The contribution of the Teaching and Learning Research Initiative to building knowledge about teaching and learning: A review of early years projects, 2004 – 2010

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Introduction

In an email on 15 July 2010 to prospective participants in today's symposium, NZCER Director Robyn Baker stated:

> One aim of the TLRI is to build cumulative knowledge linking teaching to learning. As co-ordinators of the TLRI we think there is insufficient evidence of this occurring. We continue to get applications that appear to be built solely around researcher(s) interest rather than being designed to address the intent of the TLRI. In addition, too many applicants fail to locate their proposed work within what is already known and the opportunity to build on previous work. We are keen to address these concerns...

The TLRI Advisory Board has commissioned two reviews of research in the early years sector in order to shed light on these concerns: this review of early years projects funded by the TLRI, and a review of research conducted as part of the now disestablished Centres of Innovation programme (Meade, in preparation). The reports of these reviews have been produced with a view to the symposium drafting a brief Issues Paper for the TLRI Advisory Board, including recommendations to frame TLRI research priorities for the next two to three years. In discussing this brief, however, the Advisory Board suggested the symposium might go even further and identify specific areas the TLRI could and should fund.

The review reported in this paper was commissioned to address the question "What contribution have TLRI early years projects made to building knowledge about teaching and learning in the early years sector?" Three sub-questions were identified in scoping this task and these have been used to frame the review:

- What evidence is there that cumulative knowledge is being built with respect to teaching and learning in the early years?
- What evidence (or lack) is there of ongoing development of knowledge of research methodologies?
- What gaps and potential opportunities are highlighted by the analysis of projects completed so far?

Although the first review of TLRI projects is focusing on the early years, the concern of the Advisory Board regarding the building of cumulative knowledge about teaching and learning applies across all TLRI projects and further reviews will be conducted, focusing on other categories of applications.

This paper begins with a brief description of the history and principles of the TLRI, and a discussion of some of the strategic and contextual issues that influenced this review, including a

note about similarly-funded early years research internationally. The conceptual framework for the review and the resulting analytic strategy are described next, before moving to findings and discussion. The review concludes by noting issues identified during the review that were seen as being relevant and related, but beyond the scope of this review.

History and principles of the Teaching and Learning Research Initiative

Readers interested in a general introduction to the TLRI should consult the Initiative's comprehensive website, http://www.tlri.org.nz/, where there is a description of the principles and aims of the programme, information about the management of funding applications, and an archive of present and past project publications. A brief introduction to the TLRI is provided here, followed by reflection on two core issues at the heart of the TLRI: *knowledge about teaching and learning*, and knowledge about *researching* teaching and learning. This section concludes with a summary of the scope of this review.

The aims of the TLRI

In a 2008 paper, Garvey Berger and Baker described the TLRI thus:

> The Teaching and Learning Research Initiative (TLRI) was established in 2002 when the New Zealand Ministry of Education (NZMOE) created a research fund that was meant to "support research that will provide information that can be used in policies and practices to bring about improvements in outcomes for learners" (Request for Expression of Interest letter, NZMOE, 2002). The New Zealand Council for Educational Research (NZCER) was selected to be the programme co-ordinator for the grant, creating guidelines and descriptions of activities that potential grantees must understand if they are to participate in the TLRI (p.1).

These "guidelines and descriptions of activities" describe a normative position with respect to project acceptability – as with any research fund – so are themselves a potential target for change if the resulting projects do not meet the TLRI's potential "as an intervention designed to push process changes which will allow substantive change in the content and process of educational research in New Zealand" (Garvey Berger & Baker, 2008, p. 1).

At the core of the TLRI agenda is a set of fundamental epistemological questions concerned with knowledge in and about the practice of teaching, the practice of educational research, and the relationship between these domains. However, unlike the kinds of questions encouraged by sponsors such as the Marsden Fund (http://marsden.rsnz.org/) or the Australian Research Council (http://www.arc.gov.au/), which are aimed at high-quality fundamental research, the knowledge problems that can and cannot be addressed within the TLRI are constrained by the concept of *effectiveness*, which was central to the political agenda of economic rationalism at the time the Initiative was established (see Codd, 1999 for a contemporary critique of this trend). This agenda is reflected in the aims of the Initiative, which are to:

- build a cumulative body of knowledge linking teaching and learning
- enhance the links between educational research and teaching practices—and researchers and teachers—across early childhood, school, and tertiary sectors
- grow research capability and capacity in the areas of teaching and learning (http://www.tlri.org.nz/tlri-principles/, accessed 8 September 2010)

and re-inscribed in TLRI Principle Five, which states that "projects will recognize… the importance of the work being *useful in practice*" (ibid, emphasis added).

By 2007, the TLRI Co-ordination Team was raising concerns with the TLRI Advisory Board that

> The TLRI is designed to add knowledge and information to the sector, but it's not clear how much people are learning from the research projects themselves – or how much people are learning about the process of conducting research. Currently the intention to build a cumulative body of knowledge is not being fully realized (TLRI Co-ordination Team memorandum to TLRI Advisory Board, 5 November 2007, p. 1).

A number of recommendations were made to the Board, including changes to the overview documents, with a view to ensuring subsequent research "adds new value rather than continues to repeat established patterns" (ibid).

Building knowledge about teaching and learning

An epistemological tension underpinning the TLRI Principles, and the way they have (or have not) played out, is the questions of what constitutes 'knowledge'. The TLRI, in pairing 'knowledge and practice' in its documents, implies that 'practice' is a different object to 'knowledge' rather than practice constituting, in itself, one form of knowledge. This is complicated by the dual agenda of the TLRI, to both link research (as a mode for generating knowledge) and teaching practice (as a form of enacted knowledge), whilst fostering the development of core expertise (Edwards, 2010) in the educational research community. This is further complicated by the requirement for TLRI projects to be collaborations between researchers and practitioners, demanding a level of relational expertise (ibid) that must in itself be developed and enacted within the complex social, political, cultural, environmental and economic agendas facing the education sector. The core and relational expertise of researchers must not only be applied to their own research endeavours, in collaboration with practitioner colleagues, but must result in a higher level of research consciousness *amongst those practitioners*, adding yet another level of complexity – the professional development of practitioners through locally-appropriate research training – to the work of TLRI researchers.

This is an ambitious agenda, particularly so in the early years field, which is small in comparison to scholarship in school education or even higher education (Nuttall, 2010). One parallel internationally is the Teaching and Learning Research Programme in England, which concluded in 2009 after ten years (except for projects focusing on technology in learning). Like the TLRI, the TLRP aimed to "make sure that the knowledge it developed was applied in practice and policy" and "enhance capacity for all forms of research on teaching and learning" (http://www.tlrp.org/aims/index.html, accessed 8 September 2010).

Building knowledge about researching teaching and learning

The TLRP, even more so than the TLRI, was driven by the effectiveness agenda, and resulted in a number of publications provided to schools promoting 'evidence-based practice' and book series under the banners of "Improving Learning" and "Improving Practice". An important difference between the TLRP and the TLRI (other than the considerably larger funding available to the TLRP) was the explicit and staged process the TLRP implemented to build capacity in the educational research community. This process was supported by a large research directorate in the TLRP drawn from the University of Cambridge and the Institute of Education, University of London, and resulted in a legacy of research training resources, now hosted by Scotland's Applied Educational Research Scheme website (www.aers.org.uk). Like the TLRP, AERS "aims to enhance educational

research capability in Scottish Higher Eduction [*sic*] Institutions (HEIs), and to use that capability to conduct high-quality research which will benefit school education in Scotland" (http://www.aers.org.uk/aers/index.php?option=com_content&task=view&id=12&Itemid=26, accessed 8 September 2010).

This level of resourcing is far beyond that of the TLRI, especially since the TLRI received a 5% cut in Ministry of Education funding in 2009. Nevertheless, an important aim of the TLRI is to increase research capacity through a range of possible strategies, including collaboration between experienced researchers and their less experienced colleaugues.

Early years projects and the TLRI

One strength of the TLRI in comparison to the TLRP is the number of projects in the early years that have been funded; however, whilst only two early years projects were funded by the TLRP, one of these was the largest project in early years education in England to date, *The Effective Pre-School and Primary Education (EPPE 3-11)* project (see, for example, Siraj-Blatchford, Sammons, Sylva, Melhuish, & Taggart, 2006)[1]. Fourteen projects under the banner of 'early childhood education'[2] have been funded by the TLRI so far (out of a total of 74 funded overall) and one further early years project was funded to begin in 2004 but did not proceed. Of the 14 funded early years projects, seven have been completed and final reports submitted, six are in progress, and one began in 2010. Appendix A provides a brief summary of each project, including title, research team, synopsis, and web addresses for final reports of completed projects.

Before turning to a first-level analysis of these 14 reports – Who carried out the research? What was the research topic? – the next section of this paper describes the conceptual framework used in this review and the resulting analytic strategy applied to the data set, which was comprised of the research products generated so far by the 14 projects.

Conceptual framework for the review

At the heart of this review is an acknowledgement that research activities and products cannot be separated from the individuals who produce them, the relationships within which these acts of production take place, or the institutional and cultural contexts which permeate individuals and relationships (and which, in turn, construct those institutional and cultural contexts). In claiming that many applications for TLRI funding "appear to be built solely around researcher(s) interest" (Baker, op. cit), there is an acknowledgement of the way in which academic work, with its individual and collective intellectual projects, can sit at odds with the comparatively narrow policy agendas underpinning schemes such as the TLRI.

A second assumption underpinning this review is that research is a distinctive form of practice in itself, with its own rules and norms, preferred artefacts and modes of production, and distinctive divisions of labour. This assumption, in combination with the previous point about the inseparability of researchers from the research context, are the rationale for the choice of cultural-historical activity theory (hereafter CHAT) as the conceptual framework to guide the review, principally drawing from the work of Finnish researcher Yrjo Engeström.

Conceptual framework: Cultural-historical activity theory

[1] This project also received major ESRC funding, which raises the question of whether individual projects might combine TLRI funding with resources from other funders.
[2] Referred to in this paper as 'early years' projects, at the suggestion of the TLRI Advisory Board, as one project also involved classrooms in the junior school.

Drawing on the way in which Leont'ev (1978) brought together ideas from Marx about the transformative potential of humans and from Vygotsky on the cultural approach to developmental psychology, Engeström (1999) treats systems as the unit of analysis and focuses on the objects of collective activity, rather than limiting the focus to the role of mediating tools (a feature of Vygotskian-inspired work). Engeström's more recent work (e.g. Engeström, 2004) has expanded this analysis to theorise the inter-connections between overlapping systems of activity, each with their own objects and outcomes, viewing "professional work and discourse [as] socio-spatially distributed among multiple organizational units and form[ing] long chains of interconnected practical and discursive actions" (p. 17).

Each of these systems or 'organizational units' comprises distinctive subjects (those who do the work), rules (norms that support or constrain how the work is conducted), divisions of labour (how the work is shared out), tools (the available conceptual and material resources), community (others who are involved or have a stake in the work), objects (the problem being worked upon) and outcomes (the end goal of working on the object). Note that these features are not designed to provide a ready-made analytic framework; rather, they provide a set of sensitising concepts that can be employed in analysing forms of work. CHAT analyses proceed not from theory but from exploration of the practical realities of everyday work and, in this case, how these realities are represented through key texts. In this analysis, systems are understood to be highly dynamic, subject to constant construction and renegotiation as tasks are interpreted, assigned, re-assigned and enacted, and as rules are interpreted (or defied), and as contradictions arise within and between aspects of the system(s).

In the case of the TLRI, at least four overlapping systems are involved in each funded project:

1. the pre-existing system known as the TLRI
2. the pre-existing institutional activity system of the researcher
3. the pre-existing activity system in effect in the research context, i.e. the activity system of the practitioner-collaborator, and
4. the emerging activity system of the research project itself.

This conceptual framework therefore understands TLRI projects as being carried out within and across highly complex and dynamic intellectual, relational and material boundaries, with the ever-present risk that the objects of activity may not be common to all the systems involved. A simple example is the contradiction that can arise between institutional pressures placed on university academics (e.g. to devote time to producing PBRF-worthy outputs, such as highly-theorised publications in high-status journals), pressure from practitioners to present research in ways that are easily digested by lay-researchers (e.g. to devote time to presenting at staff meetings or professional development seminars), and expectations inherent within the TLRI (e.g. to devote time to research capacity building with junior colleagues and practitioner-collaborators). Whilst it is possible to meet each (or even all three) of these commitments, they exist in tension for many educational researchers.

The structural requirement for TLRI projects to be partnerships between researchers and practitioners immediately narrows the field of applicants to researchers willing and able to successfully negotiate these multiple and ever-changing systems of activity and the relationships between them. Ideally, they will also have the forms of knowledge necessary to conduct practice-oriented research in collaboration with novice researchers (whether practitioners or more junior colleagues within the academy) – yet another system of activity. Nevertheless, the TLRI is one of the few sources of competitive research funding for educational researchers in New Zealand, where

free-floating sources of research support (such as charitable trusts that fund research) are rare in comparison to countries such as Australia, the United States, and the United Kingdom. There has been no shortage of applicants willing to attempt this complex work, with the 74 funded projects being drawn from a total pool of 563 TLRI applications, 47 of these focusing on the early years.

Analytic framework deriving from CHAT

The initial level of analysis applied to the data set was descriptive, viewing each project as a system in its own right. This analysis asked:

- Who was conducting the research (the research team)?
- What was the object of the research (the research aims)?
- What were the principal concepts or artefacts employed in the research (the conceptual or substantive aspects driving the research)?
- How was the division of labour organised between researchers and practitioner-collaborators (the organization of the research work)?
- Who else was involved (the community of interest)?
- What rules or norms were employed (e.g. research protocols or methodological frameworks[3])?

This was an attempt to identify what *knowledge about teaching and learning* was being produced as well as what knowledge was being produced about *researching* teaching and learning.

A second level of analysis was then applied, which viewed the projects as potentially inter-connected systems. In other words, they were understood as all being located in the early childhood *field*. This analysis asked:

- To what extent do the projects share common objects?
- To what extent do the projects share common research protocols or methodologies?
- To what extent do the projects share common personnel?
- To what extent are the projects drawing on common conceptual resources?
- What was the nature and number of research products generated by the projects?

One strategy used to address these questions was an analysis of citations across the data set (the research products available to date from the 14 projects). This was one attempt to identify the extent to which cumulative knowledge was evident across the projects, both vertically (i.e. projects deriving from earlier projects, either within or beyond the TLRI) and horizontally (i.e. simultaneous projects with similar foci and/or methodologies to projects within or beyond the TLRI).

A third level of analysis was then applied specifically to the final reports of each of the seven completed projects. This analysis widened the focus to include the multiple activity systems implicated in each project and asked:

- What individual or inter-personal features afforded or constrained knowledge production within and across the projects (e.g. in the form of comments about research capacity)?

[3] Note I am distinguishing here between methodological tools (e.g. observation protocols) and methodological rules (e.g. regular meetings to collaboratively analyse data). The fluidity of activity systems means that aspects of the system can change their status (e.g. a research protocol can start out as a *tool*, become an *object* during a period of research training, and finally a *rule* about how the research is conducted).

- What institutional features of the TLRI afforded or constrained this knowledge production (e.g. in the form of comments about NZCER's management of the TLRI)?
- What institutional features of practice settings (e.g. rules, tools, divisions of labour) afforded or constrained this knowledge production?
- What institutional features of academic settings afforded or constrained this knowledge production (e.g. in the form of comments about the work involved)?

This third level of analysis was an attempt to deliberately track the ways in which participants in TLRI-funded projects negotiated the affordances and constraints of the multiple systems of activity comprising the socio-cultural context for each project. The combined results of these three levels of analysis were then assigned, in the Findings and Discussion section which follows, to the three research sub-questions:

- What evidence is there that cumulative knowledge is being built with respect to teaching and learning in the early years?
- What evidence is there of ongoing development of knowledge of research methodologies?
- What gaps and potential opportunities are highlighted by the analysis of projects completed so far?

The main research question – What contribution have TLRI early years projects made to building knowledge about teaching and learning in the early years sector? – is taken up in the Conclusion.

The data set

The summary of projects provided in Appendix A allowed for sorting of basic features such as research team members, project length, etc. The three levels of analysis described above were then applied to a data set comprised of research products generated by the seven completed projects, plus research outputs from ongoing or nearly completed projects, where available.

Findings and Discussion

Appendix A shows that at least one early years project has been funded in every year of the TLRI, with 2006 having the most projects funded (three) and 2009 the least (one)[4]. Twelve of the 14 projects received funding for two years, with just one project, in 2004, receiving three years of funding (Carr, et al, 2008)[5].

Who was doing the research and who else was involved?

Sixteen research academics are named as project team members within the 14 funded projects, with one person named in four projects (Carr), four named in three projects (Duncan, Peters, Rau and Ritchie) and four named in two projects (Clarkin-Phillips, Craw, Dalli and Rau); the remaining eight research academics are named in one project each. The spread of research institutions is more condensed, as a consequence of several of the most-represented research academics coming from (or previously coming from) the University of Waikato.

Eight host institutions are represented; six of these are universities. The sixteen research academics, spread across these eight institutions, generated 29 affiliations, with 13 of these (45%) identified as the University of Waikato. The next largest numbers of affiliations are Unitec Institute of

[4] Two projects were funded in 2003 but only one of these proceeded.
[5] Note that references to projects are not included in the reference list; details are in Appendix A

Technology (five) and Victoria (four); Canterbury accounts for three affiliations and Auckland for two. Although Otago is recorded as one affiliation, it should be noted that the Otago project was led by an academic (Duncan) now at Canterbury. Only one affiliation is to a non-university institution (The Hamilton Child Care Centres Trust).

The spread of early years research academics involved in the TLRI, and the range of topics addressed within projects, reflects the wide range of interests amongst this group of researchers. However, this paper cannot provide a thorough mapping of New Zealand's early years research field, only those parts of it funded by the TLRI. The TLRI has clearly been an important source of funding, allowing early years academics to pursue particular intellectual projects, but this work needs to be understood in the context of the range of research foci, research funding and research relationships that characterise this group of academics. Similarly, there is a wide spread of practitioner-collaborators in the projects in terms of early years services, although only one project included the junior years of school (Carr, et al, 2008). In terms of geography, it was not always possible to locate research partners by province, but most regions across Aotearoa New Zealand appear to have had some involvement, the apparent exceptions being the most remote provinces (Southland, Westland, Napier-Hastings and Northland).

What evidence is there that cumulative knowledge is being built with respect to teaching and learning in the early years?

Analysis of the research objects of the 14 projects funded to date suggests early years researchers are concerned with a wide range of research foci, including bicultural/Tiriti-based education (Ritchie & Rau, 2006), mathematics knowledge (Haynes, Cardno, & Craw, 2007), infants and toddlers (Dalli, in progress), museum education (Clarkin-Phillips & Carr, in progress), and home-based programs (Hooker, Peters, Biggar, & Bleakin, 2008). This range of topics may indeed reflect Denzin's (2001) claim (and the concern of the TLRI Co-ordinating Committee) that all research projects begin in the biography of the researcher, but analysis of the conceptual tools employed by the completed projects suggests that there is a much closer alliance between many of these projects than their research objects suggest. Analysis of citations in the final reports of completed projects reveals a strong reliance on the work of Carr (e.g. 1998, 2001) and colleagues (e.g. Carr, May, Podmore, Cubey, Hatherly, & Macartney, 1999). Only one final report (Ritchie & Rau, 2006) does not cite Carr's work on early years assessment.

The completed projects are also characterised by their reliance on sociocultural orientations to understanding teaching and learning in the early years. There is some use of postmodern perspectives on early childhood education, particularly the work of Dahlberg and Moss (2005) and Dahlberg, Moss and Pence (1999; 2007) (Dahlberg's work is cited in five of the seven final reports), but these projects also cite sociocultural theorists. The most frequent citations (other than Carr) are Rogoff (1990, 1995, 1998, 2003) in four of the final reports, and other researchers drawing on cultural-historical or sociocultural theory, including Marilyn Fleer and Anne Edwards. This commonality is hardly surprising, given the strong uptake of sociocultural theory in early childhood education following the publication of *Te Whāriki* (Ministry of Education, 1996) and supporting resources such as *Kei Tua o te Pai* (Ministry of Education, 2004), which were each strongly influenced by Carr's interpretation of sociocultural theoretical principles. There is also some vertical citation by individual researchers. Carr's work and Ritchie's work, in particular, both show clear sequences from project to project prior to and within the TLRI, and there is reference to researchers' theses, suggesting continuation of particular intellectual interests (e.g. citation of Duncan and Dalli's doctoral theses in Duncan & Dalli, 2006).

These commonalities give coherence to the seven completed projects inasmuch as the projects reflect a recognisably 'sociocultural' set of concerns, including the sensitivity of educators to children's thinking, engagement with children's life contexts beyond the early childhood programme, and children's appropriation of language, symbols, and texts. The repeated use of particular conceptual frameworks by the same group of researchers also affords the opportunity to explicitly develop a focused intellectual project around particular aspects of teaching and learning, and this appears to be the case for Carr and researchers with whom she collaborates, and for Ritchie and Rau.

What is missing from this relatively coherent platform is an explicit critique of sociocultural perspectives. Nor is there much recourse to the primary sources influencing Carr's work (other than in the reports of Carr's projects). Also absent is any systematic development of sociocultural theory in response to anomalies encountered during the research projects, and only one project (Carr, et al, 2008) had a stated aim to contribute to theory (on learning dispositions). This gives many of the projects a somewhat self-referential quality, and means the projects tend to be theory-confirming rather than theory-building, giving credence to present understandings rather than challenging or re-ordering those understandings.

A consequence of the reliance on Carr's work is that most of the projects have a strong emphasis on *how* children learn in the early years, and how teachers can foster and track this development; it is less clear *what* the children in these projects were learning, other than a particular set of orientations to learning itself. This knowledge is crucial for children but it comprises only one type of learning goal. Only one project (Haynes, et al, 2007) started from a platform of explicit curriculum concepts (to do with mathematics); the other six completed projects draw on signifiers such as 'partnerships', 'relationships', 'responsiveness', 'competencies', and 'experiences' as conceptual starting-points. These concepts do not sit in opposition to the types of curriculum concepts more explicitly emphasised in school settings – teachers and learners must engage with both the what *and* the how of teaching and learning – but as Carr et al (2008, p. 87) state in their final report:

> Learning dispositions and key competencies are fuzzy concepts, and although they are about observable action they are represented by language. Dispositional language is imprecise, situated, personalised and value-laden, unlike much (but by not any means all) of the language of content in Learning Areas.

This 'fuzziness', in combination with a lack of explicit engagement with the sociocultural theoretical principles assumed by most of the projects, gives the projects completed so far a somewhat ephemeral quality in terms of the knowledge outcomes produced. Nevertheless, each final report articulates a set of knowledge outcomes that were generated within that project. The reports vary in the extent to which these claims are supported by data but, overall, the projects appear to have good internal validity: there are clear links between research questions and research findings; approaches to data generation are well-described; and the reports each acknowledge limitations encountered in project design.

The strongest characteristic of the knowledge outcomes is that they are what might be called 'local theorising' or 'practice knowledge'. This is an important and worthwhile outcome of any research project as it is a form of adaptation of the conceptual tools employed in a project, often resulting in important changes to rules and divisions of labour in local settings. It is not clear, however, how these adaptations were codified in a way that could be shared beyond the individual projects, except in the form of the final reports. Only two of the seven completed reports (Duncan & Dalli, 2006; Ritchie & Rau, 2006) list conference papers on the TLRI website (six in total) and only one publication in a peer-reviewed journal is listed (Rau & Ritchie, 2005). This seems an implausibly

low tally, which should alert project leaders and the TLRI Co-ordination Team to the need to regularly update the list of project outcomes; some of the final reports list further outputs and, anecdotally, it appears several projects involved the generation of research theses. These should also be listed. At present, however, there is very limited evidence of wider dissemination of case knowledge or situated conceptual adaptation being shared more widely with academics or practitioners, or that this knowledge does indeed exist in any codified form except for one or two completed projects[6].

What evidence (or lack) is there of ongoing development of knowledge of research methodologies?

The most commonly cited research approach was action research (three projects). Case studies were generated in two projects and, although not explicitly named as such, both of Ritchie and Rau's projects (2006, 2008) have been collaborative narrative case studies, strongly influenced by Bishop (1996), Smith (1999), and Kaomea's (2003, 2004) development of culturally valid collaborative research methods. All seven of the completed projects report the use of qualitative methods, including: group and individual interviews; analysis of photographs; 'pedagogical documentation' of various forms, including children's portfolios; audio- and video-taped interviews and observations; field notes; analysis of teacher diaries or 'reflective journals'; 'small-scale surveys'; and/or analysis of emails. Only one project employed quantitative analysis: Duncan and Dalli (2006) conducted a national survey (listed as an appendix but not available on the TLRI website as part of the final report), which was analysed using SNAP. Several of the reports note the limited transferability of case study approaches and only one project took an explicitly national perspective (Duncan & Dalli, 2006), and then in only in one aspect of the project, although some projects have had case-study sites in multiple locations.

Although methods of data generation are clearly described, approaches to data analysis are much more opaque across the seven final reports. Each report lays out a focal theory in response to its research object, built on identifiable conceptual tools, but it is difficult to identify whether these conceptual tools were generated inductively or applied deductively. An exception is Carr et al (2008) where a distinction is made between the deductive (Halverson's [2005] concept of 'telescoping') and the inductive (the teachers' metaphor of a 'looking glass'). Many of the analytic concepts in evidence would fit Carr et al's (2008) category of 'fuzzy' concepts, including: 'gateways' (Clarkin-Phillips & Carr, 2009); 'voice' (Haynes, Cardno & Craw, 2007); 'caring' (Duncan & Dalli, 2006), 'vision' (Hooker, et al, 2008); 'rights' (Ritchie & Rau, 2006); and 'agency' (Ritchie & Rau, 2008). Each of these concepts has a respectable pedigree but the lack of reference to their primary sources means they remain at the level of conceptual tools, rather than forming part of a set of knowledge outcomes, either about research methodologies or about substantive knowledge problems.

None of the final reports discuss explicit development of research methodologies or provide knowledge outcomes based on a critique of project methods. Where the reports do show considerable coherence and contribution, however, is in their articulation of approaches to research collaboration between academics and practitioners. Despite limitations of staff turnover, cited in three reports, there is evidence of considerable capacity-building amongst teacher researchers. This was identified explicitly through an exit interview with teachers conducted by Duncan and Dalli (2006) and teachers in several projects were encouraged to participate in conference presentations (e.g. Haynes, Cardno & Craw, 2007; Hooker, et al, 2008). There is ample evidence that project leaders paid careful attention to 'democratic' divisions of labour (Hooker, et al, 2008), practitioner capacity to be 'pushed' and issues of participant burden (Clarkin-Phillips & Carr, 2009), theorising

[6] A large number of papers drawing on the work of Carr *et al* are currently in preparation.

practitioners' learning about research (Carr et al, 2008), power dynamics (Ritchie & Rau, 2006), and to 'collective theorising' (Ritchie & Rau, 2008).

Viewed horizontally, this expertise is one of the most striking features of the final reports. The reports, both individually and as a whole, offer considerable insight into the complexities and sensitivities of working closely with busy practitioners and, in several cases, also with peak bodies. Most of the projects attempted to genuinely educate the teacher participants about research processes, and made strenuous efforts to honour teacher perspectives in data analysis and reporting. Ritchie and Rau's work (2006, 2008) articulates a strong commitment to sensitive divisions of labour, and an awareness of the differing forms of knowledge and knowledge production between teachers and researchers. Given the international emphasis on 'evidence-based practice', the knowledge generated within these projects about the difficult work of sustaining long-term, collaborative fieldwork in educational settings has enormous potential as a contribution to educational research. Again, this will require systematic codification by teachers and researchers, in collaboration, about the research knowledge produced.

This knowledge is particularly notable given that five of the seven projects noted 'time' or 'research time-frames' as a serious constraint on project progress and outcomes. Only one of the seven completed projects (Carr et al, 2008) was in TLRI Category A (having the maximum TLRI timeframe of three years), and they note that they were advantaged by having established prior relationships with each other and the teacher participants.

What gaps and potential opportunities are highlighted by the analysis of projects completed so far?

Fourteen early years projects have been funded by the TLRI. Any analysis of gaps and potential opportunities must acknowledge the very limited nature of the data set: just seven completed final reports and a small number of subsequent research publications. It is difficult, on the basis of the 14 projects funded so far, to draw any conclusions about substantive questions that should be funded. The field of early years research is small internationally and many worthwhile questions remain unasked. However, in terms of work taking place internationally at present there are some aspects of early years research that may warrant further attention via the TLRI:

- long-term projects (three or more years) with major funding
- projects that involve collaboration across more than two universities
- projects focusing on teaching and learning across the early years (as opposed to early childhood) age range
- projects focused on discipline-specific knowledge, such as science, the arts, literacy, etc
- projects that explicitly aim to develop genuinely new methodological approaches
- projects paying explicit attention to play as a feature of the early years curriculum.

Identification of substantive questions will always depend on the interplay of individual researcher interests, the priorities of funding agencies, and available resources. Sara Delamont, in her 2003 keynote address to the combined AARE/NZARE conference, drew on James Elroy Flecker's poem *The Gates of Damascus* to describe the tensions between taking the Aleppo 'gate of trade' – which researchers pass through in order to have their research funded – and the Lebanon 'gate of risk' – through which genuinely new ideas are generated. This dilemma suggests that, in order for early years research to move forward via the TLRI in Aotearoa New Zealand, the expectation of risk will have to be built more explicitly into the specifications of the fund itself. These specifications will need to relate not only to codification and dissemination, but to the articulation and critique of conceptual and methodological bases.

The most difficult aspect of the analysis of the seven completed final reports was the identification of affordances and constraints in the practice settings, academic settings, and the TLRI itself. Comments made about constraints all related to issues in the practice settings. These were time (five projects), staff or child turnover (three projects), service funding policies (one project), the difficulty of conducting action research (one project), participant burden (one project), geographical distance (one project), and issues in translation and transcription (one project). Only one report made recommendations to the TLRI arguing, "It is good if a TLRI is researching issues of great moment in terms of current policy, if they are "ahead of the game", but they do run the risk of policy changes during the project" (Carr, et al, 2008, p. 93). No report made comments about institutional affordances or constraints facing researchers in their own settings, which is unsurprising – researchers are loathe to criticise their places of work – but the issue of codification and dissemination of research outputs is closely bound up with the conditions of researchers' work, particularly the extent to which the balance of their workload allows for concentrated reading and writing.

Conclusion: What contribution have TLRI early years projects made to building knowledge about teaching and learning in the early years sector?

This review has identified a strong conceptual coherence across the completed projects, despite their varied research foci. This coherence, drawing largely on Carr's work on early years assessment, has international reach and has already been taken up in Australia and Europe. The scope and volume of work completed within the TLRI provides an opportunity to develop a critique of this line of scholarship, both theoretically and through practice knowledge, which would not only benefit practitioners but signal the maturity of this work within the early years field internationally. To achieve this, early years research must not only describe practice but draw from these descriptions a set of focal claims, employing and critiquing formal theory, which will contribute to theory-building about early years practice. The small size of Aotearoa New Zealand's early childhood research field and the close relationships within it mean that structures to support vertical and horizontal knowledge production *between* projects (e.g. the use of collaborative on-line spaces, strategic use of conferences) have considerable potential, subject to the development of clear protocols such as about intellectual property rights.

Allied with this potential development is the opportunity to develop a more systematic approach to growing and disseminating research knowledge in and about early years practice, including more explicit articulation of novel forms of data generation and new approaches to data analysis. This agenda includes the potential for knowledge about collaboration with practitioners to be a hallmark of scholarship within TLRI early years projects but this remains at the level of possibility (perhaps because the division of labour during projects may have been directed toward maintaining relationships in order to keep projects going, rather than documenting these complex processes). There is no requirement within the TLRI for researchers to liaise post-project with their practice collaborators so it is unclear whether research momentum in practice settings is maintained. Co-publication between researchers and practitioners is challenging but it is evident within the projects completed so far that these challenges are a rich source of knowledge production about approaches to research collaboration, particularly in relation to collaboration with Māori and Pasifika groups, which might continue post-project. Articulation and theorisation of these accounts would be a major contribution to early years research internationally (e.g. beginning with production of a special issue of a high-ranking research journal such as *Contemporary Issues in Early Childhood*).

It is evident that knowledge about teaching and learning has been generated within these projects, but the extent to which this knowledge has been codified and disseminated in ways that move

beyond local practice settings, thereby having the potential to influence the wider early childhood field, seems to be limited. At present, the TLRI seeks to build a cumulative body of knowledge linking teaching and learning, but has no systematic way of ensuring this knowledge is codified and disseminated in ways that will reach a wider audience of academics and practitioners. This is despite an explicit statement in the TLRI Full Proposal guidelines requiring a description of intended research outputs. It may be that these research outputs exist but have not been reported back to the TLRI and have been published without acknowledgement of TLRI funding. This perhaps signals the need for ongoing research training in the early years field, including the post-doctoral phase. The TLRI could support this by drawing on the expertise of experienced researchers within TLRI projects to provide roundtable or Q&A sessions at conferences such as NZARE to provide advice to current and prospective TLRI researchers about developing systematic publication plans, publication protocols, etc.

This review provides a snapshot of one aspect of the early years research field in Aotearoa New Zealand. University and other websites suggest there is considerable research activity in this field but the TLRI nevertheless remains one of the key sources of funding for early years academics and practitioner-researchers. This review is intended to provide a discussion-starter – ideally, a set of provocations – for the TLRI Early Years Symposium. The major challenge for the Symposium is to recommend to the TLRI Advisory Board and Co-ordination Team a project agenda that will substantially shape early years research in Aotearoa New Zealand across the next decade. Although the Symposium will (rightly) identify and discuss many practical and professional issues, this agenda will inevitably be high-level, addressing some or all of following questions:

- What gaps and opportunities in the early years research field might be appropriately addressed by the TLRI?
    - What gaps and opportunities in the early years research field in Aotearoa New Zealand might be appropriately addressed by the TLRI?
    - What gaps and opportunities in the early years research field in internationally might be appropriately addressed by the TLRI?
    - What practice gaps are evident? What methodological gaps are evident? What theoretical gaps are evident?

- What opportunities are afforded by the contexts for early years research in Aotearoa New Zealand that might support a distinctive contribution to early years research and practice internationally?

- How might the structures and process of the TLRI be amended to provide more systematic research capacity building amongst early years researchers?

- How might the structures and process of the TLRI be amended to provide more systematic links across TLRI early years projects?

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Appendix A: Summary of funded TLRI early years projects (provided by the TLRI Co-ordination Team)

Completed projects

1. Under-three-year-olds in kindergarten: Children's experiences and teachers' practices

Funding: 2 years

Research team

Judith Duncan, Children's Issues Centre, University of Otago, with Carmen Dalli, Institute of Early Childhood Studies, Victoria University of Wellington

Brief description

This project investigates the experiences of under-three-year-olds and teachers' practices in New Zealand kindergartens. Historically, kindergartens provided an early childhood environment for three- to five-year-olds. As enrolments and waiting lists dropped, kindergartens have opened their door to children under three years of age, taking them into an environment that was often structured for older children in a larger group setting.

http://tlri.org.nz/under-three-year-olds-kindergarten-children's-experiences-and-teachers'-practices/

2. Whakawhanaungatanga—partnerships in bicultural development in early childhood care and education

Funding: 2 years

Research team

Jenny Ritchie and **Cheryl Rau**, University of Waikato, with kuia and kaumātua and the following research partners: Hei Ara Kōkiri Tuwharetoa Education Initiative Hanna Clannad; Unitec Institute of Technology; University of Waikato; and the Waikato Kindergarten Association.

Brief description

This project is premised on the findings of Ritchie (2002)—that strengthening provision of the bicultural aspirations of the early childhood curriculum within ECE settings other than köhanga reo is a central professional responsibility for educators, and that a key strategy for achieving this is to build relationships with the whänau Mäori of children in their settings (whakawhanaungatanga). A further context for the study is the research of Rau (2002) that identified and employed key concepts in kaupapa Mäori education and research theories, and focused on intergenerational transmission of Mäori values through whänau relationships and practices. Whakawhanaungatanga approaches have the potential to increase Mäori participation in early childhood education.

http://tlri.org.nz/whakawhanaungatanga–partnerships-bicultural-development-early-childhood-care-and-education/

3. Enhancing mathematics teaching and learning in early childhood settings

Funding: 2 years

Research team

Maggie Haynes, Carol Cardno, and Janita Craw, School of Education, Unitec, with Avondale Kindergarten, Birdwood Kindergarten, and Don Buck Kindergarten

Brief description

Researchers such as Carr, Peters, and Young-Loveridge (1994); Young-Loveridge, Carr, and Peters (1995); and Wylie (2001) have for some time now highlighted how children's mathematical competencies in the early years impact on children's successes in mathematics in the school years. However, there has been little documented on mathematical learning and teaching in the early childhood sector from the perspective of the *teacher*, and particularly within Aotearoa New Zealand. Consequently, areas that this study explores include:

- how mathematics teaching and learning is conceptualised in early childhood settings
- teachers' attitudes to providing learning experiences that support and extend mathematical learning
- what helps and hinders effective teaching and learning of mathematics
- what can be done to improve practices that enhance mathematical learning outcomes for children.

http://tlri.org.nz/enhancing-mathematics-teaching-and-learning-early-childhood-settings/

4. Training on the job—how do home-based co-ordinators support carers to notice, recognise, and respond?

Funding: 1 year

Research team

Tracey Hooker, Frances Bleaken, and Sue Bigger, Hamilton Childcare Services Trust, and Sally Peters, University of Waikato

Brief description

The focus of this research is on exploring the impact of training and support that co-ordinators provide for home-based carers in an early childhood service. The aim is to identify what factors seem to be important in helping carers to recognise and support children's learning. At the end of the research period, individual reflective interviews took place with the carers and co-ordinators about the factors they believe have been influential in improving the carers' practice.

http://tlri.org.nz/training-job–how-do-home-based-co-ordinators-support-carers-notice-recognise-and-respond/

5. Key learning competencies across place and time

Funding: 3 years

Research team

Margaret Carr, Wilf Malcolm Centre for Educational Research, University of Waikato, with Sally Peters, University of Waikato; teacher-researchers from three schools and three early childhood centres in Rotorua and Christchurch; and associated co-ordinators

Brief description

The aim of this project is to investigate pedagogy designed to develop learning competencies over time in a number of early childhood centres and early years school classrooms that have already begun to explore in this area.

http://tlri.org.nz/key-learning-competencies-across-place-and-time/

6. Te Puawaitanga—partnerships with tamariki and whänau in bicultural early childhood care and education

Funding: 2 years

Research team

Cheryl Rau & Jenny Ritchie, School of Education, Te Whare Wānanga o Wairaka – Unitec Institute of Technology, with kuia and kaumātua; and the following research partners: educators from the Thames/Coromandel Playcentre Association and teachers from 7 Kindergarten Associations

Brief description

This project aims to document the narratives of a diverse group of children and families as they engage with early childhood services that are committed to honouring the bicultural intent of the early childhood curriculum document *Te Whäriki*.

http://tlri.org.nz/te-puawaitanga–partnerships-tamariki-and-whānau-bicultural-early-childhood-care-and-education

7. Strengthening responsive and reciprocal relationships in a Whānau Tangata centre: An action research project

Funding: 2 years

Research team

Jeanette Clarkin Phillips, Wilf Malcolm Institute of Educational Research, University of Waikato, with Margaret Carr, University of Waikato; teachers from Taitoko Kindergarten, Levin; and the Wellington Region Free Kindergarten

Brief description

This project's aim is to investigate the teaching and learning at Taitoko Kindergarten in the light of the impact of the development of a Whänau Tangata centre. Through action research, the team will address the teachers' questions associated with teaching and learning as they implement changes in response to establishing a Whänau Tangata centre at the kindergarten as part of a Parent Support and Development Contract.

http://tlri.org.nz/strengthening-responsive-and-reciprocal-relationships-whānau-tangata-centre-action-research-project/

8. Home-based early childhood education (family day care): The visiting teachers' role in improving educators' practices—what makes a difference?

Funding: 2 years

Research team

Judith Duncan, Children's Issues Centre, University of Otago, with The Dunedin Community Childcare Association, and its director Mrs Pat Irvine; the visiting teachers; and the Children's Issues Centre, University of Otago

Brief description

This project proposes to investigate the role of the visiting teacher in improving the quality of educators' practices and children's learning outcomes in the home-based settings supervised by the Dunedin Community Childcare Association. The visiting teachers will be examining:

- the teaching practices of the educators
- the roles of the visiting teachers in supporting and improving the practices of the educators
- the wider support roles of the Dunedin Community Childcare Association
- the role of professional development opportunities for both the educators and the visiting teachers.

http://tlri.org.nz/home-based-early-childhood-education-family-day-care-visiting-teachers'-role-improving-educators'--0/

- In Progress 2010 (continuing or at final editing stage)

9. Titiro Whakamuri, Hoki Whakamua: We are the future, the present, and the past: Caring for self, others, and the environment in early years' teaching and learning

Funding: 2 years

Research team

Jenny Ritchie and Cheryl Rau , Te Whare Wānanga o Wairaka—Unitec Institute of Technology Iris Duhn, The University of Auckland, Janita Craw, Auckland University of Technology. Research partners: Teachers from 11 Kindergartens and childcare centres.

Brief description

This project focuses on global issues of ecological sustainability in a variety of national/local early childhood contexts. The research aims to illuminate, document, explore, and explain possibilities for early childhood pedagogies that reflect and enact an ethic of care for self, others, and the environment. The project draws from both kaupapa Mäori and western perspectives.

http://tlri.org.nz/titiro-whakamuri-hoki-whakamua-we-are-future-present-and-past-caring-self-others-and-environment-ear/

10. Learning wisdom

Funding: 2 years

Research team

Margaret Carr, School of Education, Wilf Malcolm Institute of Educational Research, University of Waikato, with university researchers and 10 early childhood teacher-researchers

Brief description

This project defines wisdom as knowing why, when, and how to engage with learning opportunities. Early childhood teachers will research their own practice as they revisit children's learning stories with them.
The strategies and insights from this phase will contribute to longitudinal studies of changes in case study children's learning dispositions—their wise engagement—as evidenced from conversations during episodes of revisiting their learning over time, and the stories themselves.

http://tlri.org.nz/learning-wisdom/

11. Our place: Being curious at Te Papa

Funding: 2 years

Research team

Jeanette Clarkin-Phillips and Margaret Carr, School of Education, Wilf Malcolm Institute of Educational Research, University of Waikato, with *Wellington Regional Free Kindergarten Association and Te Papa*

Brief description

Based at a new education and care centre at Te Papa in Wellington, this project will research the ways in which young children make meaning from artefacts and exhibitions at Te Papa. It will investigate how they construct knowledge and the opportunities that make this possible and interesting.

http://tlri.org.nz/our-place-being-curious-te-papa/

12. Infants and toddlers as learners: Pedagogy in the first years

Funding: 2 years

Research team

Carmen Dalli, Institute for Early Childhood Studies, Jessie Hetherington Centre for Educational Research, Victoria University of Wellington, with University of Auckland, AUT University, Auckland, and a variety of urban early childhood centres in Auckland and Wellington

Brief description

The historical emphasis on young children receiving care rather than education means that understanding infants and toddlers as learners can be challenging for many teachers. Using case study methodology, this collaborative two-year project investigates infants' and toddlers' opportunities for learning; how teachers construct children as learners; how teachers' constructions influence their pedagogy; and how learning opportunities may be strengthened.

http://tlri.org.nz/infants-and-toddlers-learners-pedagogy-first-years/

13. Moments of wonder, everyday events: How are young children theorising and making sense of their world?

Funding: 2 years

Research team

Keryn Davis and **Sally Peters** from the University of Canterbury and the University of Waikato, with the Canterbury Playcentre Association

Brief description

The focus of this research is on exploring children's working theories in action; how they are expressed and how working theories are understood and fostered in Playcentre environments. This project will consider the features of environments that encourage children to theorise and make sense of their worlds.

http://tlri.org.nz/moments-wonder-everyday-events-how-are-young-children-theorising-and-making-sense-their-world/

Projects funded 1st January 2010 (selected from the 2009 funding round)

14. Active adult participation in ECE: Enhancing child learning and community wellness

Funding: 2 years

Research team

Associate Professor **Judith Duncan**, and **Sarah Te One** with University of Canterbury, Victoria University of Wellington, and Whanganui Central Baptist Kindergarten and Creche Trust.

Brief description

This project will investigate reconceptualising early childhood centres as places for adult participation and active teacher-whänau partnership for positive holistic outcomes for children and their whänau within the community. The research team will consist of practitioners from three of the five ECE centres, staff from the parent support centre, teaching, management and senior staff, and the two university researchers.

http://tlri.org.nz/active-adult-participation-ece-enhancing-child-learning-and-community-wellness-1/