Training – A Literature Review, **Monash University/Australian Council for Educational Research**: Michael Long; Rose Ryan; Gerald Burke, and Sonnie Hopkins.