Teaching as Inquiry: The exploration of how New Zealand schools are designing and implementing processes and systems that enable their teachers to inquire into the teaching-learning relationship.

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EXECUTIVE SUMMARY

With the introduction of teaching as inquiry as part of the New Zealand Curriculum (2007) there has been an increased expectation that teachers in New Zealand schools adapt and refine their teaching practice to individual school contexts in order to meet the needs of all students. Through a literature review and interviews with school leaders this report explores the concept of teaching as inquiry, defining it as more than just teacher reflection and describing it as part of complex and interrelated structure of school improvement initiatives. In answering the question "how are New Zealand schools designing and implementing processes and systems that enable teachers to inquire into the teaching-learning relationship" teaching as inquiry is discussed within a theoretical framework offering a number of insights into effective implementation and providing the opportunity for school leaders to reflect on and self review what is happening within their own school.

This paper concludes by offering a set of school improvement initiatives perceived by school leaders as being effective in supporting the development of teacher inquiry in school. These initiatives include:

- The establishment of a school environment that supports and encourages trust, collaboration and challenge.
- The development of shared understandings of what teaching as inquiry is, what it involves and what its purpose is.
- The provision of opportunities for teachers to use a deliberately planned and systematic cycle of inquiry that enables them to understand and effectively use each stage of the cycle.
- The provision of opportunities for teachers to develop the necessary expertise to effectively inquire into the teaching-learning relationship.
- The provision of formalised structures that give teachers the opportunity to collaborate and engage in professional dialogue and challenges both their assumptions and practice.
- The strengthening of links between the layers of inquiry i.e. student inquiry, teacher inquiry, school level inquiry, especially with regard to evidence and classroom practice.

The conclusion also poses questions for further study and/or research, highlighting the need for a greater depth in understanding of the purposes and stages of inquiry and for the increased expertise amongst teachers to effectively inquire into the teaching-learning relationship.

RESEARCH QUESTION

How are New Zealand Schools designing and implementing processes and systems that enable teachers to inquire into the teaching-learning relationship?

PURPOSE

To further develop understandings of teaching as inquiry through a literature review aimed at:

1. Determining and clarifying what is meant by teacher inquiry and how the concept can be interpreted.
2. Establishing what recent educational thinking is around the most effective processes and systems for teaching as inquiry.

To increase understanding and knowledge of effective practice by interviewing school leaders who have designed and implemented processes and systems that support teaching as inquiry.

To reflect on and consider the implications that best practice around teaching as inquiry might have for teacher development at Paroa School.

To add to the body of educational knowledge around teaching as inquiry and share this knowledge with colleagues.

BACKGROUND AND RATIONALE

While in the past the concept of reflective practice in teaching has been referred to by a number of writers (Dewey, 1933; Schon, 1983, 1987: Zeicher 1996; cited by Dana & Yendol-Hoppey, 2009, p.4), it would seem "teaching as inquiry" is a term that is comparatively new. I would suggest that its contemporary evolution has evolved from a change in the expectation placed on teachers to meet the needs of students and adapt and refine their teaching practice to individual school contexts. This change has been part of what can be described as a larger educational paradigm shift where we have seen education move from the industrial era of the late 19th and early 20th centuries to the knowledge era of the 21st century. (Dryden & Vos, 1993).

In the industrial era learning and teaching was most commonly viewed as the transmission of knowledge by teachers to students who simply received and regurgitated information in a passive manner. However, recent changes to information technology and developments in the knowledge of how we as humans learn has seen a shift to the view that teachers need to be the facilitators of learning and that students should be actively involved in creating their own knowledge.

This shift has meant that there has been a need for change in the way we teach and in the expectations placed on schools around school reform and improvement. It can be argued that in the past teachers have been expected to be technicians of learning where pedagogical practices are developed by experts and/or researchers outside of the school context and then simply implemented by teachers in a step-by-step fashion.

The shift in expectation is for teachers to take responsibility for selecting, evaluating, adapting and modifying the pedagogical approaches they implement, within the context of the school and/or classroom, ensuring that these approaches are evidence based and have positive impacts for individual learners. As suggested by Dana &Yendol–Hoppey (2009), *it is expected that teachers act professionally in their decision making, creating their own contextual knowledge around what is effective teaching and learning"(p.4).*

While it might be argued that effective teachers have always done this through reflective practice I would argue that it has not always been a clearly defined expectation and as already suggested the emphasis has been on teachers as technicians as opposed to professionals.

With the introduction of the revised New Zealand Curriculum (NZC), Ministry of Education (2007), the expectation for teachers to take a more professional, decision making approach has become very clearly defined through the concept of teaching as inquiry as described on page 35. Alongside NZC the expectation is also clearly stated in the more recent publication of the New Zealand Teachers Council Criteria (2010) where, under the heading of professional practice teachers are expected to *"analyse and appropriately use assessment information, which has been gathered formally and informally…"* and *"use critical inquiry and problem solving effectively in their professional practice"* (p.14).

Within Paroa School's strategic plan there is a vision statement that reads *" At Paroa School we believe teachers need the ability and knowledge to provide differentiated and creative lessons that cater for the needs of all students in their care and through reflective practice, high expectations and a sense of fun and good humour, be able to actively engage students in learning."* In particular, by having strategic goals around literacy and numeracy and the implementation of the New Zealand Curriculum our school has focused on and worked toward establishing a culture of reflective practice. This has been achieved through the deliberate design and implementation of professional learning communities and through both school wide and classroom based action research projects. While a focus on teaching as inquiry has been part of the culture of Paroa School for the last six years, there is always room for improvement in whatever we do and the purpose of this professional learning project was to develop further understandings of teaching as inquiry and to investigate how schools have developed this concept.

METHODOLOGY

In order to answer the question of how are New Zealand Schools designing and implementing processes and systems that enable teachers to inquire into the teacher and learning relationship this professional learning was undertaken through a literature review where teaching as inquiry was defined and where a theoretical framework for establishing effective processes of implementation was developed. From the theoretical framework a set of five exploratory questions and a number of more probing sub questions were developed. These questions were explored with principals and/or school leaders from a sample of nine schools in the Christchurch and West Coast regions that were identified as having made considerable progress in

deliberately and consciously implementing systems and processes of inquiry into their schools (Appendix 1).

After initial telephone contact, each school was sent an e-mail confirming the interview time and outlining the five questions to be explored (Appendix 2).

The interviews were conducted during a two-week period at the end of May 2012. Each interview took between 40 minutes and one hour and begun with me asking the principals and/or school leaders to tell me in a general way how they had implemented processes and systems of teaching as inquiry in their schools. Once they had described these processes and systems we went back through the exploratory questions and sub questions to ensure all had been answered and to fill any gaps. Each interview was recorded electronically on a voice recorder and these recordings were analysed by transcribing relevant statements and grouping the statements into similar themes.

FINDINGS

LITERATURE REVIEW

Teaching as Inquiry Defined
While NZC (2007) *"sets the direction"* (p.6) for the *"kinds of teaching approaches that have a positive impact on student learning"* (p.34) I suggest there is a need to delve deeper into defining what is meant by the term teaching as inquiry before we can determine exactly what processes and systems support and encourage the approach.

NZC (2007) describes teaching as inquiry as a *"cyclical process that goes on moment by moment (as teaching takes place) day by day and over the longer term"* (p.35). However this definition and the cyclic process described on page 35 (Figure 1) is open to interpretation. In the words of Michael Fullen (cited by Timperley and Parr, 2010) *"although the words travel well, their underlying concepts and thinking may not"* (p.12), and as already discovered by the Education Review Office (2011) some schools and teachers initially interpreted the approach as inquiry learning[1]. I would also suggest that schools could easily interpret teaching as inquiry as something teachers do alone in the isolation of their classrooms. Schon in his writings on reflective practice (1983; cited by Reid, 2004, p.5) referred to this as the ability to reflect "in practice" and "on practice." However while "the teachers" reflective practice is a component of teaching as inquiry (Nolan and Huber, 1989; cited by Dana & Yendol–Hoppey, 2009), and that ultimately it should be a disposition or habit that all teachers should have, I believe schools that are effectively implementing teaching as inquiry create a definition that places emphasis on what Killon & Todnew (cited by Reid, 2004, p. 5) term "reflection for teaching". It is argued (Reid, 2004: Dana & Yendol-Hoppey 2009) that reflection for teaching will result in changes to practice and ultimately gains in student achievement, something individual teacher reflection in and on practice will not do alone.

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[1] A teaching approach where students ask and inquire into questions related to topics of learning.

Teaching as Inquiry

Teaching Inquiry
What strategies (evidence-based) are most likely to help my students learn this?

Teaching

Learning

Focusing Inquiry
What is important (and therefore worth spending time on), given where my students are at?

Learning Inquiry
What happened as a result of the teaching, and what are the implications for future teaching?

Is there something I need to change?
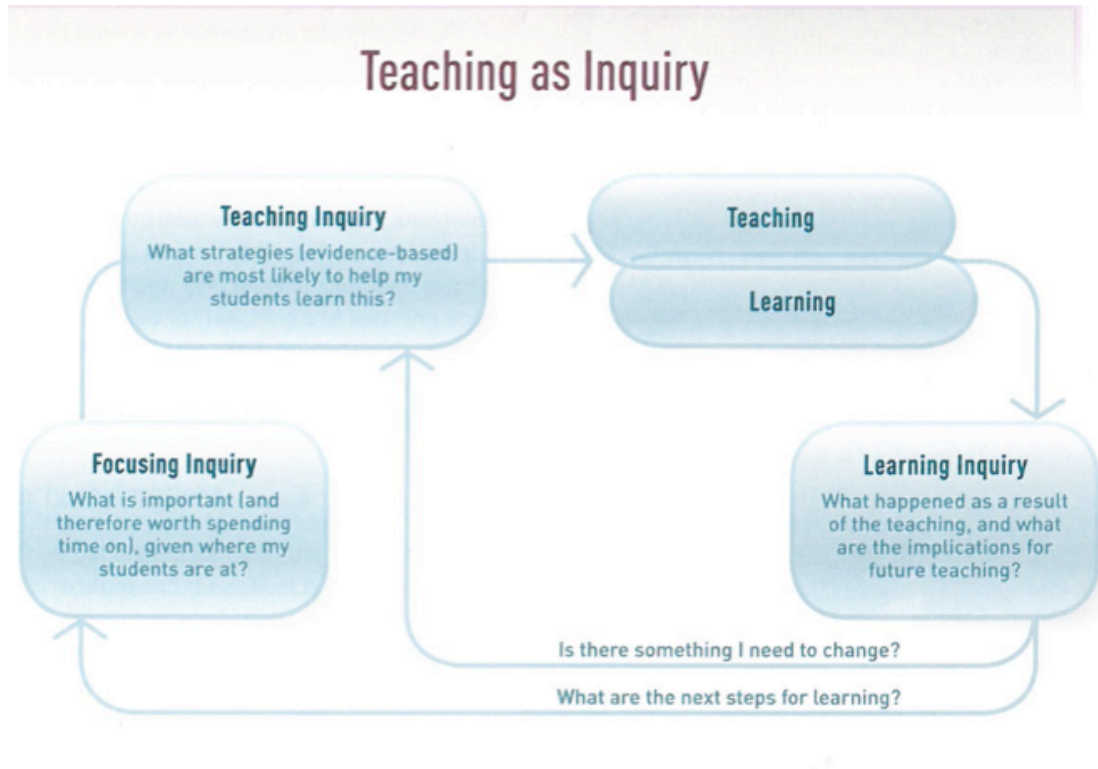
What are the next steps for learning?

Figure 1

This broader definition is supported by a number of writers (Reid, 2004: Aiken & Simmena, 2008: Dana & Yendol – Hoppey, 2009: Timperley and Parr, 2010: The Education Review Office, 2011). Both Aiken and Simmena (2008) and Timperley and Parr (2010) put forward classroom and school level inquiry processes that are systematically planned and deliberately implemented and evaluated. Dana & Yendol– Hoppey (2009) make a clear distinction between reflective practice and teaching as inquiry in two ways. Firstly they suggest *"reflection is something that occurs most often in an unplanned way... Teacher inquiry invites intentional, planned reflection, heightening your focus on problem posing. Second teacher inquiry is more visible … As teachers engage in the process of inquiry, their thinking and reflection are made public for discussion, sharing, debate, and purposeful educative conversation"* (p.7). Reid (2004) describes teacher inquiry as a process of "systematic, rigorous and critical reflection about professional practice" (p.4) and goes on to suggest it is not just a technical activity but an activity that involves analysing the reasons for actions and justifying what is done. In describing the purpose of inquiry The Education Review Office (2011) suggest that inquiry involves purposeful evaluation, planned action, strategic teaching and focussed review.

While at its most basic level teaching as inquiry could be interpreted as teachers reflecting in and on their practice it would seem a deeper definition for teaching as inquiry needs to describe the process as systematic and deliberate, involving problem posing and solving, action and collaboration.

The Theoretical Framework

This deeper definition leads to a theoretical framework around what needs to happen in schools if processes and systems that are aimed at supporting teacher inquiry are to be effective. This literature review also suggests that the conditions described by the theoretical framework will promote and support a number of important impacts.

Environment and Dispositions
First and foremost I suggest that the framework requires the creation of the right sort of school environment and dispositions. The qualities described in literature (Reid, 2004: Aitken and Sinnema, 2008: Dana & Yondel-Hoppey, 2009: Hill & Sewell, 2010: Timperley and Parr, 2010: Education Review Office, 2011) that paint a picture of this environment and the dispositions include trust, civility respect, responsibility openmindness, fallibility, persistence, dissonance, collaboration and challenge. Reid (2004) talks about the ability to recognise there is no one right way and the ability to reject certainty and dogmatism. He states that *"reflection is best conducted as a social rather than solitary practice and our ideas can be better clarified when we talk with others about them"* Hill and Sewell (2010) place importance on participation in professional learning communities and engagement in dialogic inquiry, while Dana & Yondel-Hoppey (2009) suggest *"Becoming a lone inquirer is difficult!"*(p.7) Timperley and Parr (2010) place emphasis on relationships and in particular highlight *"managed interdependence with those with specialist expertise, together with trust and challenge in relation to those involved in improvement efforts"* (p.25).

Shared Understandings
Secondly the framework involves teachers within schools having a shared understanding of what teaching as inquiry is, what it involves and what its purposes are. The Education Review Office (2011) found that in schools where teaching as inquiry was highly informative and supportive teachers had opportunities to share and develop understandings through discussion and that teacher understanding about teaching as inquiry had been built through the use of external experts. They go on to imply that there is a need for a "shared aspiration to improve learning and teaching and a desire to work as a team" (p.28)

Knowledge, Skills and Techniques
Both Reid (2004) and the Education Review Office (2011) suggest teachers need the opportunity to be supported with opportunities to develop skills and techniques to implement teaching as inquiry effectively and that these *"inquiry skills need to be built thoughtfully and systematically…"* (Reid, 2004. p.7). The skills and techniques that are suggested by these writers include data collection and analysis, identifying issues, problems, dilemmas, puzzles and successes, developing inquiry questions, clarifying meaning, locating and drawing on research, critically interrogating practice and data, developing and implementing strategies that enhance student learning outcomes and assessing the extent to which strategies and actions have improved learning or the learning environment. Timperly and Parr (2010) present a model of inquiry that has a focus on building *"knowledge and skills for the purpose of developing instructional, organisational and evaluative capabilities"* (p.27). The knowledge and skills described by Timperley and Parr include being able to select and use effective instructional practices, leadership, which they suggest is central to organisational capability, the ability to identify what works well and what doesn't and

why and the use of evidence so that the questions *"Where am I going? "How am I going?" and "Where to next?"* (p.31) can be answered.

Formalised Structures

The framework also involves the creation of the planned and purposeful implementation of structures that are specifically focussed on teaching as inquiry. Reid (2004) suggests a number of approaches that include action research, critical dialogue, classroom work place observations, journals, critical data analysis, appreciative inquiry, portfolios, text analysis and programme evaluation. The Education Review Office (2011) suggest teachers engaged in inquiry when they recorded in journals information about student learning, wrote end of term classroom or syndicate evaluations and observed each others practice.

Impacts

While ultimately the overall aim of promoting teaching as inquiry is to improve student achievement it would seem that there are a number of important impacts related to teaching practice being challenged and teachers changing what they do, something writers such as Cuban (1984) and Hood (1998) suggest has not happened often enough during the last one hundred years.

Timperley, Wilson, Barr and Fung (cited by Hill & Sewell, 2010) suggest that teaching as inquiry challenges teachers' values and beliefs about their practice and that the dissonance that results from this challenge will promote new learning for teachers. Adrian Alton Lee the Chief Education Advisor for the Iterative Best Evidence Synthesis Programme (Aiken and Sinnema, 2008) describes the process as involving discomfort for teachers while Aiken and Sinnema (2008) suggest the impacts will be more about uncertainty than certainty and more about posing problems and generating questions than about solving problems and providing answers. Dana & Yendol–Hoppey (2009) talk about teacher inquiry as being central to professional development and that it will result in the construction of knowledge, the emergence of action by teachers and the reform, refinement and change in teaching practice. They also suggest that teacher participation in this inquiry process results in a sense of ownership in the knowledge, which in turn contributes to real change in the classroom. Andrea Milligan, Senior Lecturer of Social Sciences at Victoria University, Wellington College of Education, suggests *"the process will enable teachers to make connections between, and to think critically about, different professional learning…" and "mitigates the lurching from one recommended practice to another"* (cited by Aitken & Sinnema 2008 p.27.)

While this discussion has suggested that teacher reflection is only a part of the deeper definition of teaching as inquiry we should not discount the idea that involving teachers in systematic and deliberate processes will strengthen their abilities to reflect in an effective and constructive way and create an increased disposition for inquiry into their own practice on a day to day, moment by moment basis. *"The ultimate goal is to create an inquiry stance toward teaching. This stance becomes a professional positioning, owned by the teacher where questioning ones own practice becomes part of the teachers work and eventually part of the teaching culture"* (Dana & Yendol – Hoppey, 2009. p. 6).

INTERVIEWS

Much of the educational thinking summarised above is supported by the discussion and insights that came from the nine interviews and is described in the findings that follow. It must be noted however that these findings are based on the perceptions of the school leaders who were interviewed and that their comments and statements were open to interpretation by this writer. It must also be noted that while all the school leaders interviewed perceived their school as having been effective in implementing processes and systems that were supportive of and promoted teaching as inquiry, it would seem that all accepted that their journey along this pathway of school improvement was not complete.

For the majority of the schools a number of supportive systems and processes were in place before a specific focus on teaching as inquiry was undertaken. Some of these systems and processes were based on concepts schools termed reflective practice or action research rather than teaching as inquiry while others had come about through involvement in school improvement initiatives focussed on formative assessment practice, the use of ICT, the introduction of National Standards and the review of appraisal processes. School leaders described the process of introducing the concept of teaching as inquiry as part of an evolutionary process that built on previous school improvement initiatives.

Also of note was that the majority of school leaders suggested that a supportive school environment had already been established before any specific focus on teaching as inquiry was undertaken. What was evident amongst the leaders was that they all had a similar vision for the school environment their teachers worked in and a strong disposition toward "adaptive expertise"[2] (Timperly and Parr, 2010).

Generally, the more explicit concept of teaching as inquiry was introduced through teacher only days and the requirement to have NZC implemented in schools by the beginning of 2010. In the main these teacher only days allowed schools to explore the concept of teaching as inquiry as described in NZC (p.36) and in most cases school leaders believed that teachers had gained a reasonably clear and common understanding of what teaching as inquiry involved. It was, however, interesting to note that schools then interpreted and modified the NZC cycle of inquiry to suit the systems and processes they already had in place and to develop a model that reflected their shared understandings. A number of school improvement processes and systems, i.e. Professional Learning Groups, (PLGs), systems for collecting data, frameworks for asking challenging questions and processes of action research were incorporated into these school based cycles of inquiry.

The teacher only days then lead to continued support for the development of teaching as inquiry, in some cases through the use of outside facilitators but also through the work of the leadership teams who scaffolded, modelled and promoted the processes and systems they perceived as being supportive.

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[2] Adaptive expertise as described by Timperly and Parr (2010,) is where teachers are viewed as " experts who retrieve, organise and apply professional knowledge when old problems persist or new problems arise" (p.14) as opposed to teachers who are experts in routines of practice.

Of the environments and dispositions described by school leaders as being important to the success of teaching as inquiry, trust, collaboration and challenge were very much to the forefront. It would seem that having an environment of trust was seen by all those interviewed as a means of supporting and encouraging teachers to be honest and open about their practice and to take risks. Collaboration and in particular the opportunity to enter into professional dialogue with colleagues was perceived as enabling teachers to look critically at what was happening in their classrooms and to be challenged about their practice.

Trust was described as being developed through transparency and the opportunities to talk about what needs to happen amongst staff in order for them to feel trusted. The leaders of one school in particular described a very thorough process of self-review where staff were given the opportunity to express their views around the environment they worked in and to offer ideas and suggestions as to what needed to change. In two other schools the leaders talked about how they had co-constructed with staff a set of agreed protocols and norms around how they behaved and responded to others within the school environment.

Collaboration in all schools had come about through the development and ownership of common goals for student learning and welfare. One principal commented that he and his staff viewed their school as a village "where we think about *our* students rather than my students." It was also very evident that the nine schools all had very formalised structures for supporting and promoting professional dialogue. Mostly these structures were described as PLGs and were based around syndicate teams. In one school critical dialogue was promoted through what was termed focus groups and in another teachers had critical buddies. The purpose of these structures were described as a means of involving teachers in conversations and dialogue about student achievement data and changing practice, creating and sharing collective wisdom, drawing teachers into deeper conversations and challenging teacher's beliefs and assumptions about teaching and learning.

In the majority of schools where interviews took place it would seem formalised processes of appraisal were used to support the implementation of teaching as inquiry. In general there was an expectation that on an annual basis teachers would carry out a structured inquiry in the form of an action research project. In most cases this classroom-based inquiry was focussed on using baseline student achievement data to determine the direction of the inquiry and then exit data was used to evaluate its success. Classroom observations also formed part of the process of gathering data and in one school it seemed that this had a greater emphasis than the use of student data. This finding highlights the two broad interrelated purposes of inquiry as identified by Timperly and Parr (2010). *"The first involves teacher inquiry into student learning…"* while *"the other broad thrust of classroom inquiry involves evaluating the extent to which classroom practice (and then new practice) is effective in meeting the learning needs of students"* (p.115).

It appeared that there was a particularly strong expectation amongst school leaders for teachers to be involved in teaching as inquiry processes and that in general they perceived that teachers were highly motivated. They described staff as becoming excited, gaining satisfaction and seeing value in teaching as inquiry. It would also

seem that while other school improvement and appraisal initiatives were seen as an "add on" to an already heavy workload, teaching as inquiry initiatives were not. In most schools the expectation to undertake teaching as inquiry was supported by appraisal or school based curriculum documentation that made clear the expectations and provided scaffolding for undertaking teaching as inquiry as defined by each school's cycle.

In those schools where the focus was on student achievement data there was a strong connection to "school-level inquiry" (Timperley and Parr 2010) and it would seem that this type of inquiry has come about through the Ministry of Education requirement to set annual student achievement targets. Timperley and Parr suggest that at this level links between the evidence of student learning and classroom practice is often not robust. While this was not explored with school leaders during the interviews it would appear that school-level processes strongly supported the teacher's classroom inquiry through the expectation that classroom inquires would contribute to or feed back to the school's annual targets. When referring to school targets one school leader referred to everything, inquiry, appraisal and professional development "hinging on the same thing."

In three schools leaders also described what might be called a leadership or management layer of inquiry that involved school leaders inquiring into their own leadership and management practice. In one case this type of inquiry was referred to as self-review as opposed to inquiry and was perceived as supporting classroom-based teaching as inquiry through the development of a trusting and collaborative school environment. It was also suggested that by undertaking this type of inquiry, school leaders provided scaffolding and modelling for teachers' inquiries.

A number of school leaders recognised a strong connection to the student centred learning concepts of formative assessment and self regulated learning, which formed part of their school-based curriculum. When asked how students were involved in teaching as inquiry the most common response was through the gathering of student voice. It appeared that students' awareness of teachers inquiring into classroom practice and student achievement was limited to a small number of classrooms. School leaders did however consider that students being involved in the teaching as inquiry process and working collaboratively alongside their teachers could contribute significantly to their development as self regulated learners. They saw this as a possible next step in the continued development of school processes.

Generally speaking there did not seem to be a planned approach in schools to the development of the knowledge, skills and techniques required to effectively implement teaching as inquiry, however some of the skills and techniques needed had been developed through other staff development initiatives. For example the skills and techniques of data gathering, analysis and interrogation seemed to have been developed in most schools through the collaborative interpretation and analysis of data associated with school-wide targets or the use of standardised tests while the knowledge, skills and techniques needed to challenge teachers' beliefs and assumptions appeared to have been developed during professional development associated with appraisal processes. It appeared that these two skill sets along with locating and using research were focussed on in most schools, while other knowledge, skills and techniques suggested by the literature such as identifying problems and

issues, posing researchable questions and clarifying meaning were developed in a more unconscious way by sharing and modelling. The level to which teachers had acquired these skills and techniques were perceived by school leaders as being variable.

School leaders' perceptions of the impact that teaching as inquiry was having in their schools included the view that processes were promoting a better understanding of differentiated teaching and that there was a move towards teachers focussing on those students who were not achieving. They saw teachers increasingly reflecting on the "question who is my practice working for and whom is it not working for" and they perceived an increase in the thorough and candid examination of practice and of student achievement.

They also suggested that other important impacts included more targeted teaching and professional learning, teachers were becoming better at drawing on research and looking for alternatives to their existing practice and that there was a move away from a deficit thinking model where teachers felt they were unable to help underachieving students due to influences outside their control.

All perceived that the teaching as inquiry processes in their schools had created instances of dissonance between teaching practice and desired outcomes, however none gave the impression that at this stage of their journey this was wide spread. Likewise, they also perceived teaching as inquiry as having the potential to change teaching practice but in many cases were reserved about the prevalence of this or the depth of change.

Amongst many of the school leaders there was strong belief that teaching as inquiry was not something new and that effective teachers had a natural disposition towards inquiring into their own practice. They talked about wanting it to be a natural and common practice and about it being embedded, however they all accepted that there was a need to have formalised processes and systems in place to ensure that teachers had the opportunity to continue to improve their disposition toward teaching as inquiry.

As already suggested, the school leaders interviewed all had a very clear and strong vision for the sort of school environment they wanted to create and an important component of that vision involves ongoing and continued school improvement initiatives. Without exception, they perceived effective schools as schools that were always looking for ways to improve what they did and they all saw the processes of teaching as inquiry as a valuable means of promoting this sort of school culture

IMPLICATIONS

I would suggest that the findings of this report have some important implications for schools wanting to ensure that they use effective processes and systems of teaching as inquiry that will *"consistently have a positive impact on student learning"* (MoE 2007, p.34).

It would seem that teaching as inquiry is accepted by a number of writers, researchers

and school leaders as an effective means of catering for the expectations of teacher performance in today's information age and to cater for the needs of all students within the New Zealand education system.

While their might be some choice and adaptive expertise needed by leaders in selecting the processes and systems of teaching as inquiry there is evidence to suggest there is a need for them to have a strong vision for the environment and dispositions that they need to develop within their schools. This vision needs to include the concepts of trust, challenge and collaboration and their needs to be strong consideration given to the structures that support professional dialogue. It would also appear that school leaders need to be committed to the implementation of teaching as inquiry. They need to have high expectations of teachers and that these expectations need to be clearly stated and documented.

The findings also suggest that there is a need for school leaders to ensure that consideration is given to the knowledge and skills necessary for teaching as inquiry and that they are deliberately and systematically embedded in teachers practice. I would suggest that without a deliberate and systematic approach there is a strong likelihood that there will be gaps in teachers' knowledge and skills and this will result in the cycle of inquiry lacking in any depth of challenge or rigor.

It is important for school leaders to consider the complexities of how the different layers of inquiry interrelate and support each other. In particular as suggested by Timperly and Parr (2010), they need to consider how layers of inquiry are linked, especially with regard to evidence and classroom practice. At a classroom level the findings of this study suggest it is important to consider and develop further links between teachers' inquiries and students inquiring into their own learning processes as part of self-regulation.

While it is necessary for schools to take on an inquiry disposition that takes into account their own individual context and needs I believe the findings of this study have the potential to provide school leaders with many insights into the sorts of processes and systems given by both the literature and the perceptions of school leaders.

BENEFITS

While the evidence from interviews is very anecdotal and based on perceptions as opposed to objective evidence it would seem that a focus on teaching as inquiry as part of the school improvement process can have many positive benefits. Firstly, it has been perceived as challenging teachers' taken for granted assumptions about teaching practice, which then in turn creates dissonance, action, refinement and reform. It creates a sense of ownership and satisfaction amongst teachers about what is best practice and there is a suggestion that it increases the momentum for teachers to have an increasing and embedded disposition toward inquiry. They are more likely to develop a greater understanding of what differentiated teaching looks like and through these processes teachers are encouraged and supported to behave in a professional manner, as opposed to being technicians, making informed decisions

about the learning needs of all students in their care.

School leaders can use the findings of this study as a self-review tool to reflect on what effective practice is and how their current practice can be improved. From a personal perspective the findings have provided greater clarity and depth of understanding around what teaching as inquiry is and in the processes and systems that are effective. In particular I believe the knowledge gained has increased my own evaluative capability and through my own reflection there are already a number of areas of practice within my own school that I believe need to be investigated further. This includes the systematic evaluation and then development of the knowledge and skills of teaching staff, the strengthening of the links between teacher inquiry, school-level inquiry and student inquiry and the importance of clearly documented expectations. Alongside these personal benefits, comments from a number of the school leaders suggest that the discussion generated through the interviews also provided them with the opportunity to reflect on and consider how they might continue to develop and grow teaching as inquiry as a school improvement initiative.

CONCLUSION

In defining teaching as inquiry I have concluded that the concept is not just about individual teacher reflection in the isolation of classrooms but about a collaborative process where teachers are working toward common goals and shared aspirations and are openly and honestly evaluating, critiquing and changing practice to meet the needs of all students.

The descriptions of processes and systems gathered from the interviews and insights gained from the literature review suggest teaching as inquiry fits into a complex and interrelated structure of school improvement initiatives. In answer to the question "how are New Zealand Schools designing and implementing the processes and systems that enable teachers to inquire into the teaching-learning relationship" it would seem that they are focussing on:

> Establishing a school environment and dispositions amongst teachers that support and encourage trust, collaboration and challenge.
> Developing shared understandings of what teaching as inquiry is, what it involves and what its purpose is.
> Providing teachers with the opportunity to use a deliberately planned and systematic cycle of inquiry that enables them to understand and use each stage of the cycle.
> Ensuring teachers are provided with opportunities to develop the knowledge, skills and techniques necessary to effectively inquire into the teaching-learning relationship.
> Implementing formalised structures that give teachers the opportunity to collaborate and engage in professional dialogue that challenges both their assumptions and practice.
> Strengthening links between layers of inquiry i.e. student inquiry, teacher inquiry, school level inquiry, especially with regard to evidence and classroom practice.

As already stated this study has limitations around the fact that the data gathered is about leaders perceptions which in turn were open to interpretation by this writer, however the findings also pose a number of questions around the effectiveness of the processes and systems that have been implemented in schools. In particular I believe there is a need to look in greater depth into the understandings both school leaders and teachers have of each stage of the inquiry cycle, of the purposes of inquiry and to what degree teachers have the expertise to effectively inquire into the teaching learning relationship. I don't believe it can be assumed teachers have the necessary expertise to effectively undertake tasks such as using data to locate student achievement needs or monitor the effect strategies have on student achievement. I would also suggest that because in the main teachers are inclined to focus on their own students there is a need for schools consider the clarity teachers have about how inquiries contribute to wider school improvement.

It is therefore recommended that if school leaders are to continue to embed and nurture teaching as inquiry as part of their school culture then they need to document the knowledge, skills and techniques needed at each stage of their inquiry cycle and that the depth of understanding and expertise amongst both school leaders and teachers needs to be reviewed and if necessary deficiencies addressed. I would also recommend that as part of the professional dialogue undertaken by teachers, they explore the question "What implications do my teacher inquiry findings have school wide?"

(l) References

Aitken, G., & Sinnema, C. (2008*). Effective Pedagogy in Social Sciences Tikanga iwi. Best Evidence Synthesis Iteration (BES)* Wellington: Crown Copyright.

Cuban, L. (1984). *How teachers taught*. New York:Longman.

Dana, N.F., & Yedol-Hoppey, D. (2009). *The Reflective Educators Guide to Classroom Research. Learning to Teach and Teaching to Learn Though Practioner Inquiry.* 2nd ed. California:Corwin Press.

Dryden, G., & Vos, J. (1993). *The Learning Revolution.* Auckland: Profile Books.

Education Review Office. (2011). *Directions for Learning: The New Zealand Curriculum. Principles, and teaching as Inquiry.* Education Evaluation Reports. Wellington: Crown copyright.

Hood. D. (1998). *Why and how New Zealand Schooling must change for the 21st Century.* Auckland: Profile Books.

New Zealand Teachers Council. (2010). *Registered Teachers Criteria Handbook 2010.* Wellington: New Zealand Teachers Council.

Ministry of Education. (2007). *The New Zealand Curriculum for English-medium Teaching and Learning in Years 1-13*. Wellington: Crown Copyright.

Reid. A. (2004). *Towards a Culture of Inquiry in DECS*, Department of Education and Children's Services (Occasional Paper No. 1). Retrieved 8 May 2012, from http://www.decd.sa.gov.au/learnerwellbeing/files/links/link_72576.pdf.

Timperley, H., & Parr, J. (2010). *Weaving Evidence, Inquiry and Standards to Build Better Schools. Wellington*: NZCER Press.

APPENDIX 1

INTERVIEW QUESTIONS

INTRO
Firstly thank you for time. Before we look at the specific questions I gave you in my e-mail can we begin by you giving me a general description and some background to the work your school has done in designing and implementing processes and systems of teaching as inquiry? Hopefully the description you provide will give me most of the answers to my questions but if it doesn't we will refer back to them to get clarification and to make sure we have covered everything.

DEFINING TEACHER INQUIRY
1. How has your school defined and interpreted the concept of teacher inquiry as described in the New Zealand Curriculum (2007) on page 35?

> ➢ Has Page 35 of NZC been explored by teachers? How did you go about this exploration?
> ➢ What is the depth of understanding of teacher inquiry amongst staff?
> ➢ Do they/you see a difference between teacher inquiry and teacher reflection?
> ➢ What do they see as its purpose? Do they see it as part of professional growth & P.D. and part of the appraisal process?

ENVIRONMENT AND DISPOSITIONS
2. What sort of environment and dispositions have you tried to encourage that support teaching as inquiry in your school?

> ➢ Trust, Civility, Respect, Open discussion/debate, Open-mindedness?
> ➢ Has this environment and these dispositions been consciously and deliberately planned or has it evolved in a more unconscious way?
> ➢ Would you describe the teacher inquiry in your school as collaborative?
> ➢ What are the levels of collaboration between teachers during teacher inquiry?
> ➢ What systems/processes do you see as encouraging and supporting collaborative inquiry?
> ➢ Has there been involvement of outside experts/ university researchers?
> ➢ Do teachers recognise the moment-by-moment decisions they make in their classroom as informal inquiry.

APPROACHES
3. What approaches, has your school put in place to support the development of teaching as inquiry?

> ➢ Data analysis, Critical dialogue, Professional conversations, Action research, Programme evaluation, Collegial study groups?
> ➢ Which of these approaches have been consciously and deliberately planned?
> ➢ Which have evolved/ come about unconsciously?
> ➢ What sort of support for these approaches to you have from teachers. Do they place value on what they are doing?

- ➢ Where is the inquiry/reflection in these approaches eg observations four minute walk throughs. How is the reflection/inquiry facilitated?
- ➢ In what ways have students been involved in the process of teacher inquiry?
- ➢ What opportunities have been created for teachers to reflect in groups?
- ➢ What are the classroom level approaches? What are the school level approaches?
- ➢ Are their guidelines expectations and protocols that have been developed?

SKILLS AND TECHNIQUES
4. What skills and techniques have you developed amongst staff that support these approaches?

- ➢ Clarifying meaning, Identification of problems/ issues, analysis and interpretation of data, Locating and drawing on research?
- ➢ Have the development of these skills and techniques been consciously and deliberately planned?
- ➢ To what degree has published research been used by teachers to help plan their inquiry?
- ➢ To what degree do teachers draw on their own experiences?
- ➢ Have any of these skills dispositions been a part or a goal for teachers own professional development.

IMPACT ON PRACTICE
5. What has the impact of your focus on teaching as inquiry had on changes in teaching practice both school wide and for individual teachers?

- ➢ What have been the barriers to promoting encouraging inquiry in your school?
- ➢ Is inquiry expected and monitored?
- ➢ Is Teacher inquiry linked to PD?
- ➢ Is Teacher Inquiry linked to PMS?
- ➢ During the inquiry process do you feel that your teachers decisions in respect is based on thorough and candid examination of practice?
- ➢ Are teachers really challenging their teaching practice? Are they asking the question who is my practice working for and who is it not working for?
- ➢ Is there evidence of any sort of dissonance?

APPENDIX 2

E Mail to Schools

Tena koe

Further to our telephone conversation thank-you for accepting my request to visit your school and this e-mail is confirmation that I will meet with you and/or members of your management team on Wednesday 23 May at 11.00 a.m.

As discussed on the phone I am presently on sabbatical leave from my position as Principal of Paroa School in Greymouth and the purpose of my visit is to interview you and/or members of your management team in relation to the processes and systems your school has place to support teaching as inquiry.

More specifically I would like to explore with you the following questions.

1. How has your school defined and interpreted the concept of teacher inquiry as described in the New Zealand Curriculum (2007) on page 35?
2. What sort of environment and dispositions i.e. trust, civility, respect open discussion/debate, openmindness, civility, respect, have you tried to encourage that support teaching as inquiry in your school?
3. What approaches, i.e. data analysis, critical dialogue, professional conversations, action research, programme evaluation, has your school put in place to support the development of teaching as inquiry?
4. What skills and techniques i.e. clarifying meaning, identification of problems/ issues, analysis and interpretation of data, locating and drawing on research have you developed amongst staff that support these approaches?
5. What has the impact of your focus on teaching as inquiry had on changes in teaching practice both school wide and for individual teachers?

A requirement of my sabbatical leave is that I present a report of my findings to my own staff, to the Paroa School Board of Trustees and to the West Coast Principals Association. You can be assured, however that the information contained in this report will in no way enable your school or individuals within your school to be identified.

Again, I thank-you for accepting my request and look forward to meeting with you.

Me te mihi nui
Peter Bayliss