Teacher inquiry through impact projects: One school’s journey

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Abstract
This article reports an empirical study that investigated the effects of embedding teacher inquiry as an everyday practice within one primary school. After describing how the school implemented and sustained inquiry as part of teachers’ everyday work, the article outlines the impact undertaking such projects had on the teachers at this school. While there are challenges in sustaining a research culture within their busy lives, the teachers’ evidence in this study supports current thinking that research-informed and inquiry-minded practitioners are more likely to be reflective and responsive, constantly seeking to enhance learning for all their students.

Key points
- Teachers used a strengths-based inquiry approach beginning with an area they were already good at
- Innovation was an outcome of the inquiries not a starting point
- Teacher involvement in these projects enhanced their sense of professional role and identity
- Teachers require support, including allocated time, for inquiry to be well focused and to contribute to meaningful outcomes for students and teachers

Introduction
Over a four year period, 2011–2014, one Auckland primary school implemented a unique teacher inquiry model where teachers conducted research inquiry projects – ‘Impact Research Projects’ (IRPs) - into a particular area of their practice that they viewed as one of their strengths. These teachers worked individually or in groups and undertook professional reading and sustained inquiry with a view to enhancing student learning. The school is a multi-ethnic urban school with professional and academic links to local and international universities. It is committed to lifting student achievement through focused, inspirational teaching and the intent of the IRPs is that, through in-depth investigation and reflective practice, teachers modify their practice to support all students to succeed. It is an expectation for practitioners working at the school to adopt a research stance towards their educational practice and participate in
IRPs to further their professional development as teachers. This article describes how the IRPs were implemented and organized and how they evolved over time to become more collaborative projects. The findings illuminate teachers’ perspectives of the IRPs and the impact they had on teacher learning and practice. This study has implications for schools and teachers applying for the new Teacher-led Innovation Fund to conduct collaborative inquiry projects or who are involved in Communities of Learning.

Teachers as researchers of their own practice
In New Zealand the Teaching and Learning Research Initiative (TLRI), established by the government in 2003, seeks to improve outcomes for learners by strengthening the links between educational research and teacher practices (TLRI, 2003) through building partnerships for ‘inside-out’ research. TLRI research projects, where schools and researchers work collaboratively on challenging issues in school contexts, have shown it is possible to build cumulative knowledge including research capacity and capability within the school sector (Hill & Cowie, 2012). Darling-Hammond (2008) encourages teachers to critically inquire into their own practice and their students’ achievement as one of the most powerful means of shifting professional practice. And research by Timperley et al. (2007) identifies the emphasis on teachers having strong theoretical knowledge as critical to providing the foundation for principled changes to their practice. They also advocate that teachers need to be equipped with the necessary skills to inquire into the impact of their teaching on their students’ learning.

In addition to helping to embed teaching as inquiry in the primary school sector, involvement in the TLRI projects has also resulted in teachers and school support facilitators gaining research roles and moving into academic careers (Hill & Cowie, 2012). When responding to Hill and Cowie’s review of the school sector TLRI projects, Sandretto (2012) pointed out how fortunate we are to have a fund in New Zealand, independent of Ministry of Education policies, that supports collaborative research between teachers and researchers, adding that a
strength of the projects was having researchers direct their research energies towards projects that impact teacher practice and student learning.

But despite these positive outcomes from the TLRI programme, most teacher inquiry remains either informal (and therefore not reported nor disseminated) or generated and disseminated by, or in association with, academic colleagues. Gilbert and Bull (2015) state that the educator's job in the 21st century must go beyond transmitting knowledge and assessing the extent to which students ‘achieve’. They advocate that educators themselves need to be adaptive, intellectual adults who participate in experiences that enable them to reflect on their own development, producing new knowledge individually and with others, in order to scaffold their students’ development effectively. Thus, research projects such as the IRPs investigated in this study can serve as a catalyst for the development of an evidence-based teacher learning culture in schools, providing teachers with opportunities to integrate theory with practice, explore knowledge about new learning and plan how this might be implemented.

The recent introduction of the Teacher-led Innovation Fund (TLIF) (Ministry of Education, n.d.) is intended to enable groups of teachers to collaborate through inquiry with the support of external experts. This new fund is designed to provide time and funding for three or more teachers to work together with the assistance of additional expertise to develop innovative practices that improve learning outcomes (Ministry of Education, n.d.). Although the TLIF had not begun at the time the projects reported in this article were initiated, there are strong similarities between the criteria for funding through the TLIF and the approach taken at this school. The projects featured in this article carried out over four years illustrate how teachers working within their own school, supported by, but independent of, university colleagues and without external funding, conducted research into their practice that resulted in innovative practice.

**Impact research projects (IRPs)**

The IRPs originated in 2011 with the arrival of a new principal who had come from working in a university setting. The principal wanted the staff to teach in a
research-informed way, with the expectation that teachers were up-to-date professionally while being innovative practitioners. A research model, developed by the senior leadership team (SLT), was used to steer the inquiry process.

Figure 1 about here

In 2011-12, a professor was invited to work with teachers to help them refine their research question/s and shape the research methodologies to add more rigour to the projects. Each year, academics from different universities were invited to critique the IRPs when presented at the school’s annual conference. For the first two years, teachers chose their own research topics. Most chose to undertake individual practitioner inquiry though some opted to work in small groups of two or three. For example, one project, Intergenerational Literacy, investigated the effects of involving a parent with limited English attending her child’s class writing lesson each day to learn alongside her child and becoming a confident speaker and writer of English (Giles, 2014). This project resulted in the child making accelerated progress in literacy and the teacher researcher continued to work with other parents in this way.

Having embedded the strengths focused research model in the first two years, there was a shift in the nature of the IRPs to a more collaborative model in years three and four. In these years teachers worked in teams to embed creative and critical pedagogies, thus each collaborative research project required a focus on these priority areas. An example was one syndicate of teachers that collaborated on a project which focused on implementing a Reggio Emilia (RE) approach in their reading programme in a bid to transition children smoothly from early childhood education into the primary school setting.

**Methods**

In 2015 a deputy principal undertook a small study to investigate how the teachers in this school had moved towards becoming informed, innovative practitioners through the use of the IRPs and also to critically evaluate contextual factors that might have enabled or impeded them in this process. A further important aspect of the project was to examine whether the IRPs
impacted students’ learning in a positive way. Due to the fact that she was in a leadership position, she organized for her supervisor, who did not know the teachers and had not worked in the school, to invite the teachers to participate in completing open-ended questionnaires anonymously, and to volunteer to participate in interviews conducted by the deputy principal to explore the issues in more depth. The deputy principal also kept a research journal throughout her investigation process. The questionnaires and the interviews were pilot tested with a staff member not involved in the main project and were modified slightly to ensure clarity and suitable length. The interviews (see Figure 2) were recorded and transcribed.

Sixteen of the twenty teachers invited completed the questionnaires and three teachers were randomly selected from the six who volunteered to participate in the interviews. Most of the participants (10/16) had participated in four impact research projects, three had participated in three projects and three had participated in two. Thematic analysis of the responses to both the questionnaires and interviews led to the identification of five main areas of impact reported next.

Figure 2 about here

Impacts on teachers

Growth in professional development

Journal Entry: As an insider in this research, I knew that it would be important to be as objective as possible as I had certain aspirations for the project and what it would achieve. I found the interview process challenging at times as I found I needed to listen more, rather than interject. Glensne and Peshkin (1992) point out that to increase the reliability of the interviewee’s responses, the interviewer is required to be non-reactive. This was something I needed to work on and I felt I improved with each interview that I conducted (9/15)

In the survey all teachers indicated that their involvement in the IRPs had a positive effect on their professional development. Any IRP undertaken by teachers at the school is underpinned by current research and eleven teachers referred to the relevance of the research they had undertaken in the course of their project, to their practice. There was a common thread of teacher
involvement in research as adding a new dimension to their teaching and assisting them in linking theory to their practice. In keeping with the school vision where a strengths-focused approach to teaching and learning is embraced, eleven teachers commented that the IRPs had allowed them scope to build on and extend their strengths and interests.

I think the IRPs are a way for us to focus our professional development in an area of interest and I think that’s really empowering. It’s a positive way to drive the professional learning, the culture of the professional learning in our school.

Two teachers indicated that they would like to extend this work and enrol in postgraduate study as a direct result of their involvement in the IRPs. As the school operates in a research-based environment in connection with local, national and international universities, teachers are encouraged to continue their professional learning and seek out further opportunities for study.

One teacher talked about the IRPs as a means of maintaining her interest in the teaching profession and helping her to reclaim her professional identity, despite the constraints created by a top-down education system.

(The IRPs) have helped me to stay focused on the big picture of education and not get discouraged or bogged down in assessment or a very heavy workload.

Collaboration

Journal Entry: I was curious to hear teachers’ views on working in groups on the IRPs, particularly teachers who had worked on four IRPs. As these teachers could opt to work individually or in groups of two or three in 2011 and 2012, I wondered if they preferred this earlier model or if they had found working collaboratively meant that they achieved more on their research journey (8/15).

The shift to a more collaborative approach over time is in line with current thinking that collaborative cultures in schools empower teachers to work together to improve outcomes for their students, which they might not otherwise achieve through working alone (Dufour, 2011; Kaser & Halbert, 2009). Three teachers described the effect of collaborative projects as having created opportunities for shared discourse in the planning, learning and evaluating of the research journey.
I believe working collaboratively as a group is beneficial as you can tease out problems, work on posing the right questions and plan the journey of the research.

(We were) strengthening our own critical lenses together and just being able to talk about how things went, how things were going, different lessons, and sharing plans with each other, and then also sharing their plans with other teachers in their syndicates as well.

Other benefits of collaboration included enthusiasm for working in a team with similar strengths and who shared their passion for a particular curriculum area, providing opportunities to hear differing viewpoints and perspectives from other members of the IRP team, and working together in professional learning communities to support each other to improve their practice.

I learnt from the collaboration. We bounced ideas off each other and continually reflected on our practice, making changes to what we did and how we did it.

So that’s been really great, working within the team as a group but to be able to be challenged by other people as well, to bounce ideas off other people and to have them bring different ideas to the table. Thinking of things I hadn’t thought of before.

**Pedagogical content knowledge**

The research component of the IRPs involves undertaking research on a topic, sharing professional readings at IRP meetings and engaging in discussion on the topic. Twelve out of sixteen teachers commented on an increase in the growth of their pedagogical knowledge as a result of having participated in the IRPs.

It (my IRP project) also kept me intellectually stimulated by developing my own pedagogical knowledge of what critical pedagogy and critical literacy was, as well as developing more knowledge of social justice education and also I felt like my (own) reading pedagogy changed quite a bit once I had got a bit more meaty, in terms of my questioning techniques and developing a critical lens in students.

Opportunities for leadership arose from conducting a research project in a particular area of their practice viewed as being one of their strengths. Each IRP team required a leader with sufficient expertise in the area involved to oversee the research journey and drive the project. For example, a leader commented on the school-wide impact of her leadership in science.

We have had feedback from teachers that their science teaching is much better now. They are more interested, the teachers who have actually taken,
chosen to, opt into a science IRP in particular, have really grown their strengths in that area. They say they have more confidence in teaching science, they have more content knowledge in teaching science and it just sort of gives them an opportunity to focus in an area where perhaps they might have had a little bit of interest but never really had the opportunity to really focus on it.

**Willingness to trial new approaches and ideas**

*Journal Entry: Willingness to trial new approaches and ideas is emerging as a strong theme and links to the school learning priorities of creative and critical pedagogy.*

Belonging to a community of like-minded learners, engaging in research, attending in-house PD workshops and participating in school conferences annually where the IRPs are presented to the rest of the staff and visiting academics, are activities which contribute to a rich, research-based environment where teachers are motivated to take risks. Thirteen teachers believed that they had become more innovative teachers as a result of their involvement in the IRPs, citing the opportunity to adopt innovative ideas and trial new approaches in their classrooms as having impacted their teaching practice.

*On this project I worked with a team of people who were prepared to trial new things, the project flowed and changed along the way and we were all focused on finding out how best to meet the needs of our learners.*

Three teachers believed that the IRPs and new knowledge gained led to a shift in their teaching practice. They became more innovative teachers, incorporating more critical and creative elements into their teaching and planning tying in with the school’s learning priorities.

*I went from knowing about some apps to use in classroom to how to effectively incorporate ICT in a critical and creative way to enhance lessons.*

*I am always looking for the opportunities to use this in my planning to innovate particular lessons.*

**Becoming critically reflective**

*Journal Entry: Larrivee (2000) states that ‘Becoming a reflective practitioner calls teachers to the task of facing deeply-rooted personal attitudes concerning human nature, human potential, and human learning” (p.296). Teachers need to challenge their assumptions and question their existing practices, capitalizing on opportunities they have to see their practice through the eyes of others. (10/15)*
The IRPs provided the means for teachers to participate in critical reflection on their practice and work with others to question their beliefs, all the while being open to change. Eight teachers expressed a shift towards a more reflective mindset as a result of participating in the IRPs. For example,

*I found myself questioning my teaching a lot more, questioning the responses/activities I provided for the children and the purpose of these activities. I think through conducting this IRP (it) really broadened my ideas for creating responses to reading texts and maths activities that go beyond a worksheet or game.*

*One of the things that I noticed last year was as soon as you develop a critical lens it becomes impossible to turn it off.*

**Impact on Students**

**Journal Entry:** The 2013 Education Review Office (ERO) report for the school states that “Students respond positively to high quality creative and inquiry-based learning programmes where critical thinking, expression and invention are promoted” (Education Review Office report, 2013, p. 1) (9/15).

**Student engagement**

All teachers reported a high level of student engagement along with positive attitudes to learning after introducing new approaches into their classrooms. For example, the science IRPs improved student motivation with larger numbers of students attending science club sessions and an unprecedented increase in students wishing to participate in science workshops, science sessions held weekly in classrooms, and ‘Science Friday’ – where students bring a scientific-related item of interest/experiment/article to share with others.

*Students saw science in a different light. They became excited and engaged with science (and) this had a positive impact on their achievement.*

When students were given greater autonomy over their choice of writing genre during writing sessions, teachers reported a shift to a more positive attitude in their writers.

*(Students had) a more enthusiastic attitude towards writing by using a variety of writing genres.*

**Student achievement**

Fifteen of sixteen teachers reported an impact on student achievement. In critical literacy one teacher reported:
Over several years (of) focusing on critical literacy I have tracked children’s reading assessment and the average reading improvement was 2.7 years over the duration of one school year with some children making as much progress as 4 years.

And in science a teacher stated that student gains in science content knowledge had resulted in students achieving particularly well in ICAS science tests - one student being awarded a science scholarship.  

Our students have gained more knowledge. They are able to question, observe and respond in science sessions – science opportunities (have) created a stronger inner confidence in the subject.

**Student agency**

Eleven teachers commented on an increase in student agency reporting that the implementation of the IRPs had supported and developed student agency and voice, empowering students to make decisions and take a more active role in their learning.

We also achieved a greater sense of 'agency' in the classroom as children had greater choices in how they managed their time and their activities rather than being directed and told exactly what they were to do by a teacher.

**Issues**

As well positive impacts, the teachers also reported some issues and challenges. Eight teachers commented that time was an issue; not just time to meet together as a group for planning, discussions and the like, but also time to actually trial new approaches in their classrooms.

The biggest difficulty was how to implement the approach but still having to stick to the timetable. One of the big things about the Reggio Emilia approach is allowing children to work on an activity until they feel (it is) completed.

Other challenges included one teacher’s concern about the community's response to her implementation of critical literacy into her classroom. Another had mixed feelings around instilling a love of literacy in her students on one hand, and embedding critical literacy on the other.

(I felt) conflict between my personal ideas around building a love of literacy amongst young readers and critical literacy.

**Discussion**
The findings confirm that when practitioners adopt an inquiry stance and cultural conditions are created where the teaching staff is able to form itself into a community of critical professional inquiry, the teachers’ sense of their professional role and identity can be enhanced and their engagement in teacher research can lead to better quality teaching and learning in classrooms (Cochran-Smith & Lytle, 1993). Most of the teachers in this study viewed their involvement in teacher research as a means by which they could grow their professional practice through making sound professional judgments and decisions, appropriate to their professional status (Lankshear & Knobel, 2004). All teachers spoke of their enhanced sense of professional role and identity consistent with the idea that “teaching should be recognized and lived as a professional engagement” (Lankshear & Knobel, 2004, p. 4, emphasis in original).

While many teachers are unaccustomed to providing an evidential basis for claims about their practice (Robinson, 2003), IRPs are scaffolded on the research of others and produce new knowledge about topics under investigation thus strengthening the inquiry culture within the school. Having autonomy to pursue an area of strength in their practice was empowering. Sharing their findings and interventions with others, who might then adapt and use these themselves, led to teachers developing further expertise in their areas of strength.

Teachers favoured working collaboratively as opposed to conducting individual projects. This shift away from teachers working in isolation aligns with Hattie (2009) who found that the most powerful strategy for enhancing student learning was to ensure that teachers work collaboratively to establish the essential schooling that students must acquire. The school's infrastructure supports the collaborative culture and teachers have considerable latitude to pursue their own purposes and goals within their IRP teams (DuFour, 2011; Kaser & Halbert, 2009).

Teachers commented that the IRPs created opportunities for dialoguing with like-minded colleagues and hearing other's perspectives. Carroll and Foster (2009) suggest that quality teaching is the result of a collaborative culture that
empowers teachers to work in teams, to improve student learning beyond what any of them could achieve on their own. However, collaboration alone won’t bring about improved outcomes for teaching and learning. The strength in the school’s teacher research model appears to lie in its focus on creating structures and cultures that embed collaboration in the school’s everyday routines (DuFour, 2011).

For several teachers, the IRPs created leadership development opportunities. As IRP team leaders, these teachers needed to bring a great deal of energy to their mentoring in order to lead IRP teams and develop teachers’ capacities as inquirers. Robinson, Hohepa & Lloyd (2009) suggest that leaders gain more respect from their colleagues when they are perceived as being sources of instructional advice and expertise. To this end, middle leaders at this school led professional development workshops for teachers, student teachers and visiting teachers in areas of their curriculum strengths.

Most teachers reported becoming more innovative in their teaching after participating in the IRPs. This finding echoes the thinking of Stoll and Seashore Louis (2007) who state that schools play a vital role in motivating their teachers to practise creatively and innovatively, given that the students they teach come from environments that are constantly changing. When teachers are active learners, their teaching practice is energized by their professional learning and they are able to bring fresh, exciting ideas to their classrooms. The annual school conferences, where the IRP teams present to their colleagues and visiting academics, play a significant role in ensuring that the new ideas and thinking generated by the IRPs are shared and contribute to a more lasting embedding of educational development in the school. The jury is still out though as to whether teacher research has made a significant contribution to public knowledge (McLaughlin, Black Hawkins & McIntyre, 2004). In order for teacher research to be validated there must be some public record whereby a study’s claims can be evaluated by others in relation to its purposes (Lankshear & Knobel, 2004). Disseminating findings from the IRPs beyond the school community and visiting academics is an area for further investigation. Given that half the surveyed
teachers commented that time was an issue, careful thought needs to be given to how the dissemination of the findings from the IRPs can be managed, whether it be through writing for educational journals, presenting at local or national conferences.

There is evidence from this study that through the IRPs teachers became more critically reflective. Such practitioners explore their own assumptions and beliefs with colleagues, invite feedback, query their own teaching practice and commit to change. In this way, they improve their performance through seeking evidence and feedback, working cooperatively and being open to new learning, thus closing the gap between their espoused theories and theories in action (Argyris and Schon, 1974).

As demonstrated the IRPs impacted positively on the students at the heart of this research. A critical goal shared by teachers is the need for learning to be transformational (Cavanagh-Eyre, 2014). Stremmel, Fu and Hill (2002) state that transformation is the primary aim of teacher research, where teachers acquire a better understanding of themselves and their practice through reflective inquiry. Through their involvement in the IRPs, teachers reported that they had greater insight into their teaching practice and teaching strategies, resulting in increased levels of motivation and engagement from students.

To broaden the impact of their research endeavours, teacher researchers require suitable outlets for their findings. Huberman (1999) suggests that sustained interaction between researchers and teachers might lead to a better understanding of what life in schools is all about, resulting in greater symmetry of power and influence between researchers and practitioners. Ball and Cohen (1999) support this viewpoint and advocate the need for teachers to be linked with a wider discourse beyond their immediate circle of colleagues in order to expand the community of educators and resources teachers turn to for information and support. Hence, the school would benefit from strengthening its existing partnerships with local and international universities for more external contribution, challenge and support (Lord, 1994). This would serve to orient the
development of practice and practitioners into a more public process of inquiry and examination. Such partnerships would also include a scholarly approach to build the research capability of teachers to deal with ethical issues as they arise (Hill, 2008). The findings in this research indicate that the school is poised to take this next step.

Finally, this study has implications for the success of the TLIF (Ministry of Education, n.d.). For example, the evidence here is that in order to undertake productive collaborative inquiry, teachers need the support of a school inquiry culture, the leadership team and those with expertise in systematic research. While it is a requirement of the TLIF to engage assistance from an expert, the evidence here suggests the need for a web of support: the principal and deputy are academically qualified; a visiting professor provided hands-on guidance; and, there is ongoing contact with several universities from which mentors can be sourced. A second implication useful for schools undertaking inquiry was that the IRPs worked towards innovation from a strength-based perspective. Teachers at this school worked from the existing research literature to examine their practice, making innovation an outcome of their projects rather than a starting point. A challenge for the teachers in this study, however, was a lack of time for their inquiry work. Working in this way does require a considerable investment of time, something that is recognised in the funding provided through the TLIF. We hope that the lessons learnt from implementing the IRPs will be helpful for principals and teachers as they use inquiry-based methods to examine and develop teacher practice in order to improve outcomes for their students.

References


Impact Research Projects: a model for implementation

**Overarching Theme:** Utilising your strengths to make an impact on student strengths.

The Impact Research Project will be primarily a qualitative study where your team will look through a strength-focused lens - sometimes called appreciative inquiry – defined as a “narrative-based, systematic inquiry into what gives a sense of life when we are most effective and capable” (Cooperrider, Whitney & Stavros, 2008, p. 319). The project is also to be informed by current literature.

**Research Question:**
Work with Senior Leadership Team (SLT) and visiting academics to refine your research question.

**Literature Review:**
What have others said about your research?
Search online. Try to get responses from a critical point of view. Leave yourself open to a range of ideas.

**Methodology:**
Qualitative, with journaling of your journey, case studies, observations, interviews etc. As your research progresses you will generate questions to inform your next steps.

**Analysing Findings:**
Utilising thematic analysis approach to identify your emerging themes in discussion with SLT team.

**Presentations:**
Present findings at the school’s annual conference with the focus on the following:
Is it transformative?
Does it flow over to the students?
Is there a shift to transformative practice?
Where to next?

| Figure 1 | Model for the Impact Research projects |
**Interview Questions**

What is the Impact Research Project that has most enthused you? Why was this?
What readings did you base your Impact Research Project on?
Can you describe how you set about conducting your project?
Tell me about the main impacts of your project.
Tell me about the impact of your project on student achievement? What evidence do you have to support this?
How has your involvement in this project benefitted other teachers? What evidence do you have to support this?
Can you tell me about how this project has impacted on your own professional growth?
How have you found working in a team on an Impact Research Project?
What have been some advantages and disadvantages of working this way?
How do you think the Impact Projects have changed the culture of the school?
Why do you think this is?
What do you consider the main strengths of the Impact Research Projects to be?
What issues, if any, did you have while conducting your project? How did you manage these?
Can you suggest any improvements that might be made?
What direction might the Impact Research Projects take in the future?

**Figure 2**

Interview questions used to understand the teachers’ perspectives of the Impact research projects

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