IMPLEMENTING THE THEORY OF MULTIPLE INTELLIGENCES IN THE JUNIOR SECONDARY SCHOOL

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ABSTRACT

First published in 1983, the theory of multiple intelligences (Gardner, 1983) struck a chord with thousands of educators across the world, providing a philosophical and structural framework that helped them make sense of and cater for the vast range of individual difference they encountered daily in their classrooms. However, while MI theory has found a ready audience amongst early childhood and primary school educators, and has been associated with a wide range of positive outcomes across a variety of educational settings, it continues to have little impact on secondary school practice.

The aim of this qualitative action research project was to establish a collaborative research group of four junior secondary school teachers, who were interested in exploring MI theory and its implications for learning and teaching. In documenting their experiences, the project aimed to find out whether an MI-based programme was feasible in a junior secondary school context, and to identify the difficulties and barriers that impeded the participating teachers' endeavours to implement MI in their classrooms.

The following research questions provided the focus for the project:

1. Can an MI-based approach to teaching and learning be successfully implemented in a junior secondary school programme?
2. What are the issues that secondary school teachers face when implementing MI into their classroom programmes?
3. What are the best ways to address these issues?

A multiple case study approach provided an effective means of illustrating the individual complexity of teachers' situations, as they interacted with their students, the curriculum, their colleagues and their school environment, and was also flexible enough to accommodate the open-ended and evolving nature of the investigation.

The following outcomes for teachers as a result of the MI project were noted:

(a) Increased awareness and understanding of student diversity.

(b) Extended teaching practice and enhanced teacher creativity.

(c) Improved planning framework.

(d) Teachers' beliefs about learning and intelligence were affirmed and extended.

(e) Teachers experienced improved confidence in their abilities as teachers.

(f) The emergence of a cohesive student-centred curriculum.

(g) Improved collegiality.

As a result of the project, many barriers to implementing MI theory into junior secondary school classrooms were identified, under the following categories:

(a) Barriers relating to teacher culture

(b) Barriers relating to management requirements

(c) Barriers relating to time

(d) Barriers relating to personnel

(e) Barriers relating to external pressures on the school

The outcomes of this project confirm findings in the research literature, which suggest that MI theory can provide a valuable philosophical and structural

framework that helps teachers develop a greater awareness of student diversity and enhanced teaching practice, as well as the understanding that a uniform approach to teaching and learning meets the needs of too few. However, a number of entrenched structural and cultural barriers characteristic of the secondary school context were also identified, which suggest that the adoption of MI-based teaching practices on a wider scale is unlikely without an in-depth school-wide professional development initiative.

CONTENTS

CHAPTER 1: INTRODUCTION

At the heart of MI theory is the belief that each individual has a rich and differentiated mind; that no two persons have exactly the same cognitive configuration; and that education is most likely to be successful if it pays attention to these individual differences in the course of fashioning curriculum, pedagogy, and assessment. (Gardner, 2004b, p. xiii)

Eight years ago I was introduced to the theory of multiple intelligences (Gardner, 1983) (hereafter MI theory) by Tom Hoerr, Principal of New City School, St Louis, Missouri, in his address to a group of New Zealand primary school principals. I remember listening spellbound as Tom described his school, where he and his staff had been implementing MI theory since 1988, and thinking at the time that he might well have been describing my own school. Our two schools certainly shared many of the same values – a high regard for human diversity, the belief that all students were able to achieve success in their learning and that learning should be enjoyable, and also the understanding that quality teaching was the most important factor in successful learning outcomes. Both schools also emphasised the importance of experiential learning, aiming to actively involve students in their learning by providing them with challenging and meaningful hands-on activities, and the arts were also highly valued in the curriculum.

I returned from the conference, on the one hand encouraged that our school was on the right track, yet on the other, intrigued to learn more about MI theory. How might a deeper understanding of the theory impact on our approach to learning and teaching at Matahui Road School?

That was to be the beginning of an intensive learning journey, one I was privileged to share with a group of courageous, creative and dedicated teachers. In undertaking our exploration of the theory of multiple intelligences as a faculty, little did we realise the profound and positive impact it would have on each of us personally, our individual beliefs about learning and the nature of learners and our teaching practices; collectively, in terms of our curriculum and school culture; and most importantly, on our students, in both academic and affective terms. The positive outcomes we experienced mirror the findings reported in the research literature, which are detailed in the following chapter.

Embarking on this action research project in the secondary school setting is one further step on this learning journey. First published in 1983 in Howard Gardner's book *Frames of Mind*, MI theory struck a chord with thousands of educators across the world, providing a philosophical and structural framework that helped them make sense of and cater for the vast range of individual difference they encountered daily in their classrooms. *Frames of Mind* has been translated into 13 languages, with over 300,000 copies sold world-wide (Viadero, 2003). Why is it then, I ask, that MI theory, which has found such a ready audience amongst primary school educators, and has been found to be associated with improved student outcomes and other positive changes across a variety of educational settings (Campbell & Campbell, 1999; Kornhaber, Fierros, & Veenema, 2004), has had such a limited impact on secondary schools (Campbell & Campbell, 1999; Gardner, 2004b; Kallenbach & Viens, 2002; Vialle, 1997; Viens & Kallenbach, 2004)?

I believe that the traditional focus of schools on the Linguistic and Logical-Mathematical intelligences has meant that many students, whose intelligence

profiles have not fitted this traditional model, have been left on the sidelines. Often these students have gone on to use their unique blend of intelligences to achieve success in the real world outside of school, success that would not have been predicted by traditional scholastic tests. Tragically for many, however, frustration, academic failure and unhappy school experiences can negatively impact on their self-esteem and behaviour, and consequently their later achievements in life. As Ellen Weber (1999, p. 104) writes, "Why, then do schools so often leave our students' gifts untapped, their talents untouched, and their dreams unfulfilled?".

What percentage of students actually enjoys their learning at secondary school, I wonder? The issue of student disengagement with learning is topical in New Zealand. The Competent Children @ 14 Project (Wylie, Ferral, Hodgen, & Thompson, 2006), a longitudinal study involving a group of 500 students from the greater Wellington region, found that one third of 14-year-old students did not find secondary school engaging, although disengagement with school was more passive than active. Around a fifth, which was noted as a marked increase over time in the longitudinal study, thought they could get away with doing little work in their compulsory subjects. A fifth wanted to leave school as soon as they could, and the researchers noted a marked increase over time in levels of boredom. A tenth reported intentionally setting out to annoy their teachers. The number of New Zealand secondary school students being granted exemptions to leave school early, coupled with an alarming increase in truancy rates made the news headlines earlier this year (Bay of Plenty Times, 19/4/07), with the reported figure of nearly 4,000 students a year being granted early leaving exemptions by the Ministry of Education. These are concerning issues, particularly in light of the

current commitment of the Ministry of Education to ensuring students have the necessary skills and attributes to become lifelong learners (Ministry of Education, 2006).

I believe that this action research project is timely. The positive outcomes associated with MI-informed teaching practices, as reported in the research literature, fit closely with Alton-Lee's (2003) research-based characteristics of quality teaching, which she identified as important factors in achieving high quality outcomes for diverse students. This project will help address the lack of New Zealand-based research regarding MI theory, particularly in the secondary school context. It aims to provide an insight into the real world of the junior secondary school classroom, and hopefully, a more soundly based understanding of the secondary school context – the organisational values, goals, structures and relationships that underpin, enhance and/or constrain effective classroom practice. As a small scale, qualitative research project, it will help lay the groundwork and identify possible directions for further research.

My principal aim, as I go into the research setting, is to establish a non-judgmental, open and constructive relationship with the group of teacher-participants and I am hopeful that the different educational perspectives that we will bring to the research process will be of value to all participants. The project will also provide a vehicle for intensive personal professional development for the participating teachers, who are interested in exploring MI theory and its implications for learning and teaching, and who through the research cycle of collaborative planning, implementation, review and reflection, will have the

opportunity to examine their personal educational philosophies and existing practices, with a view to improving and extending their teaching practice.

CHAPTER 2: THE LITERATURE REVIEW

While MI theory has been embraced by many elementary and some middle schools, acceptance is rarer in high schools. This fact is puzzling because most comprehensive secondary programs [sic] have courses in all intelligences and teachers who can be identified as intelligence experts by the subjects they teach. (Campbell & Campbell, 1999, p. 63)

2.1 Background to the theory of multiple intelligences

In 1983, when Howard Gardner first published his theory of multiple intelligences (hereafter MI theory) in his book *Frames of Mind*, he had no idea of the tremendous impact it was to have on the field of education (Gardner, 2004a). Written primarily for psychologists as a critique of standard intelligence theory, the book was provocative and, as expected, generated criticism, particularly from the psychometric community (Fasko, 2001; Klein, 1997; Willingham, 2004). What was not expected, however, was that MI theory struck a chord with teachers across the world. Twenty years later, *Frames of Mind* had been translated into 13 languages, with over 300,000 copies sold world-wide (Viadero, 2003). Although it included virtually nothing about school curriculum, teaching strategies or teacher development, MI theory provided a philosophical framework that helped teachers make sense of the vast range of individual difference that they encounter daily in their classrooms, as well as a structural framework to help them develop programmes which might better meet the differing needs of their students.

MI theory originated from Gardner's work with brain damaged patients at a Boston hospital, where he noted that injury to different parts of the brain resulted in different types of impairment. At the same time he was researching the

cognitive development of gifted and non-gifted children at Project Zero, a Harvard University research programme. His work led him to question the limitations of the existing psychometric view of intelligence, which held that individuals had a genetically-based, single, fixed 'general intelligence factor' (g), which could be numerically measured and ranked by IQ test scores. Building on the earlier work of Thurstone, who first proposed a pluralist theory of intelligence in the 1930s, positing seven 'vectors of the mind', Gardner's research led him to propose that the human brain is in fact a series of relatively independent faculties.

> The daily opportunity to work with children and with brain-damaged adults impressed me with one brute fact of human nature: People have a wide range of capacities. A person's strength in one area of performance simply does not predict any comparable strength in other areas. (Gardner, 1999, p. 31)

As a basis to his theory, Gardner (1983; refined in 1999) defined intelligence as "a biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture" (p. 33). His definition regards intelligence in terms of what people can do or create in real-life situations, in direct contrast to the abstract nature of 'g', and suggests that as a potential, it may or may not be activated or realized, depending on many personal, societal and cultural factors. Gardner drew upon findings from the fields of evolutionary biology, anthropology, developmental and cognitive psychology, neuroscience, psychometrics, the arts and humanities, making cross-cultural comparisons, to establish the following eight criteria, which needed to be met for an intelligence to be classified as such:

1. Potential of isolation by brain damage
2. Evolutionary history and plausibility

3. An identifiable core operation or set of operations
4. Susceptibility to encoding in a symbol system
5. A distinct developmental history, with a definable set of expert 'end-state' performances
6. Existence of savants, prodigies and other exceptional individuals
7. Support from experimental psychological tasks
8. Support from psychometric findings

(Gardner, 1999)

In *Frames of Mind* Gardner identified seven distinct intelligences – Linguistic, Logical-Mathematical, Musical, Bodily-Kinesthetic, Spatial, Interpersonal and Intrapersonal – adding an eighth, the Naturalist intelligence, in 1995 (see Figure1).

A ninth intelligence, the Existential intelligence, which is defined as the human capacity to question fundamental issues about existence, while meeting most of the criteria, has not yet been endorsed due to a lack of empirical psychological and neurological evidence (Gardner, 1999; Viens & Kallenbach, 2004).

Figure 1. The Eight Intelligences

INTELLIGENCE	DESCRIPTION	CORE OPERATIONS	EXPERT END-STATES
Linguistic	Sensitivity to the meaning and order of words	Syntax, phonology, semantics, pragmatics	Poet, writer, debater, public speaker, etc.
Logical/ Mathematical	Ability to handle chains of reasoning and to recognise patterns and order	Number, categorization, relations	Mathematician, scientist, philosopher, computer programmer, logician, etc.
Musical	Ability to create, communicate and understand meanings made out of sound	Pitch, rhythm, timbre	Composer, musician, conductor, choreographer, etc.
Spatial	Ability to perceive visual or spatial information, and to re-create or transform aspects of that information from memory	Accurate mental visualization, mental transformation of images	Artist, sculptor, photographer, architect, designer, inventor, etc.
Bodily/ Kinesthetic	Ability to use the body to communicate and solve problems, and to handle objects skilfully	Control of one's own body, control in handling objects	Athlete, actor, dancer, surgeon, craftsperson, etc.
Naturalist	Ability to distinguish among, classify, and use features of the environment	Recognition and classification of objects in the environment	Farmer, geologist, gardener, botanist, zoologist, meteorologist, archaeologist, etc.
Interpersonal	Ability to understand people and relationships	Awareness of others' feelings, emotions goals, motivations	Counsellor, teacher, salesperson, politician, etc.
Intrapersonal	Self-understanding, and ability to draw on self-knowledge to make sound decisions	Awareness of one's own feelings, emotions, goals, motivations	Therapist, entrepreneur, goal setter, reflective thinker, spiritual leader

(Adapted from Chalfen, 1997; Viens & Kallenbach, 2004)

2.2 Review of the literature

Because it was developed as a theory of the mind, and not as an educational intervention, Gardner addressed only a few pages in *Frames of Mind* to the educational implications of MI theory, leaving it to professional educators to interpret in terms of what should be taught, and how it should be taught and assessed. Consequently, hundreds of books, articles, videos and workshops, which interpret, and sometimes misinterpret, the theory in terms of suggested classroom applications have been created (Gardner, 1999; 2004a; 2004b). There is a vast body of literature pertaining to MI theory, much of it written by educators

for educators, offering practical applications of the theory in classroom programmes, with a view to improving student learning. A range of these books are included in Appendix A. These works may include an extensive coverage of the theory, but include little or no criticism (Willingham, 2004). They are generally written for the primary school setting.

For the purposes of this project, the literature regarding MI theory has been reviewed to ascertain whether MI applications have been found to be associated with improved student outcomes and other positive changes in the secondary school setting, and if so, to ascertain the reasons why the theory, which has found such a ready audience amongst primary school educators, has had very limited influence in secondary school settings.

Of central importance to this review is a recent body of literature which collates the findings of comprehensive and soundly based research undertaken in a diverse range of educational settings (Campbell & Campbell, 1999; Kallenbach & Viens, 2002; Kornhaber, 2004; Kornhaber et al., 2004). These investigations go some way towards answering criticisms by the psychometric community concerning the lack of valid and empirical data supporting claims of educational benefits associated with MI (Fasko, 2001; Klein, 1997; Willingham, 2004). However, it is also noted that the researchers involved in these investigations are all strong advocates of MI theory, with their work endorsed by Gardner.

The vast majority of the work is American in origin, with some from Canada. No New Zealand studies were located in the course of the review, although the results

of an Australian survey (Vialle, 1997) and case study (Bounds & Harrison, 1997) are included.

2.3 Outcomes associated with MI-based practice

2.3.1 Academic improvements

The most comprehensive investigation to date is the Schools Using MI Theory project (hereafter Project SUMIT), which involved 41 diverse schools from 18 different American states and one Canadian province, all of which had been implementing MI theory for more than three years. Results from this study found that 78% of schools reported improvements in standardised test scores, 49% of schools associating this improvement with MI. In addition, 80% of schools reported improvements for students with learning differences/disabilities, 78% associating this improvement with MI. Seven of these schools were high schools or junior high schools, the remainder primary schools (Kornhaber et al., 2004). However, Willingham (2004) questions the statistical basis of these findings, and criticises the lack of a control group in the investigation to provide a comparison to other schools in their districts. He also notes that because of the complexity of educational practice, it is impossible to precisely attribute improvements to MI and not some other intervention.

The results of Campbell and Campbell's (1999) in-depth case study investigation, which involved six American schools that had been implementing MI for at least five years, suggest that students in these schools had "made significant gains as measured by respected standardised tests, state assessment tests, and anecdotal comments from informed educators" (p. 7). Their study included two junior high schools and two high schools. Significantly, Campbell and Campbell also found

that the disparity among white and minority student achievement in these schools was reduced or eliminated. Four of the six sites involved in this study, had 50% or more minority students, with three of the schools having a high proportion of students living in poverty.

An action research study in 2001, involving 650 students and 23 foreign language and ESL teachers from eight American states, Germany and Australia, found that students in experimental groups receiving MI-based instruction outperformed those in control groups, in which instruction was mostly teacher-centred, and relied heavily on rote learning and memorization, with no co-operative learning and hands-on activities (Haley, 2004).

2.3.2 Affective outcomes

Latham (1997) argues that using standardised scores in isolation to quantify students' gains is against the whole purpose of MI theory, maintaining that the reaction of students to an MI-based curriculum, and changes in teaching practices are of more significance. Project SUMIT found that 81% of schools reported improvements in student discipline, 54% of the schools associating this improvement with MI. One primary school in a low socioeconomic area in the study reported a decrease of 50% in in-school suspension referrals (Kornhaber et al., 2004). Similarly, teachers involved in the MI-based second language action research study referred to in the previous section, found that behaviour problems were minimised, and students in MI-based classrooms reported a higher degree of satisfaction and more positive attitude toward their second language study, than those in the control groups (Haley, 2004).

The research literature included numerous reports of improved student motivation as a result of an MI approach, as well as reports that students are likely to participate more fully in class, and to demonstrate improved confidence and a greater sense of competence, when they are given the opportunity to use their areas of strength (Campbell & Campbell, 1999; Emig, 1997; Goodnough, 2001; Lambert, 1997; Simeone, 1995; Smagorinsky, 1995; Sweet, 1998; Weber, 2005).

Furthermore, studies suggest that providing students with the opportunity to reflect on their own intelligence profiles can lead to improved self-understanding and a greater sense of control of their own learning, which in turn can lead to improved self-management (Bounds & Harrison, 1997; Long & Bowen, 1995; Shearer, 2004). Viens and Kallenbach (2004) also suggest that this practice can help students identify effective learning strategies and is valuable for career exploration.

2.3.3 Changes in teaching practices

Research studies also suggest that in implementing MI, teachers are likely to undergo personal change themselves. One of the most significant changes noted is the positive influence of MI theory on teacher beliefs about intelligence, instruction and student achievement. Studies propose that teachers who understand and agree with MI theory are likely to believe that students are intellectually competent in multi-faceted ways. They also suggest that these teachers become astute observers of students, with the ability to adjust their instruction accordingly (Campbell & Campbell, 1999; Shearer, 2004). While the literature proposes that MI theory can affirm and extend many teachers' existing

beliefs, studies also note that MI theory can challenge the beliefs of others (Campbell & Campbell, 1999; Goodnough, 2001). In addition, Campbell and Campbell (1999) propose that in MI-based classrooms, teachers' beliefs about students' abilities are more likely to be made explicit, and to be communicated directly to the students themselves.

Shearer (2004) suggests that teachers, as well as students, benefit from completing their own MI profile, as this helps them to reflect on the impact this may have on their teaching practices, can lead to enhanced relationships with students, and can also help teachers develop empathy with students who are struggling.

A shift from teaching and learning, as a teacher-centred activity, to teaching and learning as a student-centred activity, is also reported in the literature. Several studies note a reduction in teacher directedness, with a corresponding increase in student control and initiative (Campbell, 1997; Goodnough, 2001; Kallenbach & Viens, 2002). It is suggested that teachers in schools where MI is being successfully implemented, are more likely to actively seek out the strengths of individual students in order to better engage them in the curriculum (Campbell & Campbell, 1999), rather than relying on broad superficial IQ-based ability grouping (Shearer, 2004).

As a theory of intelligence, not of education, MI theory does not prescribe educational practice. Accordingly, educators have implemented MI principles according to their own individual interpretations and situations, and many different teaching approaches, generally guided by students' talents and interests,

have resulted (Campbell, 1997). A brief outline of the most common approaches follows:

(a) *Lesson designs*

Teachers use MI theory to plan multiple entry points into lesson content, thus enabling a wider range of students to access the knowledge, concepts and skills of the disciplines (Campbell & Campbell, 1999; Emig, 1997; Evans, 1995; Goodnough, 2001; Simeone, 1995). Similarly, multiple exit points allow students to use their strengths to demonstrate their understanding of a topic (Campbell, 1997; Simeone, 1995; Smagorinsky, 1995, 1996; Viens & Kallenbach, 2004). Gardner (2004b) cautions that misinterpretation of MI theory can lead to MI-based lessons "scoring higher on the enjoyment dimension than on the dimension of complex thought processes" (p.215). When MI becomes the goal, rather than the means to help achieve educational goals, teachers may include superficial intelligence-based activities which water down standards, rather than enabling richer learning across the student population. This is a common criticism of MI theory (Fasko, 2001; Kornhaber et al., 2004)

(b) *Curriculum integration*

The research literature includes numerous examples of MI theory being used as a framework for curriculum integration, with a view to providing a variety of learning activities relating to a central topic. These activities are designed to engage students' different intelligences so that diverse students are more likely to be able to access lesson content. However, while interdisciplinary integration is popular in the primary school setting (Campbell & Campbell, 1999), it is much less common in secondary schools due to the organisation of disciplines as

separate and isolated identities (Weber, 1996). Nevertheless, both Weber (1996) and Campbell (1997) cite examples of successful MI-based interdisciplinary instruction in secondary school settings. As an alternative, Weber (1996), who writes specifically for the secondary school context, suggests that MI-based curriculum integration need not be interdisciplinary. Working within a discipline, the mandated curriculum can be organised around one central theme and in this way act "as a springboard to deeper understanding" (p. 82). Hearne and Stone (1995) suggest that, unlike primary schools, secondary schools are in the position of having specialist teachers of art, music, drama, dance and physical education, who can help other teachers integrate these disciplines into traditional academic subject areas.

(c) *Projects*

MI theory's definition of intelligence, with its focus on problem solving and product-making, offers a practical, real-world view of intelligence which is in direct contrast to the abstract nature of 'g', which is measured by IQ tests (Kallenbach & Viens, 2002). Accordingly, MI-based classroom programmes have been noted for their use of problem-based curricula and projects that simulate real world activities, and provide students with the opportunity to pursue independent projects of personal interest. Reports suggest that this approach can make learning more authentic, meaningful and relevant to students, and can promote self-directed learning and the development of self-management skills (Bounds & Harrison, 1997; Campbell, 1997; Kallenbach & Viens, 2002; Lambert, 1997; Weber, 1998).

(d) *MI as content*

Teachers propose that the inclusion of MI theory as lesson content, and as a basis for students to reflect on and identify their own individual strengths, needs and preferences, can help resistant students, and improve their sense of self-efficacy and career aspirations (Campbell & Campbell, 1999; Kallenbach & Viens, 2002; Lambert, 1997; Shearer, 2004).

(e) *Talent development*

Research suggests that teachers who are implementing MI-based programmes are more likely to notice students who exhibit special abilities in diverse areas (Baum, Viens, & Slatin, 2005). In order to nurture students' talents, and assist them on their developmental journey from novice to expert in a particular domain, the provision of curricular time for student-selected interests is reported as another common feature of MI-based programmes. A variety of approaches are noted in the literature. These include specific 'acceleration classes', in-school clubs, the provision of specific experiences, apprenticeships and mentoring programmes (Baum et al., 2005; Bounds & Harrison, 1997; Campbell, 1997; Campbell & Campbell, 1999).

2.3.4 Changes in organisational practices

Campbell and Campbell (1999) suggest that as a result of implementing MI, "schools change as much as those who work within them change" (p. 8). In the course of their three-and-a-half year investigation, Kornhaber and her colleagues (2004) identified and documented a number of fundamental practices common to schools which associated MI with benefits for students, namely:

(i) **Culture: a supportive environment for educating diverse learners**

The school environment is notable for a belief in students' strengths and potential, advocacy of care and respect among all members of the school community, a belief that learning is exciting, and a culture of dedication and hard work on the part of teachers, as they strive to meet the needs of their diverse learners.

(ii) **Readiness: awareness building and preparation before implementation**

Schools in Project SUMIT had taken time to introduce and explore MI theory and other new ideas with teachers prior to requiring them to implement MI in classrooms. This process typically took a year or more. Schools reported using a variety of approaches in order to develop teachers' awareness. Leaders in Project SUMIT schools were also likely to encourage teachers to implement MI at a rate that was comfortable for them, which was based on the understanding that teachers are likely to be at varying points along a continuum of experience with MI theory.

(iii) **Tool: MI theory is a means to foster high-quality student work**

In schools successfully implementing MI theory, it is used as a route to promote students' skills and understanding of curriculum, rather than as an end in itself, or as an additional piece of the curriculum. However, Kornhaber and her colleagues noted that when Project SUMIT schools began using MI, they were at first likely to try to adapt their work to fit with the theory. For example, curriculum, classroom learning centres, or school periods might be labelled with the different intelligences. Within a couple of years, however, as teachers' understanding and experience with the theory developed, most schools reported that they rethought this approach, and began to use MI theory as a means to help diverse students

achieve learning objectives, by drawing on several, but not necessarily all intelligences in substantive ways, with a view to enabling their students to achieve high quality work.

Project SUMIT schools were also found to use MI as a tool in a variety of different ways, which related to each faculty's and individual teacher's interpretation of the theory, and how they felt it might assist them in achieving the learning goals they held for their students. For example, some schools emphasised the development of the intrapersonal intelligence, in order to develop students' self-awareness and self-management skills, while other schools placed equal emphasis on the development of all eight intelligences.

(iv) **Collaboration: informal and formal exchanges**

Kornhaber and colleagues suggest that in schools where MI theory is associated with benefits for students, recognition is likely to be given to the idea that teachers, as well as students, have their own profiles of strengths and weaknesses. A supportive, collaborative school culture, which encourages teachers to readily share ideas, provide each other with constructive suggestions, and complement their own areas of strength by drawing on the knowledge and strengths of others, is common. Collaboration can be on a formal basis, for example, by employing specialist art and music teachers to work alongside regular classroom teachers; or through informal collaboration, where teachers may choose to work collegially to assist each other to develop effective MI-informed classroom programmes.

(v) **Controlled choice: meaningful curriculum and assessment options**

MI-informed classroom programmes are reported to be likely to provide students with options for learning and for demonstrating their knowledge, which are meaningful to both the student and the wider society. This is based on the belief that by providing diverse students with a choice of MI-based learning activities, their constructive engagement in their learning is likely to be fostered. It is also suggested that these choices enable students to draw on a range of intelligences to build their understanding of lesson content. Project SUMIT results emphasise the importance of teacher guidance and control of student choice, as teachers endeavour to build students' confidence and abilities in identified areas of weakness, and to ensure an appropriate level of challenge is provided.

(vi) **Arts: a significant role in the life of the school**

The arts were found to play a vital role in nearly all Project SUMIT schools. MI theory proposes that Musical intelligence and Visual-Spatial intelligence, which is fundamental to the visual arts, are both key means of solving problems. While many Project SUMIT schools emphasise the importance of learning in art as a separate discipline, the arts are also used as a means of developing students' skills and understanding in other curricular areas. Teachers in Project SUMIT schools propose that learning experiences that involve the arts can powerfully engage students.

The research literature suggests that a number of schools that embrace MI theory emphasise the development of students' personal intelligences, with the aim of them better managing their social and academic behaviours (Campbell & Campbell, 1999; Hoerr, 1996). Another reported organisational development is an improved level of parental participation, which is a factor that has been

associated with increased student achievement (Campbell & Campbell, 1999; Kornhaber et al., 2004; Vialle, 1997; Weber, 1996). Kornhaber and colleagues (2004) suggest that MI fosters increased parental participation because the theory validates the thinking and skills found across a wide range of real-world roles and occupations, and schools may often incorporate these roles into the curriculum.

2.3.5 Changes in assessment practices

Teachers often express frustration with the limited forms of recognition available to students in traditional curricula where linguistic and mathematical skills dominate (Campbell & Campbell, 1999; Gardner & Hatch, 1990; Hearne & Stone, 1995). The diverse nature of MI-based assessment, which includes performance-based measures, traditional tests, feedback from numerous sources and active student self-assessment, can address this concern (Campbell & Campbell, 1999; Weber, 1996). In the MI context, assessment is viewed not just as an end-product, but also as an episode of learning (Fasko, 2001). It is proposed that performance-based assessment, which requires students to demonstrate their knowledge in different ways and 'real-world' contexts, better qualifies them to excel in real-life situations beyond school (Eisner, 1999; Gauld, 1996; Weber, 1998, 1999). However, Eisner (1999) points out that performance assessment, while better providing for the assessment of individuals, does not provide global comparative data which enables schools, classrooms and students to be compared, which is a strong motive behind the standards movement.

Smagorinsky (1996, p. 13) argues that there is a strong cultural bias in traditional secondary schools that undervalues practical work as compared to academic work,

"placing it in the realm of 'handedness' instead of the supposedly loftier 'headedness'". As a result of his series of studies on high school students' composing processes, Smagorinsky proposes that unconventional composing processes enrich students' school experiences. For example, students who interpret literature by drawing, dancing or acting develop new ideas and insights about that literature, and also construct meaning through further reflection and reconsideration of their ideas behind their interpretation. His viewpoint is supported by Eisner (1999, p. 658):

> Each of the forms of representation that exist in our culture – visual forms in art, auditory forms in music, quantitative forms in mathematics, propositional forms in science, choreographic forms in dance, poetic forms in language – are vehicles through which meaning is conceptualized and expressed. A life driven by the pursuit of meaning is enriched when the meanings sought and secured are multiple.

2.4 Reasons for adoption of MI theory

Kornhaber (2004) collates the results of various studies to reveal a well-defined set of reasons for the adoption of MI theory in both individual classroom and school-wide settings, including pre-schools, primary and secondary schools:

(a) MI theory validates what educators already know.

(b) MI theory complements educators' existing philosophies and beliefs.

(c) Educators already use some practices that fit with the theory.

(d) MI theory provides a framework for organising educators' practice.

(e) Educators report that MI theory helps extend their practice.

The motives expressed by individual teachers in various secondary school case-studies included in this review echo the above findings (Goodnough, 2001; Lambert, 1997; Smagorinsky, 1995; Sweet, 1998; Vialle, 1997), although one science teacher remarks that his student-centred beliefs about science teaching and learning "did not translate into practice" (Goodnough, 2001, p. 180). He was motivated to take part in the action research, as he believed it would enable him to offer his students "a more student-centred, engaging science curriculum that catered to individual learning needs" (p. 180).

Campbell and Campbell (1999) report that half of the schools in their study were primarily motivated to adopt MI due to concerns for lagging student achievement. The fact that MI theory is not educationally prescriptive, and gave schools freedom to create educational programmes that best suited the needs of their students and community, was also part of its appeal.

2.5 Barriers to MI implementation

In assessing the impact of MI theory on schooling over the past 20 years, Cuban (2004) claims that the theory has had the greatest influence on educators' beliefs and talk about differences in students' intelligence, moderate to high influence on curricular and instructional materials, and least influence on mainstream teaching and assessment practices. He believes historically entrenched structures, hierarchies and cultures, reflecting larger cultural values, play a large part in shaping what teachers do in their classrooms, and are resistant to change, a powerful effect which he claims is generally overlooked by educational reformers. As an example of an entrenched structural barrier, the isolated disciplinary structure of secondary schools makes interdisciplinary collaboration of teachers a

very difficult task (Weber, 1996). Smagorinsky (1995) argues that in the entrenched culture of the secondary school "writing has established exclusive rights 'as a unique mode of learning'" (p. 25) in the English/language arts classroom. Non-written interpretations of life and learning are not valued - another powerful barrier to MI implementation.

However, Kornhaber's (2004) research challenges Cuban's claim. Based on her findings that teachers already had practices and beliefs that aligned with the theory, and that MI does not prescribe any particular practices, she initially hypothesized that MI makes no difference in practice. "Teachers might simply say they 'did MI', while actually doing whatever it was they had always done" (p. 69). However, her analysis revealed that each of the three schools in the study extended or changed their practices in two or more of the four areas: curriculum, assessment, pedagogy and school structure. Kornhaber found that the extent to which change occurred was related to the kind of practice that existed in the school prior to the adoption of MI.

Lack of acceptance by teachers and administrators, who become cynical about too many passing fads in education, presents another barrier to MI implementation (Shearer, 2004). Weber (1998) argues that many educational reforms are ineffective and short-lived, because they are superficially introduced, without challenging teachers' fundamental beliefs. If teachers' mental models of teaching and learning do not change, teaching strategies will ultimately end up as "business as usual" (p. 64).

> … educational leaders must work with their staffs for a long period of time to bring to the surface and examine everyone's individual

> mental model before they can be pulled into alignment and sustained action can be taken to change the culture of the school. (Bolanos, 1996, p. 27)

Campbell and Campbell (1999) suggest that insufficient emphasis is given in teacher training programmes to the philosophical and theoretical nature of intelligence and human potential. As a result, teachers are left to create their own implicit beliefs about students' learning potential. These beliefs may be optimistic or pessimistic, they are usually unconscious, and may work against students' welfare (Campbell & Campbell, 1999). Weber (1998) proposes that the culture of the secondary school does not encourage or support teachers "to raise critical questions or to seek quality responses" (p. 63). It has been found that prior to successful MI implementation, sufficient time and effort must be directed towards building staff understanding of MI theory and its implications for learning and teaching (Bolanos, 1996; Campbell & Campbell, 1999; Kornhaber et al., 2004). As Weber (1998) points out, "changed attitudes usually precede reformed practices" (p. 64).

The extra workload and time commitment required in planning and implementing multi-modal lessons, as well as collaborative team-planning for school-wide or interdisciplinary programmes, is suggested as another reason for lack of acceptance by staff (Campbell & Campbell, 1999; Hoerr, 2000; Kornhaber et al., 2004; Viens & Kallenbach, 2004). In the early stages of implementation, successful MI schools provided for teacher-release time and teacher-only days to accommodate this extra burden on teachers (Campbell & Campbell, 1999). Coupled with the demands for curriculum coverage, and state assessment requirements, the literature suggests that teachers may simply find it easier to

continue prescriptive, teacher-centred practices (Viens & Kallenbach, 2004; Weber, 1998).

Shearer (2004) claims that a lack of acceptance by students, particularly those who have become disengaged from the learning process, is another barrier to MI implementation. Research suggests that students form their own beliefs about the nature of secondary education and may feel that projects and 'hands-on' learning activities are condescending to their intelligence (Gardner, 2004a; Viens & Kallenbach, 2004). Therefore, it is suggested that students, as well as teachers, should be given the opportunity to explore their values and beliefs about intelligence and learning, if the introduction of MI-based programmes is to improve student outcomes (Smagorinsky, 1995). In addition, Viens and Kallenbach (2004) suggest that if students understand the connection between MI-based activities and their learning goals, they are more likely to accept MI-informed approaches.

Finally, Eisner (1999) argues that criteria for admission to university, which are reflective of social class advantages, affect secondary school practices in the most conservative of ways, which create further barriers to MI implementation and other curriculum innovations.

2.6 Conclusion

The literature supports the claim that MI theory is associated with a number of positive outcomes in the secondary school setting:

1. **For Students**

    (a) Improved academic outcomes, including for minority students and students with learning disabilities

    (b) Improved student motivation and participation

    (c) Improved self-confidence, self-efficacy and self-management

2. **For Teachers**

    (a) Positive influence on teachers' beliefs about intelligence, instruction and student achievement

    (b) Enhanced student/teacher relationships

    (c) Change from teacher-centred to student-centred practices

    (d) MI theory organises and extends teachers' practice

3. **For Schools**

    (a) Development of a supportive school culture

    (b) Framework for school-wide professional development

    (c) Improved collegiality

    (d) Improved parental participation

Creating and delivering classroom programmes is a complex and creative process. Experienced teachers can draw on many different teaching strategies and approaches, which means it is difficult to make valid or reliable judgements about a particular pedagogical model (Alton-Lee, 2003). The fact that MI theory is only one of many influences on teaching practice must be kept in mind when considering this review of the research literature. For that reason, criticisms of the statistical basis of these findings included in the review are acknowledged. Most of these investigations do not include control groups for comparison,

although the very complexity of the learning/teaching process may in fact make the use of control groups questionable.

Many of the findings included in this review are from single case studies or action research projects. While the sample size in these studies may be small, they provide rich detail about the complexities of the learning and teaching process in diverse contexts which have valid implications for teaching practice. In terms of research quality, the consistency of the findings across the literature gives an indication of their validity.

The literature identifies a number of powerful barriers which may explain the low levels of MI implementation at secondary school level. These barriers fall into two main categories:

(a) Entrenched structures, hierarchies and cultures

(b) Insufficient emphasis given to the philosophical and theoretical nature of intelligence and human learning potential, both in pre-service training, and within the school setting

The review of the literature has provided clear justification for undertaking this research project, as well as an idea of themes that are likely to emerge from it. It has also established important background understandings which will help frame the overall research design, which is detailed in the next chapter.

CHAPTER 3: METHODOLOGY

> **Interpretive epistemology focuses on social practices, assuming that all human action is meaningful and hence has to be interpreted and understood within the context of social practices. (Usher, 1996, p. 18)**

3.1 Introduction

This chapter outlines the context of the research project, and the background to the formulation of the research questions. The philosophical framework underpinning the design of the project is included, and the chapter also details in practical terms, how the research was conducted, including methods of data collection and analysis. Other sections include the researcher's personal theory of practice, and the issues of validity and reliability of the research.

3.2 The context of the research

As outlined in the opening chapter to this thesis, I became interested in MI theory nine years ago, when as a primary school principal, I led my staff of six teachers on a collaborative journey of professional development over five years, as we successfully implemented MI theory to the point where it became a fundamental aspect of the school philosophy. During this time I undertook considerable personal reading and study, attended numerous conferences and courses relating to MI implementation, culminating in attending Project Zero, a summer institute at Harvard University, which is co-directed by Howard Gardner.

Despite the fact that the research literature suggests that MI applications in secondary school settings have been found to be associated with a wide range of

positive outcomes, and its ready acceptance by many primary school educators, MI theory continues to have little impact on secondary school practice.

The aim of this research project, therefore, is to establish a collaborative research group of secondary school teachers, who are interested in exploring MI theory and its implications for learning and teaching, with a view to developing and implementing MI-based practices in their individual classroom contexts. In documenting this process, the aim is to find out whether an MI-based programme is feasible in a junior secondary school context, and to identify the difficulties and barriers faced by secondary teachers that may impede their endeavours to implement MI into their classroom programmes.

The following research questions provide the focus for this project:

1. Can an MI-based approach to teaching and learning be successfully implemented in a junior secondary school programme?
2. What are the issues that secondary school teachers face when implementing MI into their classroom programmes?
3. What are the best ways to address these issues?

The design of this research project, which is qualitative in nature, must be appropriate for the open-ended complexity of the investigation, and provide for the generation of meaningful data.

3.3 An interpretive paradigm

This research project is based on the assumption that rather than there being a single objective reality as suggested by the positivist paradigm, there are multiple,

socially constructed realities, which form an interconnected whole. These realities cannot be broken into parts, but must be viewed holistically to be understood. If knowledge is constructed by the knower, then it follows that the knower cannot be separated from what is known – the knower and the known are interdependent (Maykut & Morehouse, 1994).

In line with these beliefs, this research is based on the importance of language, and how it shapes, and is itself shaped, by the experiences of those who speak it. People use words to interpret and create their world. Language has a cultural dimension as it enables links with people both within and across cultures (Erlandson, Harris, Skipper, & Allen, 1993). The task for interpretive researchers is to discover patterns within people's words and actions, and in presenting their findings, they endeavour to stay as close as possible to the construction of the world as the participants originally experienced it (Maykut & Morehouse, 1994).

With the understanding that true objectivity is not possible in a social context, due to the complexity of human nature and social phenomena, the interpretive researcher becomes the central instrument for data collection and analysis, utilising the human capacity for interaction, flexibility and analytical thinking (Erlandson et al., 1993). In order to gain a better understanding of "the whole, the essence, through the use of his or her senses" (Erlandson et al., 1993, p. p. 109), the interpretive researcher uses a variety of data collection methods, such as interviews, observations and document analysis. Based on the idea that the complexity of many social phenomena is not reducible to simplistic interpretations, 'thick descriptions' of contextualised behaviour are favoured (Cohen, Manion, & Morrison, 2000). The use of quotes provides an authentic

representation of research participants' social world from their perspective, and allows readers to determine whether the participants' perspectives are congruent with the researcher's interpretation of events (Davidson & Tolich, 1999).

Interpretive researchers reject the stance of the detached, objective observer, arguing that social context and individuals' behaviour within that context can only be understood by sharing that context. As Cohen and colleagues (2000, p. 20) point out, "understanding of individuals' interpretations of the world around them has to come from the inside, not the outside". Interpretive research is therefore a perspectival undertaking, recognising that individuals and social actions are unique, and mostly unable to be generalised, and also that there may be many interpretations of a single event or situation. Based on this research paradigm, knowledge is concerned "not with generalisation, prediction and control, but with interpretation, meaning and illumination" (Usher, 1996, p. 18).

The aim of this research project is to follow the progress of four individual teachers as they endeavour to implement MI-based programmes in their junior secondary school classrooms, with a view to developing an understanding of their personal beliefs about learning and knowledge, their goals for themselves and their learners, the constraints that they face as they go about their work in their different classroom contexts and within the wider context of the school, and the way that their beliefs and practices may change as a result of their experiences.

An interpretive approach within a qualitative research framework is appropriate due to the exploratory and descriptive nature of this research project (Yin, 2003). To preserve the perspectives of the individual teachers and the significance of the

contexts within which they work, a case study approach within an action research framework has been selected as most appropriate.

3.4 An action research framework

> Educational action research is a term used to describe a family of activities in curriculum development, professional development, school improvement programs, and systems planning and policy development. These activities have in common the identification of strategies of planned action which are *implemented*, and then systematically submitted to *observation, reflection and change.* Participants in the action being considered are integrally involved in all of these activities. (Carr & Kemmis, 1986, pp. 164-165)

This project involves teachers in implementing MI-based curriculum innovations in their junior secondary school classrooms. It is essentially an investigation of teachers' practice in action. The research process will involve teachers in monitoring and reflecting on their actions, and using new understandings to inform future action. The four basic characteristics of action research as suggested by Burns (2000, p. 444) are evident in the design of this project:

1. Action research is *situational* – diagnosing a problem in a specific context and attempting to solve it in that context.
2. It is *collaborative*, with teams of researchers and practitioners working together.
3. It is *participatory*, as team members take part directly in implementing the research.
4. It is *self-evaluative* – modifications are continuously evaluated within the ongoing situation to improve practice.

The effectiveness of an action research approach as a constructivist model of professional development is well documented (Burns, 2000; Cohen et al., 2000; Costa, 1999; Kallenbach & Viens, 2002; Robertson, 2000). The action research model provides a structured, yet open-ended approach for participating teachers to develop their personal understanding of MI theory through making new information relevant to their own situations, by developing and trying new approaches, by reflecting on the results of this process, and questioning their beliefs about intelligence and learning and teaching. Action research is particularly appropriate in the context of learning about MI theory, which as a theory of intelligence, does not prescribe educational intervention, but instead leaves teachers free to implement MI principles in order to fit the needs of their particular contexts and for particular content (Kallenbach & Viens, 2002). Robertson's (2000) action research project working with a group of New Zealand principals investigating the effectiveness of a professional development model found that three concurrent strands of action research cycles were evident within the study:

(a) Action research for research and creating knowledge;

(b) Action research for action and utilisation of the knowledge; and

(c) Development of participants' critical awareness as an outcome of the process.

While a primary goal for adopting an action research approach is the professional development of the participating teachers, I am also aware that by empowering them to become generators of professional knowledge, and by helping them develop their critical awareness of their educational situations with a view to making improvements, an action research approach also has the potential to bring

about change on a wider scale, if it leads to an increase in teachers' awareness and influence over school-wide policy (Burns, 2000). As Carr and Kemmis (1986, p. 196) propose, "a critical educational science aims to identify and expose the contradictions between educational and institutional values".

The role of the researcher in participatory action research, the nature of the researcher-participant relationships, and the researcher's personal theory of practice are all important factors to be considered in the research design. They will of necessity reflect the goals and philosophical viewpoint underpinning the research project. These issues are detailed over the next few pages of this chapter.

3.5 The case study approach

Yin (2003, p. 13) describes a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident". In accordance with Yin's definition, the contextual conditions within which teachers work are highly pertinent to the aim of this project, which is seeking possible explanations for the general lack of acceptance of MI theory by secondary school educators. Context has been found to influence both the intentions and classroom actions of the teacher (Sugrue, 1997).

A multiple-case study approach has been chosen as most appropriate for the purposes of this investigation as this will provide a depth of information about the teachers' different teaching contexts, their individual backgrounds, their beliefs and practices, and their particular hopes and goals for themselves and their students. It provides a means of illustrating the complexity of teachers'

situations, as they interact with their students, the curriculum, their colleagues and their school environment, while also being flexible enough to accommodate the open-ended and evolving nature of this investigation. Burns (2000) proposes that as a research strategy, "the case study allows an investigation to retain the holistic and meaningful characteristics of real life events" (p. 460).

Yin (2003) describes the case study as a comprehensive research strategy, which includes the logic of design, data collection techniques, and specific approaches to data analysis. These features are detailed in the remainder of this chapter.

3.6 The role of the researcher

Coming from a background in primary education, the secondary school context was unfamiliar to me. In this respect I entered the research context as a learner, seeking to develop my understanding of the secondary school setting – the fundamental beliefs, goals and constraints that underpin secondary classroom practice. To achieve this, I set out to establish non-judgmental, open and constructive relationships with the participating teachers, and other staff members I came into contact with during the course of the project at the college. I entered the research relationship with the belief that my different educational background would be of value to the project, as my contributions to group processes would encourage teachers to reflect on their practice from a variety of perspectives. Our different backgrounds offered an opportunity for professional sharing and growth for all participants.

Stenhouse (1975) suggests that issues of power and control in a teacher-researcher relationship can impede the development of teachers' reflective and learning

capacity. He was the first to recommend the idea of a 'critical friend' who works with and supports teachers in action research projects, as against acting as an advisor or consultant in the relationship. Costa and Kallick (1993) define a critical friend as a trusted person who asks provocative questions, provides data to be examined through another lens, and offers critique of a person's work as a friend. As an advocate for the success of the teacher's work, a critical friend takes the time to fully understand the context of the work presented and the outcomes that the teacher is working toward. They suggest that building trust is an essential first step in establishing a critical friendship.

An 'outsider' researcher working alongside a group of teachers over a period of time has great potential as a model of professional development (Robertson, 2000), but can also be problematic, if the respective goals and expectations of the teachers and researcher are not compatible (Burns, 2000). Burns goes on to caution outsider researchers against overly influencing their research projects, suggesting that the cycles of planning, action and review "are tasks primarily for the participants in educational situations who, by their practices, construct and constitute these situations as educational, transform them by transforming their own practices, and live with the consequences of the transformations they make" (p. 456).

The constructivist perspective of the project helped address these potential issues. I wanted teachers to explore MI theory and discover for themselves what it offered them in terms of teaching and learning for their different classroom contexts. In line with Stenhouse's (1975) suggestion, as a critical friend, I aimed to help teachers' maintain their autonomy in constructing knowledge about their

practice, which was more likely to help them acquire more influence in the development of policy in their educational context.

As a researcher who is an advocate of MI theory, I was very conscious of the possibility of exerting undue influence on the outcomes of the project and accordingly, was always mindful of my behaviour. The aim of the project was to investigate whether teachers were able to successfully implement an MI-based approach to learning and teaching in their classrooms, and to identify the constraints that they faced in the secondary school context. If I participated in the project with too much enthusiasm and too much support, I ran the risk of the teachers becoming very dependent on my energy and input, which would artificially enhance the outcomes of the project. It was important to gain a realistic idea of whether teachers would be able to continue implementing MI-based lessons once my input was removed. I wanted them to implement MI for themselves, not for me.

At times during the course of the project, I assumed various roles, some requiring greater degrees of participation than others. For instance, when we were planning classroom programmes, I took an active role as a colleague, contributing my ideas and experience to the discussion. From time to time I also assumed the role of MI expert, in order to clarify teachers' understanding about some aspect of MI theory and possible approaches to its implementation. In an attempt to address possible power and control issues, I regularly made the point to the teachers that while I might be an important MI resource, they were the secondary classroom experts. Secondary school classrooms were outside my usual experience. At other times, and indeed for much of the time during the study, when teachers were reflecting

on their classrooms and school events, I took on the role of listener, as I was mindful of not unduly influencing their words. "Researchers can most benefit a teacher when they lend an ear, not a remedy. What teachers need is the time and space to reflect on their practice so they can come up with their own solutions to problems" (Ulichny & Schoener, 1996, p. 507).

3.7 The researcher's theory of practice

As facilitator of this project, my personal theory of practice regarding MI theory will impact on the way teachers choose to implement MI-based lessons, and accordingly needs to be clarified in advance. MI theory is a theory of intelligence, not of education, which means it is open for different interpretations, and sometimes misinterpretations, as well as different ways it can be used in classrooms (Gardner, 1999, 2004a, 2004b). My own understandings have arisen from an intensive personal exploration of the theory, and on a practical level, through a reflective collaborative process, in which I led a faculty over a period of five years on a school-wide professional development in MI theory.

3.7.1 Key features of MI theory

A number of key features of MI theory have important implications for schools:

(a) *A pluralistic view of intelligence*

Gardner proposes that every individual has a unique profile of at least eight different and relatively independent intelligences, with strength or weakness in one area, not necessarily related to strength or weakness in other areas. He makes the point that the exact number is less important than the concept that intelligence is pluralistic, rather than a single, fixed commodity (Kornhaber et al., 2004). Except in cases of brain damage, intelligences do not operate in isolation in real-

world roles. In life people use their unique blend of intelligences to solve problems or create products of value to the culture. For example, a journalist will require not only well-developed linguistic ability, but also strong interpersonal skills for successful interviewing, and sound logical-mathematical ability to undertake research, structure arguments and weigh up evidence.

(b) *Intelligences are universal*

"An intelligence is a biopsychological potential that is ours by virtue of our species membership" (Gardner, 1999, p. 82). Gardner proposes that except in cases of brain-damage, every individual across every cultural setting possesses all eight (or more) intelligences in a unique profile.

(c) *Intelligence is modifiable*

In direct contrast to the traditional psychometric view of intelligence, which holds that individuals have a genetically-based, single, fixed 'general intelligence factor' (g) that can be numerically measured and ranked by IQ test scores, MI theory proposes that intelligences, while genetically based, can be developed and changed as a result of interaction with the environment. Intelligences may or may not be activated or realised, depending upon the values held and opportunities offered by a particular culture, together with the personal decisions made by individuals and/or their families and other significant figures in their lives (Gardner, 1999). In contrast to the deficit model of IQ-based intelligence which proposes that an individual's intelligence is fixed at birth, MI theory sends a powerful and optimistic message to students and teachers alike, a message that needs to be explicitly conveyed. For teachers, the message is that through their classroom programmes they are able to enhance their students' intelligences, and

in so doing, improve their prospects for success and satisfaction in life beyond school. For students, the message is similarly optimistic. Intelligence is something you can improve through personal effort, thinking about yourself and monitoring your actions (Williams et al., 1996).

(d) *A real-world concept of intelligence*

Whereas IQ, as a measure of 'g', has only been found to be useful as a predictor of school success (Gardner, 1999), MI-theory uses expert real-world roles to illustrate potential end-points in the developmental path of an intelligence, highlighting the need to develop students' critical and creative thinking, problem-solving and product-making abilities for roles beyond school. The benefits of embedding learning in real-world situations become apparent.

3.7.2 Multiple pathways to implementation

MI theory does not prescribe educational practice. It is in effect a mindset to guide and inform effective practice. There is no single right way for the theory to be applied, for different MI-based strategies are suited to achieving different educational objectives. Consequently, educators have implemented MI principles according to their own individual interpretations and situations, in order to meet a diverse range of objectives. In the preliminary MI workshop, teachers were introduced to the Pathways model (Baum et al., 2005) as outlined below, which provides a valuable framework for teachers, proposing five key approaches for implementing MI theory, organised according to educational goals. It is a fundamental reminder to teachers that they must clearly identify educational goals, prior to deciding how MI theory might inform their practices in order to achieve those goals.

1. **Explorations pathway**

The aim of this approach is to expose students to a range of experiences that draw on a variety of intelligences, with a view to getting to know students better, and in the process, identifying their individual strengths, preferences and needs. Explicit instruction about MI theory can be included here, with the objective of developing students' self-awareness, and a better understanding of their own unique intelligence profile. The Explorations pathway is an essential starting point in terms of professional development for teachers aiming to translate MI theory into classroom practice.

2. **Building on Strengths pathway**

This approach suggests drawing on students' areas of strength to enable them to better access lesson content, as well as to support literacy and other skill development. It is in direct contrast to the traditional approach, which tends to restrict learning activities to the Linguistic and Logical-Mathematical intelligences. This approach to learning and teaching requires teachers to plan multiple entry points into lesson content, described by Gardner (1991) as different doors, each leading into the same room.

> By using a variety of MI strategies, we match our instruction to how students are smart. We build multiple bridges onto our curriculum, giving our diverse populations of students equal access to the learning material. We make learning more meaningful and engaging for all students. (Kagan & Kagan, 1998, p. 23.23)

Teachers can draw on their observations gained from their Explorations activities, to develop new ways to successfully engage more of their students in a particular topic or skill. This approach can be targeted to meet the needs of both individual and groups of students.

3. **Understandings pathway**

The pressure on teachers to cover a vast number of achievement objectives in an 'overcrowded curriculum' often results in fragmentation of the learning process, with students gaining only a superficial grasp of concepts, a situation exacerbated by educational programmes that are based on the belief that all students learn in the same way (Baum et al., 2005). MI theory is useful in providing a structural framework to enhance and diversify how topics and concepts can be approached. The Understandings pathway aims to provide students with opportunities to access and understand material more deeply, and to be able to use their strengths to demonstrate their understandings for the purposes of assessment. The use of a variety of powerful 'entry points' has the potential to place students centrally within a topic and more fully engage them, while enabling a wider range of students to access the required knowledge and skills (Campbell & Campbell, 1999). For example, students who enjoy learning topics through stories are likely to be better engaged in a topic introduced through a narrational entry point, whereas those individuals, who are inspired by artistic interpretations, are likely to be motivated by an aesthetic entry point (Gardner, 1999).

Similarly, the use of different exit points to a topic allows students to use their individual strengths to demonstrate their understanding of that topic. Exit points will often involve a performance aspect, requiring students to think about and apply their knowledge of a topic in flexible ways. In this way, students are able to demonstrate their understanding for assessment purposes, while at the same time, having the opportunity to deepen their understanding.

MI theory can also provide a useful framework for curriculum integration, both within and across disciplines, a holistic approach to learning and teaching that can enhance student understanding by enabling them to make meaningful connections within and between topics. Curriculum is best integrated around rich themes, which link to topics that are relevant and of consequence to a school community.

Throughout the course of this project, I emphasised my belief that the development of students' deeper understanding should be a central focus of all learning and teaching programmes. A further aspect of this approach, and a fundamental goal I have as a teacher, is for students to become more effective in critical, creative and caring thinking.

The Understandings pathway suggests the need for educators to consider important big-picture questions, to rethink what is taught, and discard trivial or irrelevant content and activities. Why teach certain topics? What key understandings do we want students to gain from these topics? What will understanding look like? How can MI theory help achieve these goals? How will we know we have been successful? To focus their teaching and add depth to learning, I encouraged teachers to base their units of learning around *throughlines* (Hetland, 1997), which are often posed as essential questions, representing the key understandings they want their students to gain from the unit.

4. **Authentic Problems pathway**

This pathway recognises the real-world focus of MI theory, providing for an authentic enquiry-based curriculum. The expert end-states of different

intelligence areas are recognised, and students may be required to act and think like farmers, poets, environmentalists, engineers, etc., in order to identify and solve real problems, or develop products in authentic or simulated settings. Projects of this nature may be undertaken by individuals, co-operative groups, or by an entire class, with each student contributing to the result. Providing students with the opportunity to pursue independent projects of personal interest has been found to promote self-directed learning and the development of important self-management skills (Campbell, 1997).

While Baum and her colleagues have identified this as a separate pathway, it could also be regarded as a particular aspect of the Understanding pathway, for learning that is linked to real-world contexts becomes more relevant and meaningful, and the thinking processes and skills needed to solve problems and create products will certainly deepen students' understanding of issues. "The highest refinement of any intelligence comes when the ability to problem solve moves from within a topic or discipline to 'somewhere' in real life" (Chapman, 1999, p. 8).

5. **Talent Development pathway**

The focus of this pathway is to identify and nurture student talent, which from an MI perspective, is a broader concept of talent than the traditional focus on the Linguistic and Logical-Mathematical intelligences. In an MI-based classroom where students are given many opportunities to utilise and develop their various intelligences, those with natural strengths in diverse areas are likely to be noticed (Baum et al., 2005). Students may stand out for abilities as diverse as dance and design, entomology and engineering. Teachers are able to use a variety of

approaches to nurture and extend students' gifts, and to assist them on their developmental journey from novice to expert in a particular area. Individual students might be provided with special opportunities to partake in advanced challenges, both within and outside of school. Mentoring programmes offer students powerful opportunities to spend time with, or even work alongside adults who have expertise in particular areas. In addition, schools might set up clubs or special classes, allow curricular time for student-selected interests, or plan specific learning experiences for students, with a view to developing expertise.

Alternatively, another objective of this approach may be to specifically target the development of a particular intelligence area. For example, if weakness in interpersonal ability has been identified, a teacher may deliberately plan for co-operative learning activities, and explicitly teach co-operative skills, to address this need.

In a similar vein to the Explorations pathway, the Talent Development pathway promotes students' self-awareness and personal responsibility for their own learning and talent development.

The Pathways model provides a valuable focus and starting point for MI implementation, but should not be seen as restrictive. Just as our different intelligences work together in complex ways to achieve real-world tasks, the complexity of every-day classrooms will require teachers to utilise approaches from different pathways. For example, teachers will be informally observing their students' strengths and needs on an ongoing basis, a fundamental goal of both the Explorations and Talent Development pathways. While the main approach in a

classroom may be to develop students' understanding, for some students, this may only be achieved by drawing on their strengths to create connections to topic content.

3.7.3 Potential misinterpretations of MI theory

Throughout the course of the project, I drew teachers' attention to some potential misinterpretations of MI theory:

(a) The goal is not to quantify students' different intelligences, but to gather information to build a profile of students' relative strengths and weaknesses.

(b) Labelling students, for example, as 'linguistic' or 'visual-spatial', should be avoided, as this may limit teachers' expectations in a similar way IQ scores have in the past (Gardner, 1999).

(c) MI theory should not be used as a basis to substantiate racial or cultural stereotypes. In fact, it aims to achieve quite the opposite, by highlighting individual differences within groups of people (Viens & Kallenbach, 2004).

(d) In an MI development, there is a risk of MI theory becoming the goal, rather than a means to achieve learning goals. The aim is not to teach everything in eight different ways, as this would result in a superficial muddle of learning and lowered standards, a common criticism of MI (Fasko, 2001). MI theory should be applied to approach a topic in a variety of powerful ways that engage students thoughtfully with lesson content, in order that more students are able to achieve the learning objectives.

(e) Confusion between multiple intelligences and learning styles is a common misinterpretation. Gardner defines an intelligence as a capacity to process information, which is geared to specific domains, whereas a learning style

refers to a general preference as to how information is taken in across all domains (Gardner, 1999).

3.8 The preliminary MI workshop

Teacher participants were required to take part in an initial half-day MI workshop, facilitated by the researcher, prior to the beginning of the school year. The purpose of the workshop was to establish a baseline understanding of MI theory and how it might be implemented in classroom programmes. The workshop included a theoretical component, an introduction to the Pathways model of implementation (Baum et al., 2005), time for discussion, and the opportunity for teachers to be involved as learners in some sample MI-based learning activities. Teachers were also provided with a variety of useful MI resources.

3.9 Professional readings

Teachers were provided with a range of MI resource books and other useful resources at the outset of the project. A basic MI library, as detailed in Appendix H, was left at the school. Throughout the course of the project the researcher also provided readings for the participating teachers, which were specifically selected to meet their differing needs, interests and situations. Readings were chosen with the goal of broadening teachers' outlooks and getting them to consider other possibilities in their teaching. Articles were chosen for their readability and their practical rather than theoretical focus. However, as demands on teachers' time very quickly surfaced as a major constraint for the teachers in the school setting, these readings were kept to a minimum.

3.10 Case study design

The purpose of this study is primarily exploratory. The outcomes of this exploration may lead to the development of a hypothesis as to why MI theory has generally had little impact on secondary school practice, thus laying the groundwork for further enquiry into this area.

A co-educational secondary school provided the wider context for this project. The school was selected as it was readily accessible to the researcher, and also because the principal had expressed interest in his staff being involved in the project. This is a multiple-case study, involving four teachers teaching in Years 7 to 10. Participating teachers needed to be reflective practitioners, who were interested in exploring MI theory and its implications for teaching practice. Yin (2003) suggests that the evidence from multiple cases is often considered more compelling, and the overall study to be more robust, than single-case designs.

An initial approach by telephone was made to the principal by the researcher, providing a general outline of the proposal. In a follow-up meeting with the principal, the project was more fully explained, the principal expressed interest in the school's involvement, and the informed consent form was signed. Teacher participation in the study was to be on a voluntary basis. The principal brought the project to the attention of the staff, with a view to gaining expressions of interest from teachers.

A meeting for interested teachers to learn more about the project was organised. Four teachers attended that meeting, and all four teachers agreed to participate. Informed consent forms were signed. Two were teachers in the intermediate

department, and two in Years 9 and 10. The original intention had been to involve only Year 9 and 10 teachers, as it is already well documented that MI-theory has been very successfully implemented in Year 7 and 8 classrooms. However, in discussing this issue, the principal made the valid point that the teachers in the intermediate department were still working within the culture and structure of the secondary school context. Accordingly, it was agreed that outcomes for intermediate teachers working in the junior secondary school context were relevant to the aims of this study. Detailed descriptions of the participating teachers are included in their individual case studies reported in the next chapter.

3.11 Data collection and analysis

This section details the various methods used to collect data during the course of the project, which included semi-structured, in-depth interviews, unstructured interviews and discussions, classroom observations and a focus group meeting.

3.11.1 Semi-structured, in-depth interviews

> Semi-structured, in-depth interviews promote free interaction and opportunities for clarification and discussion between research participants through the use of open-ended questions rather than closed questions. (Bishop, Berryman, Tiakiwai, & Richardson, 2003, p. 217)

Individual semi-structured interviews were conducted with teacher participants at the commencement of the project to investigate their existing beliefs and understandings about the nature of intelligence and learning, and their approach to learning and teaching. This was repeated at the end of the project with some

minor changes to questions, with the aim of eliciting any developments in teachers' beliefs and practices over the course of the project (see Appendices F and G). These interviews were audio-taped and transcribed. While all teachers were asked the same questions in the same sequence, the flexibility of the semi-structured interview format enabled the researcher to probe beyond the teachers' initial answers to gain further clarification or elaboration, and a greater depth of information.

Kagan (1992) points out that there are inherent difficulties in getting a clear picture of teachers' beliefs as they are often unaware of their own beliefs and do not always possess language with which to describe and label them. Accordingly, the interviews included some direct questions (e.g., How would you describe your teaching philosophy and style? What is your understanding of the term intelligence? How do you recognise intelligence in your students?); and indirect questions (e.g., Can you tell me about a recent example of a successful lesson you have taken? What made it successful? Can you describe a student in your class who you consider to be doing very well? To what do you attribute his or her high achievement?). Teachers' responses were then analysed for recurring ideas and themes which related to their existing teaching beliefs and practices (e.g., All students can succeed. Learning is a life-long process. High achievement results from personal effort. A teacher focus on developing personal relationships with students.).

Yin (2003) regards interviews as an essential source of evidence in a case study, as they enable the complex social situations being investigated to be interpreted and reported through the words of the participant. They may also provide a

shortcut to prior history of the situation, helping the researcher identify other relevant sources of evidence. Yin warns, however, that verbal accounts can be subject to bias, poor recall, and poor or inaccurate articulation, which highlights the need to confirm the data with information from other sources.

3.11.2 Unstructured interviews and discussions

Unstructured interviews are non-standardised, open-ended and in-depth. Although the interviewer may guide the participant into particular areas, the participant leads the conversation within those areas. The focus is on reproducing the world of the interviewee, not attempting to make sense of it from some predetermined perspective. Unstructured interviews have been likened to conversations with an explicit purpose (Opie, 1999), and are favoured in feminist research (Punch, 1998), indigenous research (Bishop, 1997) and cross-cultural research (O' Brien, 2001), because they actively involve participants in constructing data about their lives.

Bishop and colleagues (2003) cite research proposing that the use of unstructured interviews as a research method enables the development of an enhanced research relationship with participants, which they suggest needs to be non-hierarchical, based on openness, trust and engagement, and requires the researcher to invest his or her own identity into the relationship. This is in contrast to the prescriptive nature of structured interviews, which are based on a hierarchical researcher-subject relationship, whereby data is gathered from essentially passive respondents, who are required to answer predetermined questions, presented by a 'neutral' interviewer. The use of unstructured interviews attempts to address the issue of power differential between the interviewer and the interviewee (Maykut

& Morehouse, 1994). By giving participants the opportunity to talk about matters in their own words, unstructured interviews attempt to address the tendency of researchers to impose their own agenda, interests and concerns on the research process (Bishop et al., 2003). In addition, by sequencing these interviews, issues that surface in the course of the research can be revisited and probed more deeply, and the interpretation of events is more likely to be negotiated and co-constructed with participants. "The power of individuals in the research relationship is granted recognition in that the end product of any research project is the result of the reciprocal interactions between researcher and researched" (Bishop et al., 2003, p. 214).

Disadvantages of unstructured interviews relate to the complexity of organising and analysing the wide variety of data collected, which may lead to important topics being inadvertently overlooked. Another potential issue relates to the researcher's interpretation of the meaning of people's experiences. There is always a degree of ambiguity in words, which may make clarity of meaning for both parties problematic (Cohen et al., 2000). It is also necessary for interviewers to have the interpersonal ability and skills to establish open and trusting relationships with participants.

Participant teachers were involved in a number of unstructured interviews and informal discussions throughout the course of the project, which were normally audio-taped and transcribed. These were 'conversations with an explicit purpose' (Opie, 1999), generally taking the format of collaborative planning meetings, as teachers planned MI-based units of learning, and reflected on the outcomes of MI-based activities they had implemented in their classrooms. These conversations

offered teachers regular opportunities for meaningful feedback, and clarification of any matters of concern, and generated ongoing data regarding their developing understandings and beliefs about MI theory and its implementation, their perceptions of their experiences, as well as data relating to contextual events and influences.

My role in these conversations as researcher varied. If it was a creative planning exercise, I took an active role as a colleague, contributing my ideas and experience to the discussion. If teachers were reflecting on classroom events, I tended to take more of a listening role, with a view to not unduly influencing the teacher's words. During conversations, as needed, I also assumed the role of MI expert, in order to clarify teachers' understanding about some aspect of MI theory and its implementation. I endeavoured to address any issue of power differential by deferring regularly to the teachers' professional expertise. I might have been the MI expert, but they were the classroom experts, particularly as I had no experience working in the secondary school context. I was learning as much from our relationship as they were.

3.11.3 Observational visits

Observations are widely used in qualitative research as they provide the opportunity to gather 'live' data from 'live' situations. Observations enable researchers to gather data on:

(a) the physical setting (e.g., the physical environment and its organisation);

(b) the human setting (e.g., the organisation of people, the characteristics and make up of groups or individuals);

(c) the interactional setting (e.g., the interactions that are taking place, formal, informal, planned, unplanned, verbal, non-verbal, etc.);

(d) the programme setting (e.g., the resources and their organisation, pedagogic styles, curricula and their organisation).

(Cohen et al., 2000, p. 305)

Similar to research interviews, observations fall on a continuum from structured to unstructured. Structured observations are predetermined as to what situations or behaviours are to be observed, with the observer striving to take a neutral, non-participant role, and with observations recorded on a structured observational schedule. With unstructured observations, however, interpretive researchers are unlikely to have a predetermined idea about what precisely is to be observed. Initially, unstructured observations will involve a general observation of events, situations and behaviours, but may become more focused as data accumulates, is analysed, and themes start to emerge (Burns, 2000). Falling somewhere in between these two extremes, semi-structured observations are based on an agenda of issues, but data relating to these issues will be collected in a much less predetermined or systematic way (Cohen et al., 2000). The role of the researcher in observational research can also vary from complete participant, when researchers take on membership roles, to complete detachment, which at its extreme is illustrated by the use of one-way mirrors for covert observation.

In this study, observations of the participating teachers in their school settings provided another important source of data. These observations ranged from semi-structured to unstructured. They were sometimes classroom observations which were organised in advance with teachers, and at other times they occurred as

unplanned observations of interactions outside of classrooms, for instance, in the staffroom, the playground or the library. In all observational visits the researcher took an 'observer-as-participant' role, being known to the staff as a researcher in the school, and to the students of the participant teachers, as someone who was helping their teacher learn about MI theory. The degree of researcher participation ranged from complete participation, for example, as an accompanying adult on field trips or a supervisor of a drama activity, to a lesser degree of participation, as for example, an audience for class speeches or as a quiet background observer in the classroom.

It was made clear to teachers that classroom observations were a voluntary part of the project. If teachers felt comfortable having an observer in their rooms, the effects of the observer on their behaviour were more likely to be minimised. Every effort was made to develop a collegial relationship of trust and support with participant teachers throughout the course of the study. Ulichny (Ulichny & Schoener, 1996) warns that classroom observations can undermine trust and cause teacher discomfort, as teachers can regard researchers as critical evaluators of their teaching practice. To prevent this, I portrayed myself as a learner in the secondary school context, and the teachers as the secondary classroom experts. While I was a resource for MI implementation, I had a lot to learn about the secondary school context and the situations that they dealt with on a daily basis in their classrooms.

Evidence collected through observation served to triangulate data as it emerged from the ongoing unstructured interviews, which were the primary source of evidence in the study. For example, casual observations of the teachers as they

interacted with students outside of class time corroborated the data that had emerged relating to their beliefs about their students.

3.11.4 Focus Group Meeting

Collaborative practice is a hallmark of schools which have associated MI theory with benefits for students (Hoerr, 2000; Kornhaber et al., 2004). Based on the understanding that teachers, as well as students, have their own profiles of strengths, collegiality develops as teachers readily share ideas and complement their own areas of strength by drawing on the knowledge and strengths of others.

The four teachers attended a focus group meeting early in term two, which was held after school one afternoon. A student teacher on practicum in Susan's class also attended and contributed to the discussion. The purpose of the meeting was to give teachers the opportunity to share their ideas and concerns, and learn from each other's experiences implementing MI theory in their respective classrooms. The proceedings were audio-taped and transcribed.

To initially focus the meeting, teachers were asked to each talk about current developments in their classrooms. From there, the teachers led a collaborative conversation covering a range of topics which were relevant to all participants, before closing with another focusing question which asked teachers for their feedback on the action research process itself. Overall, the meeting provided rich data which supported and verified the researcher's findings from other data sources.

3.12 Ethical considerations

Research involving humans is "an ethical enterprise" (Snook, 2003, p. 72), the core idea being that the rights of participants are greater than the researcher's rights to knowledge. In planning, implementing and reporting this research project, full consideration was given to protecting the rights of participating teachers, particularly in terms of their:

(a) right to self-determination

(b) right to privacy

(c) right to personal safety

Initially, access to the teachers was through the principal of the school. From that point, the teachers' participation was on a voluntary basis, and they were informed of their right to withdraw from the project. Full information was provided in a written format, as well as orally in face-to-face meetings, prior to obtaining the informed consent of the principal and participating teachers (see Appendices D and E).

All care has been taken to protect the identities of the research participants and the school. Pseudonyms will be used for the participating teachers and the school in any written material resulting from this study. In a small country like New Zealand, however, it is sometimes possible for organisations and individuals to be identified by characteristics described in the research (Snook, 2003; Tolich, 2002). Accordingly, care will be taken with respect to this.

The collaborative and open-ended nature of this research project has required teachers to be involved at every stage and has provided regular opportunities for

discussion, reflection and feedback. Participant teachers have been given the opportunity to read and comment on their individual case studies, and the researcher's interpretation of those case studies.

Classroom observations were dependent on the consent of the teacher. At all times, the researcher aimed to ensure individual teachers felt in control of their individual classroom programmes, and felt a sense of safety concerning the process they were undertaking.

3.13 Reliability and validity

Criteria for assessing research quality must come from the paradigm that underpins the research. Positivist criteria, which are based on principles of controllability, replicability, predictability and context-freedom, are inappropriate for assessing the quality of interpretive research.

Cohen and colleagues (2000) propose that validity of qualitative research data might be considered in terms of the honesty, depth, richness and scope of the data achieved, the participants approached, the extent of triangulation and the neutral stance of the researcher (p. 105). Maxwell (1992) suggests that validity is relative to the purposes and circumstances of the research, proposing that there are five broad categories of understanding that are relevant to qualitative research, and five corresponding types of validity that concern qualitative researchers.

- **Descriptive validity:** This is the most basic aspect of validity, and relates to the factual accuracy of the account of specific events and situations.

- **Interpretive validity:** This aspect relates to the inferences made from the words and actions of the participant teachers. Do the research participants find the account recognisable?
- **Theoretical validity:** If the purpose of an account is explanation of a social phenomenon, is the explanation theoretically coherent?
- **Generalisable validity:** This refers to the extent to which the account of a particular situation or population can be extended to other persons, times or settings. Maxwell suggests there are two aspects of generalisability in qualitative research: *internal generalisability*, which is generalising within the community, group or institution studied, to other persons, events, and settings that were not directly studied; and *external generalisability*, which is generalising to other communities, groups or institutions.
- **Evaluative validity:** If evaluations are made, are they consistent and justifiable?

Descriptive validity was provided for in this project by the use of three different methods of data collection – audio-taped interviews and discussions, an audio-taped focus group meeting and classroom observations. Participant teachers were also asked to check the reported project findings for factual accuracy.

In facilitating this implementation project, the researcher aimed to provide support and resources to participant teachers, while encouraging them to draw on their own professional expertise to develop their understanding of MI theory, and implement it as they felt appropriate for their individual classroom contexts. They were not necessarily required to implement MI-based lessons if they felt it

inappropriate or too difficult at a particular time. In line with the interpretive research philosophy, their personal interpretations of their situations were central to this project. The main form of data collection was through regular audio-taped interviews and conversations throughout the course of the project. Situations and events that arose were likely to be referred to on a number of occasions by teachers, thus providing the researcher with a firmer basis for drawing inferences regarding teachers' interpretations. The researcher's developing interpretations of events were regularly discussed in conversations throughout the project, with a view to ensuring that teachers' thinking and actions would be accurately portrayed. As a final check of interpretive validity, teachers were asked to read and consider the final case study report, to ensure that their perspectives had been appropriately interpreted.

The findings of this project are defined by the specific context in which the project took place. Accordingly, they cannot be generalised to other secondary schools. However, as most of the findings were well supported by the data generated across the four individual case studies and triangulated by a variety of data collection methods, this goes some way towards establishing their internal validity.

Reliability refers to the consistency of research findings over time and over similar samples (Cohen et al., 2000). In quantitative research, reliability is based on the assumption of replication; if the same methods are used with the same sample, then the results should be the same. This assumes that the study can be repeated, which is almost impossible with qualitative interpretive research which is investigating complex and unique social events. However, rather than

replicating and generalising, Burns (2000) suggests that readers of action research case studies may identify with the situations faced by individual teacher-researchers, and be able transfer new understandings to their own classroom contexts. Therefore, in qualitative research it is important to provide a clear, detailed and in-depth description so that others can decide the extent to which findings from one piece of research are dependable, and generalisable to another situation (Cohen et al., 2000).

3.14 Triangulation

> Triangular techniques in the social sciences attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint and/or using a variety of methods, even combining qualitative and quantitative methods in some cases. (Burns, 2000, p. 419)

Burns (2000) suggests that when different methods of assessment or investigation produce the same results, then the data are likely to be valid. This research project achieved triangulation through the use of multiple methods, as follows:

- Data was collected through semi-structured, audio-taped interviews at the beginning and end of the project
- Sequenced, unstructured, audio-taped discussions were a feature of the project, and generated the main source of data
- A focus group meeting brought all four teachers together to discuss their individual situations and emergent issues
- Classroom and other informal observations by the researcher

3.15 Chronology of the research project

The research project took place over a ten-month period, commencing September 2006 until June 2007. The following time-line gives a brief overview of the project. Further detail of the individual case studies is provided in the Results section in the next chapter of this thesis.

September 2006

- Initial meeting with school principal to discuss proposed project. Principal's consent form signed (see Appendix D). Date for meeting with interested teachers set.
- Preliminary meeting with interested teachers to discuss details of the project. Teacher consent forms signed (see Appendix E).

November 2006

- First semi-structured interviews with teachers (see Appendix F).

January 2007

- Half day MI workshop for participating teachers, with an invitation extended to other interested teachers from the college.

February – March 2007

- Term one planning and review meetings held with individual teachers.
- Ongoing semi-structured discussions with individual teachers in response to teachers' needs.

April – May 2007

- Term two planning and review meetings held with individual teachers.
- Observational visits, at the request of teachers, or as negotiated by the researcher.
- Focus Group Meeting at school with all four participating teachers.

June 2007

- Observational visits.
- Final review meetings of term two activities.
- Final semi-structured interviews with teachers (see Appendix G).

3.16 A description of the school

A co-educational secondary school located in a provincial North Island town, provided the wider context for this project. The school has a roll of approximately 850 students, comprising 79% New Zealand European, 20% Maori, and 1% other ethnic groups. It has a decile rating of 4[1].

3.17 Summary

This chapter introduced the three key focus questions and has provided a comprehensive philosophical and practical framework for the research project. It is an exploratory multiple-case study involving four teachers who are endeavouring to implement MI-informed curriculum innovations in their junior

[1] A school's decile rating indicates the extent to which the school draws its students from low socioeconomic communities. For example, decile 1 schools are the 10% of schools with the highest proportion of students from low socioeconomic communities, and decile 10 schools are the 10% of schools with the lowest proportion of these students.

secondary school classrooms. The researcher's role in the project and her personal theory of practice has been considered in some detail, as have been the various methods used to collect and analyse data during the course of the project. Ethical considerations and issues regarding the quality of the research have also been covered.

In summary, the study aims to follow the progress of the teachers, with a view to understanding their goals for themselves and their learners, the constraints they face as they go about their work within their different classroom contexts and the wider context of the school, and the way their beliefs and practices may change as a result of their experiences. It falls within an action research framework as it is essentially an investigation of teachers' practice in action. To preserve the personal perspectives of the individual teachers, a case study approach has been selected as most appropriate. The results of the four case studies are detailed in the following chapter.

CHAPTER 4: RESULTS

It is critical that the voices of practitioners be heard in the ongoing debate on restructuring teaching, learning and schooling in ways that reflect these changing times…(Sugrue, 1997, p. xi)

This chapter outlines the different experiences of the four teachers who participated in this action research project. Each teacher's story is told separately and in chronological order, as it occurred within the context of the study.

4.2 Case Study One: Marg

> I really like what I know about multiple intelligences. I want to see how it's going to work for my boys best! And it's another strategy I can use. It won't be the only strategy I use, but it's another strategy.[2]

4.2.1 Background

Marg completed a primary teaching diploma after leaving school, taught Years 1 and 2 during her first two years, and then took time out to start her family. She began her teaching career at Tarua College 20 years ago, firstly as a day-to-day reliever, moving on to long-term relieving, until in 1996, she accepted a permanent position at the college. Originally teaching in the intermediate department, Marg now teaches Year 9 and 10 English and social studies, and Year 11 social studies.

[2] In order to preserve and emphasise the teacher's voice in this study, direct teacher quotations will generally be written as free-standing blocks of text, regardless of their length.

From our first meeting, I gain the impression that Marg is an extremely dedicated and hard-working teacher. She has taken on a number of extra responsibilities at the college, including Dean of Year 9, teacher-in-charge of teacher aides, and also teacher-in-charge of student teachers and provisionally registered teachers. Marg has also been successful in her application to the Ministry of Education Enhanced Programme Fund, and has won funding for an Interest Group programme for at-risk students at the college, which includes 0.2 release time for her to administer this programme.

4.2.2 Existing Beliefs and Practices

In our initial interview, Marg tells me that she always knew she was going to be a teacher.

> I've always wanted to be a teacher. I don't know – I just love teaching. I remember at primary school – Year 5 and 6 – we had a special needs unit attached to our school, right next to our classroom, and the principal and the teacher were always getting me to go and work with them. Yes, I just love kids – always have loved kids.

Her affinity for working with students who might not fit readily into mainstream classrooms remains apparent today. She has been a key person in the development of a 'boys' programme at Tarua College, targeted at boys who are underachieving and with poor work habits. This is now in its third year, with boys-only classes at Years 9, 10 and 11. Marg is obviously passionate about this programme and takes pride in its reported success. She is currently teaching the Year 9 boys' class English and social studies. Her stated reason for joining this MI research project is her desire to continue to develop her capacity to cater for the diverse educational needs of her students, who have all demonstrated their lack of fit with the traditional scholastic secondary school model.

Marg emphasises the importance of building in-depth relationships with her students, believing this to be an essential part of being an effective teacher.

> You've got to have really good relationships with your students, you've got to know them really well, and they've got to get to know you really well at the same time – so it's a two way thing.

She describes her approach to teaching as 'holistic'.

> … when I teach English, I just don't teach English. … even though we might do an English or social studies type activity, we're really working on the things that I think are important like social skills, self-management, all those things.

In fact, she clearly conveys the idea that her teaching practices are more student-centred than curriculum-centred, referring regularly to the diverse needs of her students and how she strives to meet these in her teaching. For instance, the development of the Interest Groups programme, which includes hinuera stone sculpture, graffiti art, music and sports activities, is based on her belief in the importance of her students first being positively engaged at school in order to achieve success in their learning. Marg tells me she runs a very hands-on learning programme, striving to include a variety of activities, field trips, visiting speakers and co-operative learning activities. Her learning objectives for her students, which she expresses clearly, include academic, self-efficacy, self-management and interpersonal objectives. Marg works hard to establish a safe and supportive culture within her classroom, believing this to be fundamental to the success of the boys' programme. She wants to see 'her boys' prepared for life, and as such includes a 'real-life' aspect to her learning activities, trying to make learning meaningful and relevant to her students' lives.

Fundamental to Marg's teaching philosophy is the belief that 'every student can learn and succeed to the best of their ability'. Her view of success "isn't being top in Year 10", but includes improvements in confidence, work habits, engagement in class and interpersonal skills.

> I celebrate little successes. If I was to wait for the big successes to come along, I might be waiting a very long time, but we really celebrate every little step.

It is during our initial meeting, however, that I gain the first impression that Marg's views might not be shared by all of her colleagues.

> Someone said to me the other day, "I can tell you've got the thicko class"…. So I said how can you tell that? Because of course I get so defensive, and he said, "Well, no other class would be allowed out on work experience in Year 10". And I said, if I taught the top Year 10 class (because we all do careers), I would be sending my top Year 10 class out on work experience one day a week, because that's how I do things.

Still, it would appear that her experience and her dedication to her students, together with their successes, and perhaps also bolstered by her obvious strength of character, has earned Marg the respect of the management team at the college, who have granted her a degree of freedom to pursue her holistic approach to learning and teaching with the boys' programme.

> Because I've been here for a while, and I'm probably the person who challenges things, I don't just go with the status quo. So if I'm told that I've got to teach social studies – say the Middle Ages – and my kids aren't into that, then I won't teach it, because I believe I should be teaching to the achievement objectives, not a set topic. So I'm known here to be a bit of a rebel at times, in a good way…

4.2.3 Term One Planning Meeting

Marg is slow in responding to my requests for our first planning meeting. When I catch up with her in the staffroom early in February, she is very apologetic, but seems quite overwhelmed by the number of demands on her at this time. She has been responsible for organising a first-time Year 7 to 10 activity-based programme for students, *We are Tarua College*, which involved students working in mixed age groupings in student-selected interest groups for the entire first week of the new year. On top of this, she is organising her nine teacher aides, and is required to submit her English plan for the year by the end of the week. Nevertheless, she assures me that though she is feeling under pressure, she is still very keen to be involved in the MI project. She tells me she has been reading the MI books I have provided and is enthusiastic to try some of the suggested activities.

True to her word, Marg arrives at our first planning meeting with her learning topic for the term and key objectives established, having already met with her colleague John, the English and social studies teacher of the Year 10 boys' class, whose class will also be undertaking the unit. She is keen to use a suggested MI activity, which involves students in creating and decorating a static image - a large cube - each side of which will depict certain aspects of their lives. These will be linked to paragraphs in a formal letter, which the boys are to write as a beginning of the year formative assessment activity. The information generated will serve a number of important purposes. Not only will it provide the teachers with a better understanding of their students' personal situations, it will tie in with Marg's direct teaching about MI theory and involve the boys in exploring their personal strengths and weaknesses, as well as setting important learning goals for

the year. It is clear that Marg believes that self-understanding is an important element in successful learning:

> … I think unless you start reflecting, you can't really move forward in a lot of ways … having an honest, deep understanding about who they are.

Although Marg had initially thought the letter would lead into the static image, she quickly grasps my suggestion that her students' literacy development might well be supported by leading into the writing assignment with various hands-on activities which draw on their areas of strength. Using the list of suggested MI activity starters (see Appendix B), and a simple MI planning grid (see Appendix C), we brainstorm many possible lead-in activities, including time-lines, interviewing, acrostic poems, logos, advertisements, metaphors, model building, class surveys and writing song lyrics. I emphasise to Marg two important points:

(a) It is not essential to teach everything in eight different ways. Some topics may not provide opportunities to engage all eight intelligences. Instead MI theory underpins the idea that any topic of importance can be approached in a variety of ways, making learning more meaningful and engaging for diverse students; and

(b) Learning activities should be designed to engage students thoughtfully with lesson content. Teachers need to take care that MI-based lessons do not score "higher on the enjoyment dimension than on the dimension of complex thought processes" (Gardner, 2004a, p. 215).

To focus her planning and to foster this idea of students' thoughtful engagement, I also introduce to Marg the idea of developing *throughlines* (Hetland, 1997) for

the unit, namely, the core ideas she wants her students to understand from the topic. Together we come up with:

Who am I?

Who am I becoming?

These are two key questions she can refer to throughout her lessons. She is very quick to grasp the potential of this approach. All in all, our first session is very positive, creative, stimulating and highly productive.

4.2.4 Term One Review Meeting

Marg had been called out of class that morning on an urgent Deaning matter - "an ugly home visit" - and as a result, she is feeling somewhat dejected.

> … I had my period one all sorted, and I just had a really neat morning's teaching organised – and I lost 2 hours – and then you just feel like you're on 'catch-up'.

However, her natural enthusiasm surfaces very quickly, once she starts talking about how her MI-based unit is progressing. The students had been given seven different MI-based activities, which they could complete in any order. The due date had been the previous Friday. All but four students had finished on time, and Marg is confident that all overdue work will be handed in today. She mentions that she has been in touch with her students' parents and they were 'all on board'. Throughout the unit she has maintained a strong focus on students' work habits and self-management skills. Her students have also completed a couple of different personal MI profiles, with a view to identifying their individual strengths and weaknesses.

> That just gives me a little picture of where we're at, because I really want to get to the point where [my students are] focusing on

> *These are my strengths, but these are my weaknesses. How am I going to improve my weaknesses?*

Perhaps predictably, as a class they rate very poorly in the Linguistic and Logical-Mathematical intelligences on the MI profiles, the two intelligence areas traditionally most valued in school settings, and also in the Intrapersonal intelligence, the area of self-understanding and self-management, which, as Marg points out, "would fit with why the boys are in this class".

Because they are running a two-year boys' programme together, Marg works closely with her Year 10 colleague, John, referring to him regularly throughout our conversation. He is currently undertaking the same unit with his class, with minor modifications, and she has been most impressed with how John has emphasised the importance of time management in a real-life context for his students.

> …every morning he'd go in with a bunch of big envelopes, and he'd say "Oh, my goodness, I got this yesterday from the Ministry! If I don't get my pay slip stuff sent in by tomorrow, I'm not going to get paid!" … Next day – "This is my power account. If I don't pay it, I'll lose my power!" And he's had a huge response from his boys about getting their work in on time.

In their English period earlier that day, her students had begun to write their formal letter, the main assessment activity for the term. The letter was required to include six paragraphs, covering the following information:

1. Personal introduction, including personal details, such as age, family, etc.
2. Your life so far, including place of birth, first school and schools attended, places lived and special holidays
3. The way you like to be treated by others

4. Your favourite place / environment

5. Your favourite activities / hobbies

6. 2007 being a successful year. How do you hope to achieve this? What goals do you need to put in place? What help would you like?

Each of these paragraphs was linked to a different MI-based activity the boys had already completed. For example, Your Life So Far was based on a personal timeline (Logical-Mathematical activity), they had created models (Kinesthetic activity) of their favourite places and had written acrostic poems (Linguistic activity) about their favourite activities and hobbies. Marg is absolutely thrilled with the quality and quantity of the resulting writing, and acknowledges how the activities have engaged her students' thinking with the topic.

> It's a set of steps to get to the next thing, but the writing for me is just so much richer because we did those activities. We are so… honestly, that first paragraph there is more writing than I'd get in a whole letter of six paragraphs. The depth!

She reports that her students are also very excited with the outcome. Marg's clear, structured and cohesive approach to the writing activity is probably another important factor in the success of the writing activity. With a firm belief in the importance of scaffolding students' learning, she had begun the lesson by modeling the required formal letter structure and the first paragraph on the whiteboard, including a process of brainstorming the information, and then organising the information on a mind map. A brief check of her students' work-in-progress, however, had quickly alerted her to a lack of capital letters for proper nouns, and so she had taken the opportunity to also integrate a lesson about punctuation and capital letters, modeling the editing process with her own writing on the board.

A staff meeting about the college's disappointing National Certificate of Educational Achievement (NCEA) results the night before has given Marg and John a real-life context for the future-oriented throughline of their topic *Who Am I Becoming?*, and as a result they are reconsidering the expectations they each hold for their students.

> [John] is … jumping for joy about the NCEA meeting last night because he was saying "on our timelines we've got when the boys are 15, they're going to be sitting NCEA Level 1, and that was such a big thing [for the boys]!" Now in light of that meeting last night, he's saying to [the principal], "I'm working on it, mate! You wait till my kids get into Year 11. I'm already pushing it." So little tie-ins like that are real bonuses for us.

However, Marg acknowledges that because of time constraints, the extra time taken up on the MI-based English unit, has meant her social studies programme for the term has lacked depth. I approach the idea of her running an integrated English and social studies topic. Accustomed as she is to the separate departmental secondary school structure with their different curricular and assessment requirements, and with no previous experience in cross-curricular integration, she does not consider this to be a readily achievable option. Although I do not push the point, I believe that as Marg is in the fortunate position of teaching her class two subjects, and having already demonstrated to me her ability to successfully integrate a variety of academic and affective learning objectives into meaningful lessons, cross-curricular integration could add cohesion and depth to her programme, while helping overcome the time constraints she operates within.

Marg tells me that she has also decided to give up part of her weekly Interest Groups release time, in order to have more time with her class. This will provide greater programme cohesion, by overcoming the need for them to have a relief teacher once a week.

4.2.7 Term Two Planning Meeting

Marg has coordinated the timing of this meeting to enable her Year 10 colleague, John, to join us. Together they have decided on Heroes – a cross-curricular topic – as their theme for term two. They can see how this topic links with and flows on from their term one topic, and will provide a valuable learning context for their students to continue to develop the intrapersonal skills and self-esteem they believe are the necessary prerequisites for future success.

> I don't think the introductory unit should just be a unit by itself. They should be able to pull out their goals for this year, and after doing the Heroes unit, add to them. This is just the way I like it. I think everything should be inter-related, so that what we did in the introductory unit follows through.

Fortuitously, Heroes fits readily within the required social studies strand and achievement objectives for the term, Time, Continuity and Change. Marg notes that her required English assessments for term two include viewing, close reading, poetic writing, a transactional report, expressive writing and a prepared speech. She is also planning to get a personal reading programme for her students underway this term, and is hoping to gather a list of books about heroes for their reading, and compile associated MI-based reading activities.

> Year 9 and 10 English teachers don't teach reading any more, or they don't at this school. There's none of it, and I really believe that's really important. So we've done our ASTTLE testing. We've

> got those results in. I'm just determined we're going to use those in our teaching and even having groups for reading and things like that.

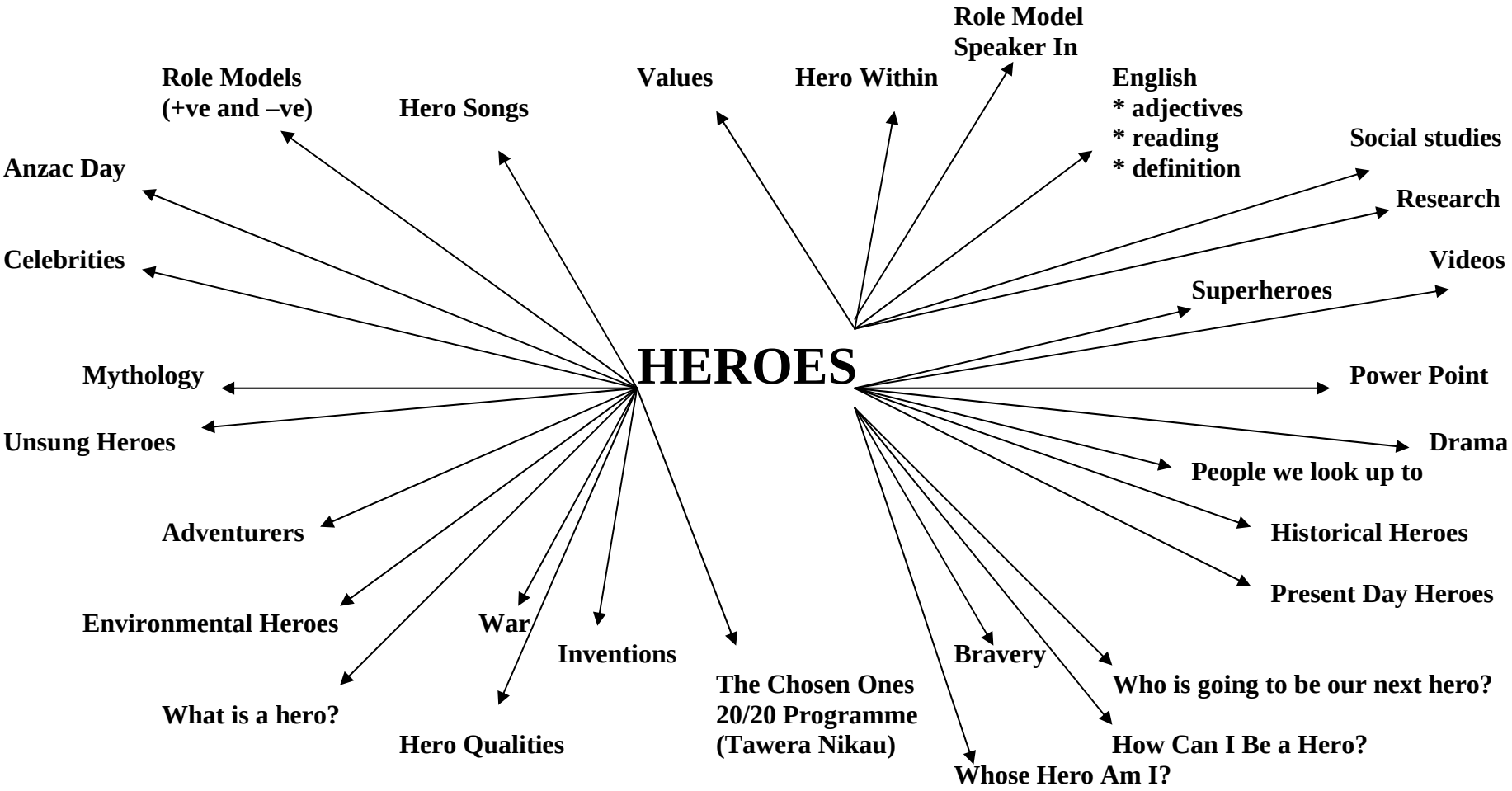
Marg has already indicated a tendency in her planning to be motivated by her students' needs rather than to be curriculum-driven, which is an approach I encourage. By starting with the holistic question, *what is it really important for my students to learn?* teachers are more likely to come up with rich and meaningful units of learning, which they must then tie in with mandated curriculum objectives.

We start off our creative planning session with a brainstorm, writing down anything the topic Heroes brings up for us, and possible throughlines for the unit (see Figure 4a). This is a very thought-provoking activity in itself, and results in some deep discussion about the nature of heroism. What makes a hero a hero?

Marg has obviously given a lot more thought to the possibility of integrating her English and social studies lessons, and the benefits this might offer.

> I think one of the biggest constraints we've found here …- and this is why I've got to tie it all in – is I've done hardly any social studies this term, because we've been so focused on our introductory unit. And in some ways for the kids, it has been all-consuming. And for them to try and think about [another topic]! Because we only have such a short time with them – 4 hours a week for English. But if we can bring both English and social studies in together, that gives us 7 to 8 hours a week.

Figure 4a. Heroes Brainstorm



Our next step is to plan a variety of learning activities, using the simple MI template (see Appendix C). Again I stress the point that any activities included need to be focused on building students' understanding of key concepts, although we were having difficulty deciding on the final wording of the throughlines. At this point our drafted throughlines are:

What makes a hero a hero?

Who are my heroes?

Who can be a hero?

Our drafted unit plan involves the students undertaking in-depth research into a personally chosen hero, and completing a number of activities about that person. Suggested activities include a speech, a poem, and adjective work (Linguistic); a Venn diagram comparing celebrities and heroes, and a timeline (Logical-Mathematical); creating a poster or static image and viewing documentaries (Visual/Spatial); creating a rap or writing song lyrics (Musical); researching an environmental hero (Naturalist); a group activity deciding on a first definition of a hero and interacting with a guest speaker (Interpersonal); some personal reflection activities, including reviewing their personal goals for 2007 (Intrapersonal); culminating with the students creating a Living Museum, which will involve them dramatising their chosen hero, and creating an associated museum of artifacts (Kinesthetic) .

This is another thought-provoking and creative planning session, perhaps even more so due to John's contribution. Having John join us also has added a valuable collegial dimension.

4.2.8 Term Two Planning and Review Meeting

Marg's morale is very low today, and we spend the first part of our meeting discussing the situation that has recently arisen at the college. As a result of the school's disappointing NCEA results, the management team has introduced a number of planning and other requirements for teachers in a bid to raise student achievement. For every teaching period all teachers are now required to have planned and outlined on the whiteboard their learning objective for the lesson, a Do Now activity for students to begin immediately, as well as the compulsory and any optional learning activities for that session. Compulsory activities must be able to be completed within the period. Additionally, Year 11 to 13 teachers now have to advise management in advance of firm dates and times for planned assessments, out-of-school trips need to be requested by Week 7 of the previous term, and in a bid to cut down on interruptions to students' learning time, students are no longer allowed to miss scheduled classes to attend any cultural, sporting or interest group activities.

As a teacher of Year 9 and 11 students who have demonstrated that they do not readily adapt to the academic model of the traditional secondary school, Marg finds herself in an extremely difficult position. Everything she believes about effective learning and teaching is suddenly being questioned. She can see her previously enjoyed freedom to pursue her holistic approach being taken away, and is also very worried about how these changes will impact on her students' learning. She questions the wisdom in introducing these directives without first trialing them, in order to identify any issues that may arise, and also the lack of consultation with experienced teachers.

> … as a management, I would like to see them think through long-term effects of some of the things. And they're getting people to do things without knowing why.

Additionally, Marg tells me that the recently received report about the first week's programme, *We are Tarua College*, includes very negative feedback from many of her colleagues, who felt it had been a waste of valuable planning and academic learning time. As the person responsible for organising the programme, she is very disappointed, and is finding it difficult not to take the criticism personally. She wonders what approach would be needed to gain collegial support for other curriculum innovations in the future, and expresses her concern about the apparent lack of management support for our MI project.

Marg then goes on to talk about the pressure she has been feeling and the hours worked to complete all the planning and assessment paperwork for the English and social studies Heads of Department. Her desire to have all her paper work "squeaky clean" suggests a very conscientious approach and by all accounts, she has put in many extra hours of planning.

> I spend too much time here. I just work too hard, and so I'm trying to pull back and not work so hard. Have time for me, instead of just giving everything to this place – do other things. I'm trying to find that very fine balance.

I am concerned that Marg might be on the verge of suffering teacher 'burn-out'.

> …at the moment … it would just be so much easier to print a unit off the net – and teach it – from the front – or maybe have some groups. Because there is just that real feeling of pressure.

Final Review of Term One Introductory Unit

Marg is very disappointed with her students' cubes, the culminating activity of the introductory unit. The activity had been rushed, and consequently the Cubes lack depth and quality, and have not turned out as she had envisaged. She wonders if having a student teacher on practicum in her class for the term was perhaps another factor, although she notes that

> … at least we got them done. [John] didn't even get his done. You know, we just - assemblies! - pulled out for this - you're just fighting all the time.

We discuss the fact that while the cubes themselves might have been disappointing, her students will have gained a lot from the lead-in activities and their formal letter exercise. I point out that it takes time to build a classroom culture in which hands-on activities, and associated high expectations of student engagement and work quality, are the norm. This leads us to consider the value of a system-wide cohesive approach, which would see teachers at all levels working towards similar goals for their students.

Heroes Unit Planning and Review

Marg tells me she had commenced her term two unit with a First Definition activity. Each student had been required to come up with his own definition of the words *famous*, *celebrity*, *hero*, *super-hero* and *everyday person*. Her idea is that their understanding of these terms will develop and change throughout the unit.

> We've got the kids thinking, and to me, that's what it's all about. You know, giving them lots of opportunities to think, to discuss, to disagree, to agree.

The throughlines for the unit are

What makes a hero a hero?

Who can be a hero?

Her goal is to develop her students' understanding that heroes can be found at many different levels: The Hero within, personal and family heroes, at a local community level, as well as nationally and globally. She also wants them to consider the possibility that they too can be heroes for others – to explore more fully the idea of the Hero within.

While going over the planned activities to be included in her students' individual research projects, Marg suggests she might scaffold their learning, by first undertaking the activities on a class-wide basis with someone like Martin Luther King, so that the boys will be better prepared and have a better understanding of her expectations for the different activities, when they go on to their individual projects. She is also wondering whether it would be better to give her students a list of 50 possible heroes to choose from, or to allow them to choose their own.

4.2.8 Term Two In-class Observations

I undertook three in-class observations during term two, which gave me a first-hand opportunity to observe the progression of the Heroes unit.

During my first observation, Marg's class watched a recent 20/20 television documentary about Tess O'Connell, a 15 year old girl who had been born with no hands. In the lively discussion that followed about Tess's qualities, Marg drew out her students' ideas, making valuable comparisons with what they had been finding out about Martin Luther King, and also bringing their attention to something

important that she had learned from the video. She had noticed how Tess had very positive friends, and chose not "to hang around with negative people". The class then watched the 10-minute video a second time, this time noting down the qualities that they thought made Tess a hero, which was to provide the basis for their homework assignment, *Why do you think Tess is a hero?*

Following the video, Marg asked her students to complete a Venn diagram, comparing themselves with Tess O'Donnell, pressing them to complete their work quickly - "4 minutes to complete the Venn diagram… 1 minute to go." She told me she is working on the time factor. "There's so little time, and so much to do." Finally, the students wrote an email to Tess.

Overall, I noted how Marg very skillfully linked the activities to her throughlines for the unit, with her comments and thoughtful questions like, "Is there something you'd like to change in your life to make yourself more like Tess?"

During my second observation, I observed a number of her students present their speeches on Martin Luther King. While a wide range of quality was apparent, Marg is proud that every student had his speech prepared on time, and had the confidence to stand in front of the class and speak, both noticeable improvements. Before dismissing them at the end of the period, Marg talked to her class about some problems they had been experiencing in their maths class. She clearly outlined her expectations for their behaviour in maths and reminded them that they needed to have a book with them for the 15 minute silent reading time at the beginning of Period 5. After the boys had left, she talked briefly about the curriculum-centred approach in the maths class, where the teacher was teaching Level 5 maths, "even

though the boys aren't up to that." She went on to say that she and John were feeling a bit "teacher-bashed" about their boys' classes, and were tired of having to defend and justify their programmes.

In a phone conversation the evening before my final observation, I asked Marg how her class was proceeding towards the culminating Living Museum activity. She sounded exasperated, because she had hoped to be well underway that day, but instead had spent all day in a special education management meeting, which had been postponed from the previous week.

> Researching would have been a good activity for the boys when I was away from the class, but I had planned that for last week, and today when they needed me, I wasn't able to be there.

There was to be a sports exchange at the school the following day, which meant she would lose another precious half-period of class time. Following her disappointing results with the cubes last term, Marg had planned to avoid another last minute rush with the Living Museum, but in fact due to disruptions that were beyond her control, she was again finding herself in a similar situation.

Marg was called away on an urgent Deaning matter for the first 10 minutes of my final observation, but got straight onto their Heroes work on her return. Her students had completed a time line, and a lantern poem, and were now writing a report about their individual heroes. She put up the introduction she had written with them for the Martin Luther King report to remind them about the exciting way reports should be introduced. As with the term one formal letter, Marg provided a clear structure for the students, outlining the seven different paragraphs she required them to write. However, she was frustrated by their lack of preparation.

This is when I struggle. They obviously didn't do anything during those two periods I was away on Monday.

4.3 Case Study 2: Susan

4.3.1 Background

With an arts degree, majoring in music and Indonesian, Susan had her first encounter with a possible career in education in the mid-1980s, when she was employed for a few months as a relief social studies teacher. This was prior to the introduction of legislation which required secondary teachers to have a professional qualification. Some years later, as the mother of pre-school children, she went on to train and work as a Playcentre supervisor. As her children grew up, Susan went on to spend four years as an independent music teacher, who was contracted to teach curriculum music in a number of different schools. This then led her to her decision in 2000 to undertake a one-year post-graduate primary teaching course. She is currently in her seventh year of teaching at Tarua College.

As a primary-trained teacher, Susan was first employed at the college in the intermediate department, but has recently moved into the junior secondary school, teaching Years 9 and 10 social studies, Year 9 English, and Years 7, 8 and 10 Music. A dedicated and hard-working teacher, Susan has taken on a number of extra responsibilities at the college, including Dean of Year 10 (a role she shares with another teacher), lead teacher for gifted and talented education, school productions, of which there is one cultural activity a term, and at different times during the year, she leads the choir, as well as debating and squash groups.

Susan's off-beat sense of humour is evident from the time of our first meeting. This can initially disguise her very thoughtful approach to education, and her strong belief in the need for ongoing professional development, from both a personal and school-

wide perspective. She is keen to understand more about how students learn, and how she might better facilitate their learning, and is not afraid to ask questions to clarify and deepen her understanding. As lead teacher at the college in the area of gifted and talented education, Susan has been involved in a range of related professional development initiatives.

> Just doing all this GAT stuff, there's a lot of it, and the more I know, the less I know. And really it's putting kids on a scale, and it's not a scale that goes down, it's on a scale that goes across. And again, it's just being different – that's all.

4.3.2 Existing Beliefs and Practices

Susan describes her approach to teaching as creative, child-centred and inclusive, referring to herself as a facilitator of her students' learning. She tells me that even though she is teaching in the junior secondary school now, she continues to draw on all her Playcentre skills.

Susan's fundamental belief in individual difference is very apparent in our initial interview, as are her beliefs that people are intelligent in different ways, and that success can mean different things for different students.

> I think it's wonderful that we're all different. Again, I'm Miss Inclusivity. If [my students] can do something in a creative way that shows that they now understand what I'm supposed to be teaching them, that's just as good as someone who comes up with an essay.

Her professional development in the area of gifted and talented education has reinforced these beliefs, and provided her with an introduction to MI theory. I note, however, that at present her ideas about multiple intelligences are mixed together with her ideas about learning styles theory, which is a common confusion for people.

In the past she has undertaken MI surveys with her classes in order to identify strengths and weaknesses, but she tends to think of these strengths as 'learning preferences' and refers to different students as 'visual, audio or kinesthetic people'.

> Originally, intelligence would have been to me 'bright' or 'not bright', but having gone through the Gifted and Talented workshops, intelligence is to me the different ways people prefer to learn – what sticks in their head – what way is something delivered that would stick in their head. So if you deliver something orally, will that information stick in their head?

Susan emphasises that for teachers to be able to fully understand their students' strengths and needs, they must first develop strong relationships with them. In her words, "You've really got to have a relationship with the kids for them to show who they really are. It's important."

While Susan aims to engage her diverse students by including a range of hands-on, multi-sensory learning activities in her classroom programme, she is conscious that not all teachers at the college share her goals.

> It frustrated me last year being Dean of Year 9. [The kids] just didn't want to go to class. There were so many wagging, and I said why, and it came down to they were just bored out of their tree. Just going to some particular classes. So I sat in some of those classes and I would see why.

However, she is also aware that a reasonable standard of literacy is a prerequisite for success in the secondary school environment, describing one of her student's prospects for educational success as:

> I just know she'll be successful in a school environment, because that's what [schools] do. Their business is reading and writing and she can do that well. She can play the game, so she'll do well, I think.

Her stated aim for taking part in this MI-based project is so she will be better able to reach more of her students. To enable diverse students to better access the curriculum, she aims to make MI theory a 'backbone in every unit'. While currently, she might implement one unit a year based on MI theory, in the future she would like it to become an integral part of her planning.

4.3.3 Term One Planning Meeting

Prior to our first planning meeting, Susan has emailed me a copy of the plan for her term one cross-curricula Year 9 English and social studies unit, Shoes, which she has based on a thought-provoking National Geographic photographic essay. My first impression is that the plan is very much an English curriculum unit rather than an MI-based unit. It is centred around specific Level 4 achievement objectives and processes. The learning activities Susan has planned generally involve the Linguistic intelligence, with the exception of a role play activity and a model making exercise. The social studies aspect of the unit involves a research project regarding the origins of a chosen shoe. I soon find out, however, that Susan's plan is very much an outline only, principally prepared to meet departmental requirements. She finds it simpler to just use the planning template provided, but with her student-centred and creative approach, the unit may evolve differently.

> I do [include other activities], but they're not written down… You see, I'm spontaneous, and if someone suggests something, from the kids – what a good idea! How about we go with that?

At our first meeting she outlines for me the different planning and assessment requirements of the English and social studies departments. English teachers are required to submit their unit and assessment plans by a set date early each term, which allows for individual teacher choice, while social studies teachers are required to teach to an annual plan which is set at management level. She makes the point that there is considerable difference between primary and secondary school planning. "We aren't half as detailed as the primary school – not half as detailed." She agrees that the planning approach at the college is driven by the curriculum.

> ..achievement objectives, work from there. Everything's from the curriculum. You personalise it in the learning outcomes…. And the teaching experiences are where I go creative.

I introduce Susan to the Teaching for Understanding (Hetland, 1997) approach to planning, with a view to encouraging her to approach her planning from a student-centred perspective, by asking the key question *What do I really want my students to understand from this unit?* An open-ended Shoes unit is very wide and could go in many directions. In this way, it could also be very superficial. However, it could be focused with a thought-provoking central idea or throughline, such as "Everyone walks in different shoes" or "Every shoe tells a different story". In this way, any learning activity should be focused on developing students' understanding of this central concept, and thus discourage the inclusion of superficial activities, simply because they are shoe-related. Susan quickly grasps this idea, and decides on the throughline *We all walk in different shoes*, as she wants her students to gain an understanding and acceptance of diversity and cultural difference.

Together we brainstorm a number of lead-in MI-based activities, which include drawing (Visual/spatial), modelling a shoe (Kinesthetic), shoe similies (Linguistic),

creating shoe sounds to portray different situations (Musical), and a personal journal entry about a significant shoe of their own (Intrapersonal).

4.3.4 Term One Planning and Review Meeting

Susan has spent time with both her Year 9 and 10 English and social studies classes, getting her students to complete MI profiles, with a view to raising their personal awareness of their individual strengths and weaknesses. However, she has chosen not to undertake the MI profiling with her Year 10 Music class, as several of those students are also in her social studies class, and she wants to avoid repeating the activity.

MI profiling is not a new idea for her. As part of the Gifted and Talented initiative the previous year, she had introduced this idea to her colleagues, who were asked to complete MI profiles with all Year 7 to 10 students. The aim of the exercise was to raise teachers' awareness of student differences, and for them to consider how they might alter their teaching approach to help diverse students access the curriculum. However, Susan feels that overall this had not been a successful exercise, as many teachers simply 'didn't get it', with some choosing not to complete the activity with their students at all. Even though the results of that MI profiling had been collated, these had not been utilised to enhance teaching, and there had been little opportunity for feedback or reflection. This has reinforced her belief that, to help bring about any desired school-wide change in teaching practice, the change must first be modelled successfully by lead teachers in individual classrooms.

Susan has also incorporated some direct teaching about MI theory with her students, using a Jigsaw activity I had suggested at our MI workshop prior to the beginning of

term. This involves small groups working together to explore each intelligence, and then creating thoughtful logos and similes to describe each one. She feels her students had gained only a superficial understanding of the concept, however, as she believes she had tried to cover too much information within too tight a time frame.

She reports her Year 9 cross-curricula Shoes unit is successfully underway. Her students, an all girls' class, are well engaged with the topic and the various activities she has planned, and are producing some excellent expressive and poetic writing as a result. Her required Year 10 social studies topic, *The Changing Nature of Work*, however, is proving more of a challenge. "It's such a boring subject, and how to make it exciting?" While the unit plan was largely a standard Social Studies On-line unit, Susan is planning to finish the unit with an MI-based project to be completed by her students over four periods, which will coincide with her being away from school at a week-long Gifted and Talented professional development. The students were to be given a degree of choice in the project, and would be required to complete at least three of the eight suggested activities within the necessary time frame (see Figure 4b).

With a relief teacher scheduled to be with her class for those four periods, Susan's goal is that her students will be able to complete the project independently. As she has no idea who the relief teacher will be, and whether the class will have one or four different relievers over the time, she is unable to meet the teacher in advance to discuss her expectations. To prepare her students, she has given them a preliminary independent project about the changing nature of the food industry to complete over three periods, talking with them about her expectations, and their need for effective time management.

Figure. 4b <u>The Changing Nature of Work and the Consequences of this for Individuals and for Society</u>

Complete at least 3 of the following tasks over 4 periods, selecting 2 from your identified intelligence strengths, and 1 from a weaker intelligence.

Linguistic Plan an outline for an essay/ paragraph needed to answer the statement as if for an exam.	**Logical/Mathematical** Chart the class students work info of part time/fulltime/ casual work. Compare with family statistics.	**Visual/Spatial** Construct a timeline using pics/photos/drawings which show the changes in technology of one particular type of job.	**Bodily/Kinesthetic** Invent a game, e.g. Scrabble, that could help/show people different types of work and therefore income, or old versus new jobs.
Musical Find, name or bring to school songs about work. Check out the lyrics and highlight the key text.	**Interpersonal** In a group come up with an invention that could change the nature of work for the next 20 years.	**Intrapersonal** Choose a job from the past and write a personal journal for a week about your tasks and feelings. Or write about your feelings if you were made redundant.	**Naturalistic** Go out into school and find your own space for 10 minutes. ***** Name the area ***** What jobs could you create to make this area of the school a better environment to learn and play in. ***** Write a job description for this.

Finally, we cover Susan's term planning for her Year 10 Music class, which is made up of at-risk students, who spend most of their time "out of the classroom in most classes". She is concentrating on connecting with her students through music, and is intentionally not directly teaching them about MI theory. "I want less of my talking, because that works for them." I point out that there is no rule that says she must directly teach about MI theory. Teachers implement MI theory as they see fit to best meet the needs of their students. As it turns out, she is already making use of music as a bridge to literacy for her students, by using a poem about methamphetamine with them, requiring them to pull the key lines out of the poem

and arranging them with music. As Susan has fewer management constraints in planning her music programme, coupled with the fact that her students are more engaged in their music class than any other, I suggest that she could take the opportunity to use the students' musical intelligence as a bridge to some other very important understandings for their lives. The poem about P is an excellent start in itself.

I have noticed that Susan has the tendency to talk about her students as 'linguistic people', or 'mathematical people', also including this in her classroom talk. I encourage her to avoid categorizing her students, as the emphasis in MI profiling should be on a person's relative strengths. A person can be relatively strong across several intelligences, and just because a person may be stronger in the Linguistic intelligence than the Visual/Spatial intelligence, does not mean that person is weak in the Visual/Spatial area. I also encourage her to integrate the idea that students should be having a go at the different activities regardless of their strengths, as their intelligences are not fixed capacities. They can be strengthened and improved through education and experience. This is a very optimistic message to pass on to students. Our discussion moves on to the matter of confusion between MI theory and learning styles theory. Susan speaks about her confusion frankly, and is keen to understand these concepts more deeply. I endeavour to clarify this for her by using as a basis Gardner's definition of intelligence - the potential or capacity to process information in order to solve problems or create products of value. A learning style, on the other hand, refers more to a general approach to taking in and processing information across all domains of knowledge. I am able to back up my explanation of the difference with a short excerpt by Gardner (1999, p. 83). I believe much of

this commonly held confusion arises from confusion around the terminology used to describe abstract concepts relating to intangible mental processes.

We finish our meeting with a quick chat about the apparent lack of communication between the four teachers in the MI project. Susan confirms this is a major barrier at the college. With two of the participating teachers in the intermediate department, she basically never sees them, and only occasionally sees the third member of the team because her room happens to be in close proximity. With people busy with different activities at lunchtime and after school, it was also difficult to meet then.

> That's why the first week of school – that week we had … [*We are Tarua College*] was outstanding, because I worked with teachers I didn't usually plan or work with.

4.3.5 Final Term One Review Meeting

Year 9 Cross-Curricular Shoes Unit

Susan has her students' completed work on display in the library. A number of the shoe models are of an excellent standard, each very individual, and with considerable attention to detail. Each model is associated with a social studies research project about the background to the shoe, which includes details about the country (flags, maps, pictures); the era (what was happening/significant at that time); clothing of the time; details about the person who wore the shoe (e.g., their feelings, what their life was like), and a personal evaluation of the project. The quality of the models suggest they will have taken considerable time to complete, and Susan tells me students were largely self-directed in this exercise, some choosing to work at home, others bringing the equipment and materials they needed to school. As she has the students for both English and social studies, she had been

able to combine these periods for a week, for them to be able to complete the model. However, although the models and projects are well presented, and her students were very engaged in the learning activities, Susan feels the students' understanding of the social studies concept "*How different cultures and life styles are a symbol of who you are?"* is still at a superficial level.

> So that's a message to me … hey, okay, if their product and their understanding at the end of this is only superficial, what do I have to do to get them to think more deeply? … But this is the first one that they did for term one and that's a base for me to start. What are my kids capable of?

We discussed whether the knowledge-based nature of the tasks (e.g., finding facts out about a country and an era) could have been behind the superficial knowledge-based nature of the students' written projects. While Susan felt this could have been a factor, she had involved the students in setting the tasks, which suggests that the students themselves may be accustomed to this level of engagement – "fancy, fancy presentation, but no depth of information or thinking".

On the other hand, she is very pleased with the quality of the students' written work in English that has resulted:

> From the English perspective, some were outstanding. We did narrative writing and poetic writing. Outstanding! But I can't compare – this was only their first assessment, and I can't tell if some of them are wonderful because of MI.

Also of interest was the point that all of the Year 9's, with the exception of one student who had been absent for part of the time, had completed their work, with 80% getting their work in on time.

Year 10 Social Studies Changes in Employment Unit

Because Susan was away from school for the week during which her students carried out the MI-based assignment, her review is based on her students' completed work. All students have completed and handed in their work, with 90% in on time.

> Interestingly enough [the boys] engaged far more, and got higher marks, and they were in on time. So I don't know what that says.

The class had been fortunate in having only one reliever over the four periods which had provided some continuity, and Susan is also pleased that the relief teacher had been flexible enough to allow the students to work outside the classroom when necessary to complete the different tasks. She feels these were both important factors in the successful outcomes.

> The Year 10s have a real negative [attitude] about relievers. But they were focused on what they needed to do, to have it in on time. And some of the quality was really, really good for kids who don't [usually] do anything.

Susan describes her Year 10 social studies class as "a general level – not the top level". Whereas previously the college has had a policy of fully streaming students, this year it has introduced a new approach to ability grouping. At the Year 10 level there are two streamed academic classes, the boys' class and two general classes. Students are selected for the top-level classes on an academic basis, principally their literacy and numeracy ability.

> Secondary teachers actually like some of the students being streamed because then they can target the type of learning to that stream. But the primary teachers say that you should be able to teach all levels in a classroom. So this is a compromise.

Susan tells me the call for change is being driven by the intermediate department at the college. When students moved from the intermediate area into Year 9, they

encountered a completely different organisational structure and approach to teaching and learning. Those students, who struggled to adjust to this change, had been found to be more likely to develop worrying changes in their behaviour at school.

Year 10 Music – 'P' Poem

> They are the at-risk kids. They don't 'take' Music; they want to enjoy music.

Susan tells me she has divided the class into four groups of five or six students, with the task of first exploring the P poem, and then re-creating it as a song. Once they had pulled out the most important ideas in the poem, and chosen the key lines to use as a repeated chorus, the students' task had then been to develop and arrange the song. The music could have been original or taken from other sources. Finally, thes students had been required to communicate the song in a purposeful context. It had been an open-ended assignment and Susan is very pleased with the results, and the level of cooperation the students had demonstrated. After listening to the students' four taped songs, I am also very impressed. Susan is pleased that despite their initial feelings of embarrassment, the students had become very engaged in the task. "They started with an idea and it just grew and grew." One group composed and sang their own song, another focused on instrumental linkages, the third used drumming, and the fourth beat boxing. Because of the nature of her students, and the high level of independence required to undertake the task, Susan had found she needed the assistance of a teacher aide with musical knowledge. Each group taped their song, which was then played to the wider group for feedback and any suggestions for improvement, and then taped in its final form.

An unexpected development had been when two of the groups agreed to perform their songs at a community seminar on methamphetamine. From their initial expressions of embarrassment at the beginning of the unit, the students had developed the confidence to share their work with an audience from the wider community. Their performance had been videoed, and the students had been very proud of their efforts.

4.3.6 Term Two Planning Meeting

Year 10 Music

The focus for term two is the purpose of music. Susan is planning for her students to go into the local township to visit shops in order to compare the different music that is used in different shops. Her students have created a map of the town and divided the shops up between the various groups. She then wants her students to consider the school culture, and the place and purpose of music within the culture. How might music be used in the school environment? While Susan is certainly aware that she has drawn on a variety of her students' intelligences with the different tasks she has incorporated (e.g., mapping, written directions, group work), she is now taking a more relaxed approach to her MI-based planning for the music class.

> And you've sort of let me go a little bit by saying you don't have to cover it all. But inadvertently, because I'm not trying, and I'm just naturally teaching them, they are [covering most of the intelligences], and engaged. They're there, every single time, and on time. And that's a biggie.

Year 9 Social Studies

This term data collection is focused more on Susan's Year 10 social studies and music classes. However, she continues to implement MI theory with her Year 9

class, and plans to finish her current social studies unit on Human Migration with an MI-based assignment planned along similar lines to her Changes in Employment assignment from term one (see Figure 4c).

Figure 4c. Year 9 Social Studies Assignment

Modern Movements of Pacific Islands to New Zealand

Why people move between places and the consequences of this for the people and the places.
Choose one Pacific island, and explore the facts, lifestyle and people. Then choose your strongest and weakest intelligence tasks to complete the assignment.
Information can be sourced from the Library, social studies books, as well as online.

LINGUISTIC	**MATHEMATICAL/ LOGICAL**	**VISUAL/SPATIAL**	**BODILY/ KINESTHETIC**
Pretend you are a Pacific Islander leaving your island for NZ. Write diary entries describing: • How the island will be affected once you have left • How will NZ benefit from you living there • Why did you move to NZ? • How are you feeling about leaving and settling? • How does your family at home feel about you leaving for NZ?	Produce a fact file about one Pacific island. • Who moved to NZ and why? • Who is left behind? • What are the effects on the island? • What are the effects on NZ society?	Make a collage about your chosen island and compare it to NZ as a Venn diagram **OR** a Plus, Minus Interesting chart.	Perform a play about a person leaving a Pacific island. • What are their feelings? • What are the consequences for the island? • What are the consequences for NZ society?
MUSICAL	**INTERPERSONAL**	**INTRAPERSONAL**	**NATURALIST**
Find a song about Pacific Islanders moving. Highlight the key words about effects, consequences, feelings.	Interview a Pacific Islander who has moved to NZ. Generate appropriate questions that will help you answer the topic question.	Draw a comic strip following a Pacific Islander's journey from their homeland to NZ. Show effects on the island after they leave. Show their emotions when leaving and arriving. Show changes and/or events of when they settle in NZ.	Make a diorama showing the differences between the Pacific Island life and NZ life. Focus on clothes, food, tools, weather, and animals.

Year 10 Social Studies

Susan will be sharing her teaching this term with a student teacher on a six-week practicum. The current topic is based on the Place and Environment objective, *Why particular places and environments are significant for people.* With a view to getting her students to think more deeply about the topic, Susan plans to include some Six Hats thinking tasks (de Bono, 1992) in her MI-based assignment. A highlight of the unit is a planned overnight class trip to a marine education centre in Auckland.

To develop her students' understanding of the key concept, Susan is planning to use a variety of case studies/contexts for them to consider the significance of places, firstly from a personal perspective, choosing a place that is significant to them; and then from the perspective of the wider community, looking at the significance of their local community and then considering the significance of the Goat Island marine reserve.

Susan tells me she is enjoying having more time to spend on her planning this year, having made the decision to share the role of Year 10 Dean with another teacher. She tells me that the huge demands placed on her as the sole Year 9 Dean during the previous year, had negatively impacted on her classroom teaching.

4.3.7 Term Two Review Meeting

Susan is concerned that her Year 10 students are much less connected with the current social studies topic than they had been with the Changing Nature of Employment unit in term one. This is apparent in the superficial nature of their finished products, the very limited range of end products chosen, and also in the

very poor completion rate. The vast majority of the students had chosen to create a collage poster of travel brochure pictures to depict their places, with little thought gone into illustrating the actual significance of the place to people. Many had not read the questions properly. They had completed the Five Hats exercise on their place of choice superficially, and then gone straight on to create their collage or poster. Some students had misunderstood the task and actually depicted the Five Hats exercise on their poster.

As there had been some differences in how she had approached this topic this term, we discuss whether this may have impacted on her students' level of engagement. For this unit Susan had asked her students to complete a preliminary set of thinking tasks, prior to creating the MI-based product. She has created a full and thought-provoking assignment.

Part A required students to choose a place in New Zealand or overseas, and research it using travel brochures, newspapers, books, internet, and/or word of mouth to find out the following information:

- Complete 5 Hats (de Bono, 1992) thinking activities about the place (not the Blue Hat)
- Cultural and natural features of the environment
- The significance of the place
    - religious
    - economic
    - historical
    - archeological
    - geographical

- cultural
- strategic
- aesthetic

- Make a note of the books, papers, websites, etc. you use in a bibliography

Part B Once the students had completed Part A, they were then directed to do some Blue Hat thinking (reflective or metacognitive thinking) (de Bono, 1992), in order to decide how they were going to use their multiple intelligences to present their chosen place to the rest of the class.

Another key difference in this unit is that although Susan had provided the students with six suggested end products, she had invited them to go beyond these suggestions if they preferred, and make their own choice of end product. To assist in this, she had given them a very detailed MI product grid with about 200 suggested products spread over the eight intelligences. In the Changes in Employment unit, on the other hand, she had given her students a more limited choice, providing a range of eight activities, and directing them to choose and complete two from their strongest, and one from their weakest intelligence areas. It would seem from this that her students still require a much greater level of teacher direction. Susan feels that the feedback session with her students had been of some value, however, as some students had acknowledged they had chosen to complete the poster as it was the easiest option, and she had pointed out to them that even so, they had not managed to complete it fully, or on time.

Susan wonders whether she had not given her students enough guidance about the need to focus on the 'significance' of the places. The task, which was to be

completed over several periods, had been introduced by the student teacher, who has now completed her practicum. At the time Susan had needed to clarify the verbal instructions for her students, but thinks they may have still been too focused on the information aspect of their place, not on the concept of its significance. If she was to repeat the exercise, she says she would make a clearer differentiation in both her written and verbal instructions between the 'information' that was required, and what was needed to be done with that information. She also thinks she may need to model the process first, so her students gain a better understanding of what is expected.

Our discussion moved on to the nature of the class. Susan tells me many of her students are at-risk. They are generally disengaged at school, with absenteeism, poor work habits and low levels of independence all significant challenges to her as a teacher. As their Dean, she has got to know many of these students over the past eighteen months. While she might be disappointed with the overall quality of their work on this unit, she still sees success for them in other areas.

> They're here; they're on-task doing their stuff for me. That's success at this level, and I've just got to do one thing at a time to build on it.

She mentions a particular student with a history of disciplinary difficulties both at school and in the community, who has managed to complete her work on time, and has also developed the confidence to present it to the class. "She would never have stood up last year." The work might be of a superficial quality, but Susan sees this as a huge development.

Susan tells me that she was able to have much more differentiated learning with her Year 7 and 8 classes in earlier years, which were both mixed ability classes. Having a group of independent learners within the class was a great aid to classroom

management, as they were able to pursue independent programmes, which freed up more time for her to spend with students needing more individual assistance.

Susan agrees that the nature of her Year 10 social studies class this year is very similar to Marg's 'boys' class'. I suggest that perhaps something could be learned from the boys' class model, which has developed a cohesive culture of its own. I describe it as 'a school within a school'. While Susan agrees, she talks about two difficulties. She only has this class for one subject, which limits the amount of time she is able to spend with them, and there is also a lack of agreement amongst the staff at the college as to these students' learning needs; the holistic / scholastic philosophical divide.

> Some people say… they're 13 or 14, they should learn like every other school. They have individual subjects. But we're saying, actually, they learn a lot better if they have English and social studies, because you can integrate those – even three [subjects] if you want to – so that there's a home environment for them. Especially for these guys, because that's how they learn better…
> But then you'd get the English teacher saying, but you guys as home room teachers, can't teach at a Year 10 English level.

Susan describes her class as 'a social class'. As such, her goals for the class are primarily personal and social goals, as she endeavours to get the students on task, completing work on time, and generally developing their work habits. These are reflected in the anagram RAISE, which is displayed prominently in her classroom, standing for Respect/Courtesy, Attitude, Initiative, Strategies and Effort. She tells me she draws students' attention to aspects of the anagram regularly in the classroom.

Susan has used the achievement objective *Why places and environments are significant to people* as the key concept for the unit. It is displayed in a significant place in the classroom. I wonder how accessible this is to her students, however, and ask whether she thought her students might connect with it more readily if it was rephrased in terms which were more relevant to their experience. For example, what is special about this place? She tells me that "the reality is their exams are going to have that question, using that terminology, and they need to know it."

4.3.8 Term Two Final Review Meeting

Year 10 Social Studies

Susan has had a further conversation with her class about her disappointment with the way they had approached their previous unit. She feels her students have responded well to this candid approach, and have acknowledged how they limited their engagement with the topic. As a result, as the class moves on to its final topic for the term, Human Rights, she has involved them more in the planning. "This is the concept we need to learn. How are we going to get there?" She also asked them to plan the MI activities themselves, and is pleased with the ideas they have come up with. While they are still not thinking deeply, she is satisfied with the fact that they are solving basic problems. She believes her students are responding well in class to their student-driven ideas, while she is also mindful that it is potentially a more engaging topic. While she is taking a more structured approach with this unit and restricting their range of activities to choose from, they are still student-driven activities.

Year 10 Music

Susan reports further positive developments with her group of students. At the suggestion of one of the students, as a class they have taken the best parts out of each version of the 'P' poem and combined them to make a class song. They have polished this to performance standard and will be performing it at a school concert later this week. While it has not been an easy task for Susan as the teacher 'because they're hard kids', she is very pleased with the quality of their performance, and the fact that they have managed to work together to plan, practice and perform the piece as a whole group.

Building on the term's theme, looking into the purpose of music, the class has taken on the responsibility for staging a school-wide concert, with a talent quest-type format. Their goal is to raise funds for a class trip to Auckland to investigate the different types of music in shops in Auckland. Staging a production is a very purposeful hands-on project, one which involves students in using all of their multiple intelligences. Different students have been responsible for advertising, budgeting, creating Power Point shows, lighting, sound, auditioning potential performers, and assisting younger students in preparing their items to performance standard.

While Susan has managed to create a purposeful and relevant music programme for her students, she is also satisfied that she has successfully covered curriculum requirements. It is apparent her planning has been based firstly, on her students' needs, and secondly, on the curriculum requirements. Susan believes she has probably been more successful with her music programme because her strength and

qualifications are in this area. She has been able to combine both her passion for the subject, with her passion for helping her students, which is a powerful combination.

4.3.9 Term Two Observations

I undertook five in-class observations during term two, four in the Year 10 social studies class, and one in her Year 9 social studies class.

Susan's relaxed and friendly style with her students was apparent. She demonstrated an inclusive and democratic approach, giving students a sense of control in the classroom. Two students who arrived well after the bell had gone for first period, were very chatty and unsettled, and were proceeding to unsettle those around them. She demonstrated a quiet and non-confrontational approach, by wandering past them with two quiet words "Organise yourself," which had the desired effect. Following the lesson, Susan told me she had been less planned than she preferred, as she had been responsible for organising a professional development session for staff prior to school that morning.

My final three observations were spent with the Year 10 students as they endeavoured to complete their MI-based projects on the significance of individually chosen places in the world. The student teacher had now finished her practicum and I sensed Susan was pleased to have her class back to herself again. The class was not very engaged in their work. Many went off to a resource room where there was a supply of travel brochures for their use, returning with a variety of brochures and coloured paper. A number of students immediately set about to sticking coloured paper on to their posters.

While the students were able to draw on their multiple intelligences and show the significance of their chosen place in any format of their choice, the vast majority had chosen to create a poster. Both Susan and I believed that they regarded this as the 'easy option'. I interacted with a number of individual students about their projects, attempting to draw out their thinking through questioning, and could sense Susan's frustration with their lack of engagement and off-hand approach to the task. I wondered at the time whether the class needed a few periods to get back on track following their extended time with the student teacher. I saw the need for more one-on-one interaction with students while they are working on this activity, with a view to engaging their thinking with careful questioning, and also to encourage them to elaborate and add greater depth to their work.

As the work continued the following day, Susan wondered whether the extended MI product grid she had given the students had been too broad. She decided that next time she would definitely give them a narrower choice, as they are not yet ready for completely free choice.

We briefly talked about absentees, as a number of her students have had extended absences for a variety of reasons, and were now disadvantaged by having missed important lead-in activities. A few more students were absent today.

Prior to her students presenting their finished products in the final period, Susan briefly talked with them about preparing for NCEA next year, telling them how important it was to develop good work habits.

> You don't have to have brains blowing out the top of your head to do well in NCEA. You have to have good work habits, and just get the work done.

Only seven students out of 27 had completed their work on time, which was a disappointing outcome. Similarly disappointing was the superficial quality of the projects. From our discussion following the class, I realised that because the students were unknown to me, I held different expectations to Susan regarding the quality of their work. While we were talking in the classroom at lunchtime, one of her students brought in her finished poster. She had been too embarrassed to present it in front of the class, and had quietly arranged with Susan to present it to her privately.

4.4 Case Study 3: Janet

4.4.1 Background

Janet came to teaching later in life. In 2002 she completed her primary teaching qualification via an online distance learning programme, which had enabled her to continue to work part-time, while she studied. She is now beginning her fifth year of teaching.

Janet tells me she has always been interested in teaching. As a very involved parent with her children's education, she had ended up working in their school office. She had always enjoyed helping out in their classrooms and with learning activities outside the classroom.

She began her teaching career at Tarua College in the intermediate department, in a long term relieving position teaching Year 8. She spent her second year relieving at the college, and then in her third year took on another long term relieving position as a teacher of Years 7 and 8 in a nearby rural primary school. She returned to Tarua College last year to a fulltime permanent position, teaching a Year 7 class English, mathematics and social studies.

4.4.2 Existing Beliefs and Practices

> I try to get all the kids to believe in themselves – that they can all achieve. I believe in them all.

In describing her approach to teaching, Janet tells me:

> I like to connect with what children are interested in, to get them on board, to hook on to what they already know, and to take them the next steps… I just tend to find out what works and go with it.

Her ideas about the nature of learning are compatible.

> A big part is that linking onto knowledge that they already know. So you try to make it within their context or get back to somewhere where they understand, and build on that ... They need something to latch it on to.

Developing strong relationships with students is another aspect of her student-centred approach to teaching and learning. She regards the ability to build positive relationships with students as essential to effective teaching.

> I think it's really important to have good relationships with the students – to know the students quite well – the different things they're interested in, that sort of thing.

Janet tells me she enjoys maths and believes her maths lessons to be her most successful. She likes the structured approach to teaching maths, with lessons "broken into parts" and "children learning in groups with their like-minded peers". Janet's strength in maths has been recognised, in that she also takes another Year 7 class for their maths lessons.

Janet aims to provide a range of hands-on, multi-sensory learning activities in her classroom programme in order to 'hook in' her diverse learners. She has an appreciation of student diversity, and an understanding that students have strengths in different areas, with different learning styles and different interests. She draws on a number of strategies to cater for the wide range of needs in her classroom, which include co-operative learning activities, the use of 'experts' to teach 'novice' classmates, and open-ended integrated projects, which allow individual students to take their learning to different levels. Her goal in undertaking this MI-based project is to help her diverse students reach their potential.

> … to help those lower students – to get them on board – and get them to feel like they were achieving. Also to get those clever ones who have got so much talent, but you'd like to help them work better – to reach their potential. It's about differentiating the curriculum.

Janet has a limited understanding of MI theory, and acknowledges that she has a 'muddled' view of multiple intelligences and learning styles. While she appreciates that students may be 'more intelligent in some areas than others', I get glimpses in her conversation of a more traditional, scholastic view of intelligence. For example, when asked to describe a student she regards as 'average' in her class, she says:

> … I think it's what she's capable of – her capabilities. She works really hard, but I don't think she could end up a top achiever.

Nevertheless, the successful student she describes for me is not "the top student test-wise – P.A.T.'s, that sort of thing", but is a student who has "determination and stickability to see something through, which I think is important". Janet's real-world view of intelligence appreciates the limitations of IQ as a measure, when she describes two of her students. "They're almost like gifted, but they're not practical on a day-to-day level." She is very clear in her belief that students' high achievement is related to their self-motivation and personal effort, not their innate abilities.

4.4.3 Term One Planning Meeting

We are joined at our first planning meeting by Lynn, the fourth teacher in the project team, who also teaches a Year 7 class. Janet and Lynn have developed a valuable collegial relationship over the past year, and regularly plan together. They tell me it has been a disrupted day today due to the annual swimming sports.

Janet is very concerned about the low entry literacy level of her Year 7 students this year, with over 50% of them reading at a Year 4 or 5 level. Accordingly, she is looking for interesting activities that will help hook them into reading and writing.

Janet and Lynn have already planned for and commenced work on a personal unit with their students. Janet's students have written a letter to the class, in which they reflect on their personal strengths and learning styles, their favourite hobbies and places, as well as set goals for their learning. She shares some of her students' writing with us, which she says gives her an insight into their personal and family lives. The required social studies unit for the term is *How and why do people exercise their rights and meet their responsibilities*, a question which she has in the past tied into a unit about how the school works - the students' place in school, school organisation and how it operates. The English focus and assessment requirements for the term are Recounts in writing and Surface Features in reading.

We discuss the importance of making learning cohesive and connected for students, and consider a number of possible throughlines for the unit. Was there some way we could connect the English and social studies learning around a central theme? Me and My Learning as a topic tied in with the activities she had already undertaken with her class, and could also be linked in with learning about the multiple intelligences. I mention Marg's throughlines for the term with her boys' class *Who am I?* and *Who am I becoming?* Janet can immediately see the potential in this future-focused question for her Year 7 students who have just entered the secondary school environment. It also lends itself to the social studies unit about the school, and its associated rules, rights and responsibilities.

In response to her class doing poorly on the ASSTL surface features test last year, Janet tells me she is planning to write a shared class diary each day this term as a context for some focused language work with her students. English teachers at the college are required to show that they are using ASSTL testing to group their students according to their ability at each level, and also using suggested ASSTL activities to take students to the next level. Despite feeling that the rigid ASSTL marking schedule didn't fairly represent her students' capabilities, Janet plans to incorporate more focused work on language surface features this year with a view to raising their ASSTL results.

From the outset Janet is concerned about a lack of time.

> So we need to cover [the department's curriculum and assessment requirements] with groups, and we have to show that we're doing that in our planning as well. And this term we're going to run out of time. So that's the hard thing - to [do this MI project] and fit everything in.

It certainly does seem that time is working against us this term. With only eight weeks in the term, the class had been involved for the first full week in the Year 7 to 10 mixed-age activity-based programme, *We are Tarua College*. Then in Week 6 the class is off on a week-long camp, which will no doubt involve some pre-camp and follow-up activities. It is easy to understand Janet's sense of pressure.

4.4.4 Term One Planning and Review Meeting

Term One Review

My planned meeting with Janet and Lynn is postponed as Lynn is away from school today. Janet and I have a brief catch-up in her classroom. She is apologetic that she has done little in the way of MI-based teaching this term, but is feeling under

pressure to cover core requirements in English and maths in a much disrupted term. Today, for instance, she has had various students out for tennis championships, vision retesting and dental checks, an assembly to organise the triathlon to be held tomorrow, and Year 13 students in her class for the peer support programme. Tomorrow the triathlon and an assembly are scheduled. She has also had a busy programme of testing during the term; PAT tests, maths testing, and reading Probe testing of at-risk students, which includes half her class.

Our meeting is rescheduled for a couple of days later, when Lynn can join us. She brings to the meeting an idea for some MI-based group work for the last couple of weeks of term, based around the Camp theme. With her class divided into three ability groups, her idea is to have one group with her for an intensive language session, while a second group completes a spelling activity, and the third group would be involved in a choice of eight MI-based activities.

Janet is a bit worried about the 'choice' factor.

> I have very low children in this class and I think sometimes I have to give them specific work rather than that choice. I mean I've got three who can get off-task easily, even when I'm with them.

However, she goes on to tell us that she runs her maths programme on a similar group rotation, and her students are very good for that. She is more worried about them undertaking co-operative activities independently. In maths "they sit at their seats, they don't physically go to do those activities".

At this stage in the term, I gain the impression Janet is keen to get through what she describes as a "messy" term, and then redirect her energy to the MI project next term.

Term Two Planning

Janet and Lynn are planning a cross-curricular term long unit for term two, based on a central theme of Mining, which fits in with the required social studies strand for the term Place and Environment. It will also have a Newspapers focus, the idea being that the class would create a newspaper with an overall mining theme.

To focus our planning, I ask Janet and Lynn the key question, what do they really want their students to learn and understand from their term two topic? However, before answering, Janet draws our attention to the English requirements for the term.

> Because last time, you know we did that planning together to do that social studies unit, but then I had my planning checked and I was told you need to have very specific achievement objectives and that sort of thing.

She tells us this is why she had decided to use an English Online unit in term one because it fitted readily with the camp and the term one English requirements. As it turns out, the English assessment requirements for term two, Finding Information in reading, Procedure in writing, and Debating in speaking, will be straightforward to accommodate in our planning for the topic. Janet reminds Lynn that management has indicated that teachers must adhere to curriculum requirements this year.

> Last year they were [flexible]. But remember they said we're doing all the same [this year], because they wanted us to plan a unit together.

Mining is a rich learning topic, because it offers a wide range of connections to the students and their community, as well as a variety of thought-provoking perspectives, issues and controversy. Together we develop two throughlines for the term:

What does mining mean to the community?

What does mining mean to me?

The idea behind these throughlines is to help students understand that mining means different things to different people, and for them to consider the various perspectives, advantages and disadvantages and come up with their own personal perspective on mining. A more specific learning objective of the unit is for the students to develop their understanding of the gold extraction process. We brainstorm together a variety of MI-based activities using the MI template (see Figure 4d).

Figure 4d. Year 7 Cross-curricular Unit

Mining (with Newspaper activity)

LINGUISTIC	**LOGICAL/MATHEMATICAL**
Debating (Mining –v- Environmentalist) (Justifying arguments) Procedure writing Reading Activity – Different Stages of Gold Extraction Process (with photos – put in correct order) Newspaper articles	Researching (Finding information) Classifying/Categorizing (from DVD) Flow chart Gold Extraction Process Timeline (History of mining in area) Questioning (Personal questions for visit to Mine Education Centre)
KINESTHETIC	**VISUAL SPATIAL**
Class trip – Mine visit – Mine Education Centre – Victoria Battery (historical perspective) Guest speaker – Environmentalist	Viewing DVD on mine Mind-mapping (note taking) Pictures of Stages of Extraction Process (with words – put in correct order) Map of mine and town exercise Newspaper Layout Photography Advertisements Cartoons
NATURALIST	**MUSICAL**
Design redevelopment of landscape at completion of mining activity in the area	Old mining songs Write words to well-known tune reflecting your thoughts about mining.
INTERPERSONAL	**INTRAPERSONAL**
Interviewing Perspective-taking activity Debating team	Diary of miner – Historical – Present day

4.4.5 Term Two Review Meeting

Today I accompanied Janet and her class on a class trip to the Mine Education Centre. Afterwards, we briefly review the progress of the mining unit. Janet's students had started the unit by completing a K-W-L (What I KNOW, What I WANT to know, and What I LEARNED). Following their visit to the gold mine, they had brainstormed as a class all the things they had seen and learned, and then in groups they had categorised the facts. They had taken personal questions to ask at the Mine Education Centre, and Janet planned for them to go back to their K-W-L and keep adding to it as the unit and their learning progresses. As the basis for a successful reading activity, Janet had used a time line. She had condensed the history of the mine from 1852 to the present day, and the students had been required to read the excerpts and place them in the correct order on the time line. Despite the complex vocabulary, she was very pleased that every student had managed to complete this activity, with some of her more capable readers assisting others who needed help.

I have noticed when working with Janet that her strength in the Logical-Mathematical intelligence comes through strongly in her teaching. For instance, the three activities she has described above all have a clear, logical, structured basis. I have drawn her attention to this several times, as I do today, because I believe it is important that teachers are aware of how their personal strengths may influence their teaching. On the positive side, Janet is providing the students in her class with regular opportunities to strengthen their Logical-Mathematical intelligence, which is a fundamental goal of our education system. Students who have this natural strength and inclination are likely to be thriving in her classroom. However, if this is not a student's natural strength, they may become bored or have difficulty with

too many activities of this type, and switch off their learning. The idea with MI-based teaching is to draw on a variety of intelligence areas to enable diverse students to access lesson content through multiple entry points (Gardner, 1991), which Gardner describes as different doors, each leading into the same room.

The specific learning objective for this unit is for the students to develop their understanding of the gold extraction process. As a result of their mine visit and follow-up work at school, Janet believes her students have a sound basic knowledge of the process. I suggest that they be given the opportunity to demonstrate their understanding in a more active way than simply drawing a flow chart, which while a Visual/Spatial activity, also has a very strong logical basis. We decide on a theatresport-type activity, where in groups the students have to create body movements (and optional sounds) to depict the various stages of the mining process, and then combine them to act out the process. Janet is keen to attempt this. We discussed the idea of her students following up this activity by creating a visual Flowchart of the extraction process, perhaps as a final assessment activity for the unit. Janet prefers the idea of giving them a single activity, rather than a choice of assessment activities.

> … I know Lynn is doing up their choices of multiple intelligences to present it, but the thing I find hard when sometimes we do that stuff, is time. Things go on and on and on, and you don't really get it, and to rein them in, and… for the time it takes, some people can do marvelous stuff in a short amount of time, and others can do nothing. I suppose that's just life.

Janet tells me that she has now decided not to do the Newspaper activity, as it is a large topic in itself, and time continues to be a major constraint for her. I feel this is a sound decision, as it will give her more time and more depth on the mining topic.

She still plans to take her students to visit the Victoria Battery, to gain an historical perspective about mining in the area, and they are shortly to move onto Debating, a required English activity this term. While the earlier part of this unit has helped develop students' understanding of the throughline *What does mining mean to the community?*, there has as yet been no focus on the second throughline, *What does mining mean to me?*, which aimed to get students to personally connect with the topic and think more deeply about it. She has not as yet introduced the controversial aspect of mining, which would be an excellent lead-in to debating, and would help students understand that people within the community have different perspectives of mining; an important step for them to then be able to decide where they stand on the issue themselves.

During an earlier phone conversation to organise this meeting, Janet had mentioned the new pressures coming on her at school. We talked about it further today.

> … as a result of the NCEA results … there's been a big push, as well as the academic side of the school – the standards of the school as well, which I think is good. I think it's high time that we had a big push on litter, and uniforms… There's also going to be walk-through checks from management at any time, so that they can look at your daily planning folder, your long-term plan, and your board… I think management are doing the right thing in that they're being proactive and are trying to make a difference and tighten things up, right around. But it does mean that it seems to be all happening at once!

So while Janet is trying to implement the new directives in her daily practice, she remains frustrated by the number of ongoing interruptions to her students' learning, and is feeling the pressure of her recent heavy meeting schedule.

> It just compounds and you don't get a free minute, and you feel like you're not doing enough for the class.

4.4.6 Term Two Final Review Meeting

In a recent phone conversation with Janet, she had been enthusiastic about my offer to come and assist her with the planned kinesthetic activity, in which the students were to use body movements to depict the gold extraction process. Janet's students clearly have a very sound knowledge of the various stages involved in the process, with almost all students contributing to the preliminary outline she creates on the board. She then gives them their instructions for the planned activity and divides the class into four groups to get underway.

While Janet works inside with a group of five, which includes those students who she feels need encouragement to stay on-task, I work mainly with a group of two girls and two boys, who are a little reticent about getting physically involved in the activity. Although initially embarrassed, one of the boys can not help coming up with some creative movement ideas. The other three, particularly the girls, are very quiet, and not keen to move expansively. However, they begin to relax, and slowly become more involved, probably because of the success of the movements, and also my positive response to them. Together they create some very appealing movements, which when put together, create a flowing, physical picture of the process.

Meanwhile, two independent and very motivated groups are working outside to come up with high quality and very creative interpretations. One group of five has created a tableau, which involves some acting, a scientist character, some props, and a script. With approximately ten minutes left of the period, the groups come

together and perform their interpretations for their classmates. A number of students give very positive feedback at the end of the period, with one student saying she feels the activity would really help her remember the process. Overall, it is a very successful, motivating and enjoyable lesson.

Janet is thrilled with the lesson.

> That was really good, and I think that does spur me on to do that more with the kids. You just bear a bit of chaos for a while, but on the whole they did very well, didn't they.

Even though it had been a challenge for a number of them to perform in front of their classmates, they had all managed it, and to her delight, they were then very keen to perform their interpretations for the principal. It was only because of a number of absences due to illness, that this had not eventuated. While it is too early to ascertain whether it has led to a sustained growth in confidence, Janet senses her students feel a real sense of achievement.

Janet appreciated my assistance with the activity. She had found it valuable to have another person's ideas in planning it, and because the physical nature of the activity was new to many of the students, she felt an additional supervisor was beneficial, so she "could work full-on with the group that needed to be reined in a bit". We discuss the need to develop a class culture where performance is part of the norm. Janet feels that Year 7 is an ideal starting point for this, as the students tend to become more self-conscious by Year 8.

With just over a week left of term two, we review the MI-based plan for the unit. Janet has managed to complete the majority of activities. Debating is underway this week, and she is planning the Victoria Battery trip for next week, the last week of

term. She has taken the newspaper related activities out of the plan, although they had taken photographs on their visits to the mine, and used these for follow-up work back in class. The activities that she has not managed to fit in include the musical activities, the visiting speaker to present the environmentalist perspective of mining, or the intrapersonal activity of writing the diary of a miner. However, Janet is aware that Lynn's students are currently doing that activity and thinks she might still be able to fit it in next week. As well, the kinesthetic Body Movement activity had been additional to the original plan for the unit.

While Janet feels satisfied with the amount of work her students have covered during the term, she feels that they have not really addressed the personalised throughline *What does mining mean to me?* With just over a week left of term, she is still keen to have a visitor come in to speak to her class to present an opposing view of mining, as she can see the value in it, but this will depend on time constraints.

I had become aware through my various conversations with Janet over the past few months that her collegial relationship with Lynn seemed a little weaker this year, due to the fact that Janet had been directed to move rooms at the end of the previous year. This meant she and Lynn no longer shared the same entryway to their rooms. At the initial request of the management, Lynn, who is a very experienced teacher, had been a wonderful support to Janet when she took up her permanent position at the college the previous year. Janet told me they always planned together, so tended to do the same units, drawing on each other's strengths. Lynn usually got the English and social studies planning underway, while Janet organised the maths, and they often planned for shared trips and activities. Janet did not understand the

reasoning behind the shift, and at the time had asked that the decision be reconsidered. It had happened at a very stressful time of year, without consultation, which had caused some strain in staff relationships, and certainly undermined Janet and Lynn's successful collegial relationship.

4.5 Case Study 4: Lynn

4.5.1 Background

Lynn completed her primary training in 1974, teaching for three years before stopping to have her family, then returning to teaching in 1982. Lynn has wide classroom and management experience, having taught for over 25 years in all areas of the primary school, and has also spent five years as a 'walking' deputy principal.

A committed learner herself, Lynn's qualifications, all of which she achieved while working fulltime, include an Advanced Diploma of Teaching, a Certificate of Middle Management, Bachelor of Education and Master of Educational Administration. Her Masters thesis had investigated the effective use of learning styles theory by classroom teachers. In addition, Lynn tells me she had completed a one-year course through the Christchurch College of Education on the theory of multiple intelligences.

Lynn has taught in the intermediate department at Tarua College for two years, her first year with a Year 8 class, her second with a Year 7 class. In 2007 she is teaching a Year 7 class English, social studies and mathematics.

Lynn tells me her decision to become a teacher was based more on the idea of a suitable career option for girls at that time, rather than personal passion. As a 16-year old she felt she only had three choices; teaching, nursing or becoming a secretary. She had always liked children, and so her decision was made. At that time she had never really considered that she would be working much beyond marriage.

4.5.2 Existing Beliefs and Practices

> I like to think that I'm helping prepare my students for an unknown future – to help them develop the skills to become life-long learners. I like to think I am a guide to help them get the most out of their education and life-long learning by understanding how they learn and lots of strategies for becoming good all-round people.

As Lynn's words indicate, she has a holistic view of learning, aiming to help her students develop a positive self-esteem, the ability to take risks in their learning, learning-to-learn skills, with an integrated focus on values. She talks about preparing her students "to be good people, not just good at learning."

This concept of 'an unknown future' has led Lynn to adopt a dynamic view of knowledge and learning, which she illustrates clearly:

> It's interesting to watch my mother learning how to work a computer. It brings it home to me how learning has changed. She expects to be told how to do something – to sit down and learn, but with computer learning it is more about hands-on learning and learning 'as you need to know something'. I think in the old days you had your content and curriculum and you'd just charge your way through it, and now I think that 'just in time' learning is more relevant.

Fundamental to Lynn's teaching philosophy are the ideas that there are multiple ways of being intelligent, and that her students may have strengths in certain areas and not in others. She embraces the idea of individual difference, and as a result, believes that "education needs to be differentiated for every individual". To help achieve this, Lynn provides a range of hands-on, multi-sensory learning activities, and makes good use of co-operative group work, where students can draw on each others' strengths, and lower achievers have support in their learning. Her goal in

participating in this MI project is to continue to develop her ability to differentiate the curriculum for her diverse learners.

Lynn believes that learning for students is not just restricted to school. In fact, she views the school as a 'fairly contrived' learning environment, so believes it is important that teachers make learning content and contexts as meaningful and relevant as possible.

As a very experienced teacher, with a rich background in professional development, Lynn is confident in her ability to provide a successful learning environment for her students. She regards a successful lesson as one where students are really engaged and actively involved in their learning – a lesson where they have been given choices in their learning, and they have made the most of those choices.

4.5.3 Term One Planning Meeting

For our first planning meeting, Lynn is joined by Janet, who is also taking part in the MI project. Both Year 7 teachers, Lynn and Janet have a supportive collegial relationship, regularly undertaking the same learning units and planning collegially.

Lynn's class is already underway with a visual language unit, *How I Learn Best*, which aims to introduce students to mind mapping, develop their self-awareness of their personal learning styles, and set learning goals for the year. With a strong background in learning styles theory, Lynn has already undertaken a learning styles analysis with her students, and they have set personal learning goals for the year, outlining the steps they need to undertake to achieve these. She is keen for ideas as to how she might introduce the idea of multiple intelligences in this context.

The required social studies topic for the term is *How and why people exercise their rights and meet their responsibilities?* We discuss the possibility of coming up with a cross-curricular learning topic, to help overcome time constraints. Lynn is familiar with integrated learning units and quickly grasps the idea that literacy requirements, which this term include Recounts and surface features, can be incorporated within the social studies programme. She tells me how fortunate her class is this year to have a science teacher who is keen to work her programme alongside Lynn's English and social studies programme.

Together we brainstorm a variety of different activities, discussing the different intelligences they draw on, as well as considering how they might fit with the curriculum requirements for the term. Lynn comments that the curriculum requirements make it difficult for teachers to be creative, and require quite a mental effort in the process. Lynn is keen to use students' different intelligence strengths as a bridge to developing their literacy, as her students have a very low entry literacy level this year, with 80% of them reading at or below a Year 4 or 5 level. We discuss how MI-based activities can hook them into reading and writing, and consider a range, including writing song lyrics to a known tune (Musical); using a variety of templates or graphic organisers to help organise students' thinking and provide a framework for their writing (Logical-Mathematical); creating a class journal about the people in the class in which every child has a personally created page (Interpersonal/Intrapersonal); using photos with accompanying captions or poems (Visual-Spatial); and power point presentations (Visual-Spatial/Logical-Mathematical).

We are finding it difficult to link some of the suggested activities to Lynn's central theme *How I learn best*, which is proving a little narrow in focus. In order to deepen students' engagement and understanding, I emphasise the importance of developing a cohesive curriculum around rich and relevant themes, in which all learning activities are focused on answering the central question or throughline of the unit. Janet suggests broadening the theme to *Me and My Learning*, which would provide a lot more scope for learning activities and tied in well with integrating teaching about MI theory. I mention Marg's throughlines for the term for her boys' class – *Who am I?* and *Who am I becoming?* Lynn can immediately see the benefits in getting Year 7 students to consider their potential futures at Tarua College, and how this links in so well with the innovative Year 7 to 10 first-week programme *We are Tarua College*. She becomes quite animated about this.

> This is what [the principal] wanted us [to do]. This is the Tarua Way that we did. We were given this and told to go and plan what we were going to do. And it's basically what we're getting around to now, isn't it. What are my strengths and weaknesses? What can I offer Tarua College? What is Tarua College? But this could be our unit for the term!

I agree that the unit *We are Tarua College*, was an ideal starting point for developing a meaningful school-based curriculum that addressed the fundamental question *What is it really important for our students to learn?*

Lynn tells me it is not that straightforward, however.

> A lot of the learning … is determined by the testing in the school, whether us teachers like it or not. Assessment actually leads what is learned. Last year I taught what I thought the kids needed and at the end of the year with the standardised testing, I was horrified how badly they did with the grammar, etc. For those kids, the grammar was the least of my priorities. But the result made me

feel ashamed and as though I was a poor teacher (no one told me that – I am saying how I felt). This year I have included grammar, etc. into my programme.

4.5.4 Term One Planning and Review Meeting

Our scheduled planning meeting is postponed as Lynn is away from school due to family illness. She arrives at the next meeting with an idea for incorporating some MI-based activities into the reading programme over the last couple of weeks of term. Her class has been away for a four-day / three-night camp, and she would like to use the camp theme as a basis for some reading activities. Her suggested activities are:

1. Six Hats thinking activity (de Bono, 1992) about Camp (Logical-Mathematical)
2. Design an advertising brochure for camp (Visual-Spatial)
3. Write a letter of complaint or congratulations to the camp (Linguistic)
4. Camp Mind Map (Visual-Spatial)
5. Work out all the costs of the camp (Logical-Mathematical)
6. TV interview with someone who has been to camp (Interpersonal)
7. Write a short story set at camp (Linguistic)
8. Create camp music or write a song about camp (Musical)
9. Role play a camp event (Kinesthetic)

Her suggestion involves dividing her class into three ability groups, which on a rotational basis, would spend one period working with her for an intensive language session, the second period completing a spelling activity, and the third period involved in a choice of eight MI-based activities.

Lynn agrees that term one has been a "messy term", with ongoing interruptions which have made it difficult to establish good depth and flow in the classroom programme. Camp is a motivating and experiential theme for students. Lynn's planned MI-based activities will provide excellent follow-up for the students and enable them to gain more depth from their camp experience.

For term two Janet and Lynn are planning a cross-curricular term long unit, based on a central theme of Mining, which fits in with the required Place and Environment social studies strand for the term. It will also have a Newspapers focus, the initial idea being that the class will create a newspaper with an overall mining theme.

To focus our planning I ask Lynn and Janet what are the most important things they want their students to gain from their Mining and Newspapers topic. Lynn quickly responds with the idea *What does mining mean to the community?* We discuss the potential of this throughline, as mining certainly means different things to different people, so it was likely to encourage students to engage in thinking about the different perspectives to an issue. She then suggests a second throughline *And how does mining affect us?* Again, this throughline has excellent potential, as it will focus students on making a personal connection with the topic, requiring them to think deeply about mining and come up with their own perspective. Together, we finalise the wording for the term's throughlines:

What does mining mean to the community?

What does mining mean to me?

Janet expresses her concern that the Newspaper activity is a huge unit in itself, and suggests that they should focus purely on Mining. Lynn is still keen to create a

class newspaper, and thinks that the newspaper skills of interviewing, reporting and writing could be incorporated in the programme. She suggests that they could focus on a different part of the newspaper each week, and include activities related to that. Lynn is enthusiastic about her class entering the New Zealand Herald Create a Newspaper competition, but Janet, who has taken part in this competition in the past, advises against this. It is a very directed exercise, she tells us, with a specified theme for each page, making it impossible to incorporate the mining theme. I express my concerns about the newspaper competition, because it involves a range of unrelated topics. If the theme for the term was Newspapers, then the throughlines would relate to this, and aim towards getting students to think and act like journalists, photographers, typesetters, etc. Combined with a mining theme, we were risking a jumble of unrelated activities, and superficial learning for the students. The timing of the competition is also working against her, so Lynn agrees to discard that idea, although she is still keen to enter another Create a Front Page newspaper competition. This could incorporate the mining theme, and could serve as the culminating activity for the unit.

With that decided, we turn our energies to brainstorming some MI-based activities related to the topics using the MI template (See Figure 4e).

Figure 4e. Year 7 Cross-curricular Unit

Mining (with Newspaper activity)

LINGUISTIC	**LOGICAL/MATHEMATICAL**
Debating (Mining –v- Environmentalist) (Justifying arguments) Procedure writing Reading Activity – Different Stages of Gold Extraction Process (with photos – put in correct order) Newspaper articles	Researching (Finding information) Classifying/Categorizing (from DVD) Flow chart Gold Extraction Process Timeline (History of mining in area) Questioning (Personal questions for visit to Mine Education Centre)
KINESTHETIC	**VISUAL SPATIAL**
Class trips • Museum visit • Mine visit • Mine Education Centre • Victoria Battery (historical perspective) Guest speaker – Environmentalist	Viewing DVD on mine Mind-mapping (note taking) Pictures of Stages of Extraction Process (with words – put in correct order) Map of mine and town exercise Newspaper Layout Photography Advertisements Cartoons
NATURALIST	**MUSICAL**
Design redevelopment of landscape at completion of mining activity in the area	Old mining songs Write words to well-known tune reflecting your thoughts about mining.
INTERPERSONAL	**INTRAPERSONAL**
Interviewing Perspective-taking activity Debating team	Diary of miner – Historical – Present day

4.5.5 Term Two Review Meeting

I meet with Lynn to accompany her class on their first outing for the unit. She has chosen the visit to the museum as the 'entry point' to the Mining unit. I do have reservations about this being the best use of a class trip, as I prefer students to have first activated and begun to build on their prior knowledge about the topic, so they can gain maximum benefit from the valuable hands-on experience. If an excursion is to be used as an entry point to a topic, the students need to have some clear objectives and tasks for the trip, to encourage them to become more deeply engaged.

Lynn and I discuss this, and the students are asked to bring back to school three ideas they gained from the visit to the museum about mining and how it affects the community.

Following the visit Lynn talks briefly about the new management directives that have been introduced at the college in an effort to raise NCEA achievement levels. With the aim of reducing the number of interruptions to students' learning, the college management team has directed that students are not to miss class for cultural or sporting groups. In future any interest groups are to be taken during lunchtime or after school. Lynn is concerned about this as she is in charge of the Future Problem Solving group at school, which she takes one period a week during one of her non-contact periods. She regards Future Problem Solving as an academic activity, and is hoping that this new directive will not apply to her group.

4.5.6 Term Two Final Review Meeting

In terms of the MI project, Lynn has been very quiet for much of this term, and I have heard little from her. I go into our final meeting keen to explore this further, looking for the barriers that may have prevented her deeper involvement.

It is apparent that Lynn's morale is low, as is her level of job satisfaction currently. From my conversations with teachers over the past few weeks, I have become aware that the recent spate of management directives aimed at raising student academic achievement has negatively impacted on staff morale at the college. Lynn's words today reinforce my growing belief that the current management focus on academic achievement is highlighting the underlying philosophical divide I have detected amongst the staff at the college. While Lynn is affected by the current situation at

school, she tells me that on a personal level, this year has been particularly stressful, as her husband is experiencing ongoing health issues and has been in and out of hospital several times this year. Coupled with caring for an aging grandmother and helping her daughter with her own family, Lynn has found she has not had the extra time and energy required to give 100% to the MI-based curriculum innovations.

> Basically, just to keep up with school work, I need to be working right through the day every day, and [the extra planning] would [need to] be done at home. And with my husband in and out of hospital, I've just been keeping my head above water. … So I feel I've prioritized really.

Lynn's considerable teaching experience has helped her cope with the situation. With a fundamental belief that her students all have individual strengths and weaknesses, and different learning styles, she has always provided a range of multi-sensory learning activities. She tells me that although her plan to introduce MI-based reading activities based on the camp theme did not make it into practice, she generally offers her students choice in the way they present their information, usually drawing the different ideas for presentation from the students themselves. In short, her involvement in the MI project has resulted in little change to her classroom practice. Lynn has kept on doing in the classroom what she has always done.

Together we went over our original MI-based plan for the Mining unit. Lynn has managed to complete many of the activities, plus she has added some of her own. Her class is currently involved in debating – the moot being *A rich gold-bearing vein has been discovered beneath the town. Should the town be moved?* (Linguistic/ Interpersonal) and writing a letter from a miner (Linguistic/Intrapersonal). They have completed a Venn diagram comparing modern-day with historical mining

(Logical-Mathematical); viewed a promotional DVD with a focus on the idea of propaganda (Visual-Spatial/Interpersonal); interviewed people about mining (Interpersonal); created a map of the area (Visual-Spatial); created a timeline of mining in the area (Logical-Mathematical) and a flow chart of the gold extraction process (Logical-Mathematical); learned mind-mapping as a form of note-taking (Visual-Spatial), and taken part in four excursions (Kinesthetic). Lynn's class had also undertaken the body movement activity about the gold extraction process (Kinesthetic). Only the suggested musical activities and the visit from an environmentalist have been omitted. Because of the limited time available, Lynn had decided not to do the Newspaper activity this term.

Lynn has only recently moved into the secondary school context after many years teaching in primary schools. A difference she notes is that her classroom in the junior secondary school is not well resourced for MI-based lessons.

> …when I first came to this school I went over to the art department and said, "Can I have some art gear?" and they said, "Oh no, we don't give you that." So it's just a bit hard, so I've become quite traditional really since I've come to this school."

However, she does feel that "at secondary school the intelligences are catered for quite a lot by science and music and art and technology and PE". While this is true in one respect, I remind her that one of goals of MI-based classroom programmes is to enable diverse students to access lesson content. The content of PE, technology, music and art lessons is usually completely separate from students' learning in core subjects. However, depending on students' strengths, their understanding of a topic like mining may be enhanced by being able to build a model, paint a picture, or perhaps by exploring an aspect of the topic through drama, movement or music.

Lynn confirms that due to Janet's classroom shift, their collegial relationship has been somewhat interrupted this year. Whereas previously they shared the same foyer and as a result wandered in and out of each other's rooms throughout the day, now they need to make more of a conscious effort to maintain collegial contact. Consequently, she is spending more time in her classroom on her own getting on with her classroom programme.

While she agrees that time constraints have an impact on teaching practices, Lynn accepts these organisational limitations, and works around them. She usually runs an integrated English and social studies programme, which enables a more efficient use of time, while adding the opportunity for greater cohesion and depth to the learning programme. However, she tells me her favourite part of the timetable and most effective teaching time is when she has her students for a double period of English.

Lynn feels a lot more value could have been gained from this project if all Year 7 teachers had been participating, with the intermediate Head of Department on board as well.

> I believe that, in a nutshell, multiple intelligences is about a differentiated curriculum, and its consequences in a secondary system is that you'd have to have the whole school run that way and have it coming from the top – and teachers would have to buy in to it.

CHAPTER FIVE: DISCUSSION

In these complex and uncertain times, caring for and challenging learners create serious moral and practical dilemmas for teachers, the intensity of which vary significantly depending on the social context of their work. (Sugrue, 1997, p. x)

5.1 Introduction

This chapter discusses and interprets the findings of the four case studies, which resulted from this six-month research project, and explores the emerging issues. The research literature informs us that MI-based classroom programmes have been found to be associated with improved student outcomes and other positive changes in the secondary school setting. Yet, while MI theory has been readily embraced by primary school educators, it has had very limited impact on secondary school practice (Campbell & Campbell, 1999; Gardner, 2004b; Kallenbach & Viens, 2002; Vialle, 1997; Viens & Kallenbach, 2004). This research project has had two main aims:

(a) To support a group of teachers as they developed their understanding of MI theory and attempted to implement MI-based programmes in their junior secondary school classrooms.

(b) To identify the barriers to implementation teachers faced, and consider possible solutions to these issues.

The case study findings are presented in two main sections for discussion and interpretation:

1. Teachers' Experience of the Project
2. Identified Barriers to Implementation

The primary focus of this project has been the teachers' individual experiences associated with implementing MI-based programmes in their classrooms. It did not set out to investigate outcomes for students as a result of MI-based programmes. During the course of the study, however, teachers have noted outcomes for their students as a result of their MI-based innovations, and while these are not quantified results, they have been included as an important aspect of the teachers' overall perceptions of the experience.

5.2 Teachers' Experience of the Project

MI theory does not prescribe educational practice. There is no single correct way to apply it in the classroom. Accordingly, the teachers in the project arrived at their individual interpretations of the theory, and implemented it in their different learning contexts in ways that they felt best met their learners' needs.

Significantly, the two teachers in the intermediate department of the college encountered the greatest difficulty implementing MI-based innovations to their programmes during term one, which they described as "a messy term". This was due to a variety of barriers, including a disrupted learning cycle due to term one events, curriculum and assessment requirements, and an overall shortage of time.

5.2.1 Reasons for Adoption of MI theory

Participation in the MI project was on a voluntary basis. The principal had notified his staff about the project, and specifically mentioned it to a few teachers who he felt might be interested in participating. Four teachers attended the preliminary meeting, which was less than he had expected. All four chose to participate, their primary reason being that they hoped that a deeper understanding of MI theory would improve

their ability to differentiate the curriculum to better meet the needs of the diverse learners in their classrooms. Notably these four teachers all shared a number of similar characteristics, which supports Kornhaber's (2004) research finding that teachers adopt MI theory because it complements and validates their existing beliefs about learning and the nature of human intelligence, and they already used some practices that fit with the theory.

The participants were all primary-trained teachers working in a secondary school setting. All four had an appreciation of human diversity. They all believed that people are intelligent in multi-faceted ways, and that everyone can achieve success in their learning, which they regarded as a life-long process. Their optimism about their students' learning was noticeable. All four expressed constructivist philosophies of learning, in that they viewed learning as the process of students creating meaning by linking or associating new knowledge with their existing knowledge ((Udvari-Solner, Thousand, Villa, Quiocho, & Kelly, 2005). In line with constructivist philosophy, they aimed to be 'learning facilitators' in the classroom, with a view to providing their students with the skills that enabled them to take charge of their own learning. They shared a holistic view of learning that encompassed much more than academic success for their students, for they regarded social and emotional well-being as having an equally important role to play in their students' achievements. Marg and Susan had taken this pastoral care role beyond their classrooms, with both acting as year-level Deans at the college. In our preliminary discussions, all teachers emphasised the importance of developing good relationships with their students. In terms of existing classroom practices, they endeavoured to include a variety of multi-modal learning experiences 'to hook in' their diverse learners, and they also made

effective use of co-operative learning activities (Johnson, Johnson, & Holubec, 1994) in their classrooms.

Finally, all four teachers were keen learners themselves. It was evident from our conversations that they actively sought new ideas that might enhance their understanding of effective learning and teaching, or new classroom strategies to add to their existing teaching toolbox.

5.2.2 Outcomes for Teachers

(a) **Increased awareness and understanding of student diversity**

The teachers expressed a greater awareness of diversity in the way their students learn and what they each bring to the classroom, which MI-based lessons enabled them to observe. This corresponds with the findings of Kallenbach and Viens (2002). For example, when reflecting on the body movement activity for students to explore the gold extraction process, Susan spoke about one of her usually less-engaged students. "He just shone on that [kinesthetic] activity, and he just loved that! … And he can switch in and be really interested."

Alton-Lee (2003) maintains that diversity and difference is "central to the classroom endeavour and central to the focus of quality teaching in Aotearoa, New Zealand" (p. v), citing evidence to support her claim that teaching that is responsive to student diversity can have very positive impacts on low and high achievers at the same time. According to Alton-Lee, diversity encompasses many characteristics, including ethnicity, socio-economic background, home language, gender, special needs, disability, and giftedness.

In order to learn more about their individual students, all participating teachers chose to have them complete various MI checklists and interest inventories at the start of the year, with a view to building a profile of their strengths, weaknesses, interests and preferences, and they included learning activities in their term one programmes that provided them with details of their students' diverse personal backgrounds.

> … I think another big change for me is being more understanding and accepting of ways people do some things differently. (Marg)

> If you don't know the kids, you can't have that hook-in, and get them inspired. (Susan)

Further, teachers reported improved relationships with students. It is suggested that by establishing contact with their students' personal worlds, teachers are able to build high quality personal relationships (Mawhinney & Sagan, 2007), which Marzano and colleagues (2003) suggest is the keystone for all other aspects of classroom management.

With the exception of Susan's Year 10 music class, the teachers all chose to introduce MI theory explicitly to their students, and attempted to engage them in reflecting about their own strengths and weaknesses. In varying degrees they integrated talk about MI within their daily programmes, and communicated their beliefs about their students' abilities directly to the students, a commonly noted feature of MI-based classrooms (Campbell & Campbell, 1999).

(b) **Extended teaching practice and enhanced teacher creativity**

MI theory does not prescribe educational practice. As suggested in the research literature, the teachers in this project implemented MI principles in their own way

according to their personal interpretations of the theory, and also in response to the strengths, needs and interests of their different groups of learners, their goals for their students (Kallenbach & Viens, 2002), the nature of the lesson content, as well as the requirements and constraints of their different learning contexts (Baum et al., 2005; Campbell, 1997). In line with Kornhaber's (2004) findings, all teachers reported that they had extended their range of teaching strategies as a result of their involvement with this project. Their approaches included:

(i) *MI-based lessons*, which gave students a variety of MI-based entry points into topic content, and a choice of exit points which allowed students to use their different strengths to demonstrate their understanding of the topic;

(ii) *Use of MI to foster literacy*

Raising literacy standards in their classrooms was a focus for all four teachers. During the course of the project they fostered their students' literacy development by:

(a) Leading into a literacy-based activity with other MI-based activities;

…. The writing was just incredible. The depth of writing in their letters was just wonderful. Because I'd used the multiple intelligences [for lead-in activities], and then we took from each activity that we'd done, to put into their writing. (Marg)

(b) Embedding literacy activities within other MI-based or real-world contexts (e.g., song lyrics, graphic organisers, emails, advertisements);

(iii) *Curriculum integration*

This is not common practice in secondary schools (Weber, 1996), but was possible in the research context because all four teachers taught classes for more than one subject. The teachers found that cross-curricular units provided for greater learning cohesion and depth, and helped overcome time constraints;

(iv) *MI as content*, which included direct teaching about the theory as a basis for students to reflect on their own strengths, needs and learning preferences;

(v) *Projects*

Producing and staging a school production in order to raise funds for a class trip to Auckland provided an authentic, meaningful and relevant learning context for Susan's Year 10 music class. Projects draw on a number of intelligences and emphasise real problems, products and professional roles, all aspects of MI theory's definition of intelligence (Kallenbach & Viens, 2002).

(c) **Improved planning framework**

In line with Kornhaber's (2004) findings, all teachers in the project reported that MI theory provided an effective framework for organising and extending their teaching practice.

> On every one of my units I've got a grid now – just checking, … have I got this range? Do I want the end products to be an MI-type of thing? … Have I covered a different range of possibilities for these kids to show or demonstrate [their understanding]? (Susan)

(d) **Reflecting on their beliefs and a deepening understanding of MI theory**

As a result of their experiences, the teachers' beliefs about learning and human intelligence were affirmed and extended over the course of the study, as was their understanding of MI theory. As Kallenbach and Viens (2002) suggest, this occurred to varying degrees for a number of reasons, including their existing beliefs and practices, years of teaching experience, prior professional development and other personal factors. For example, Marg, with 20 years teaching experience and a passion for working with students who have experienced a lack of fit with mainstream classrooms, had a real-world view of intelligence when she commenced the study, although this did not mesh comfortably with some underlying IQ-based beliefs, which is illustrated in the following excerpt from our initial interview:

> I was brought up when you could have the intelligence test and I guess we've sort of come with that pre-understanding that it's how you rate on the scale. But my husband has really challenged me with this one, because my husband struggled at school, and he still struggles to spell and he doesn't really like reading … But … he's got the most incredible memory – a photographic memory. He can tell you facts about anything and everything. And so he has really spurred me on to look at what is intelligence now, and while I know

> some people are absolutely incredibly intelligent, it's what they do with it that counts. (Marg)

Whereas Marg came into the project thinking of MI as a strategy to add to her teaching toolbox, after six months, her viewpoint had changed to the point where MI theory had become a philosophical framework for her understanding of learning and intelligence. She was starting to question the traditional academic focus of the secondary school and its relevance for learners with diverse intelligence profiles. As she explored MI theory, Marg's awareness of her own strengths and weaknesses as a teacher had also developed, to the point where she reported that she was making a conscious effort to include types of activities for her students that she might previously have avoided.

I had noted at the outset of the study that teachers had a level of confusion between MI theory and Dunn and Dunn's (1978) learning styles theory. I addressed this issue with individual teachers as opportunities arose in our various conversations during the course of the project, with a view to helping them clarify the differences between intelligences and learning styles. At the same time I cautioned them about the dangers of limiting their students by narrowly categorizing them, as for example, 'visual' or 'kinesthetic', and/or communicating the idea to their students that their various intelligences were fixed capacities. This was an opportunity to emphasise two fundamental principles of MI theory, which were more fully explained in Section 3.7.1 of this thesis:

(a) A pluralistic view of intelligence

(b) Intelligence is modifiable

Alton-Lee (2003) suggests there is a further danger in narrowly categorizing students with a learning styles approach, citing research that reveals this has led to inappropriate stereotyping of minority students.

Susan demonstrated the most confusion around learning styles in the early stages of the project, thinking of students' different intelligence profiles in terms of their "preferred intelligences". I gained the impression that her confusion had resulted from mixed messages she had brought back from the various courses she had attended as part of the Gifted and Talented initiative. A closer consideration of Gardner's definition of intelligence and its emphasis on problem solving and product creating enabled Susan to reach a simple differentiation between the two theoretical constructs – "learning styles in – intelligences out" – referring to learning styles as the students' preferred way of taking information in, and the idea that students used their intelligences to create the products of their learning – the solutions to problems and products they created to demonstrate their understanding of lesson content.

The participating teachers had attended a half-day workshop on MI theory at the beginning of the year in order to establish a baseline understanding of the theory. Teachers would have gained more benefit if this had been at least a full-day workshop, as this would have enabled a fuller coverage of theoretical aspects and more time for experiential activities. However, as this was a compulsory component of the project, the decision to shorten the workshop was based on a desire to minimise extra demands on teachers' time.

(e) **Improved teacher confidence and sense of efficacy**

Because MI theory complemented their existing beliefs, and validated their existing classroom practices, teachers experienced improved confidence in their abilities as teachers. The positive outcomes for their students they were noting, as a result of their MI-based learning activities, provided a real sense of achievement and satisfaction for this group of deeply committed teachers. Traditionally, schools have focused mainly on the Linguistic and Logical-Mathematical intelligences. The teachers noted that students whose intelligence profiles did not fit with this traditional model were better able to access and understand lesson content through undertaking MI-based activities that drew on their areas of strength. While outcomes for students were not quantified, teachers reported that their students showed improved engagement, motivation and enjoyment of learning, improved independence and self-management skills and improved self-confidence. Improved work completion and time management was a significant development for Marg's "boys' class". Both Marg and Susan were incorporating more direct teaching about the need for personal responsibility in their programmes, which may have led to these positive outcomes for students, as proposed by Alton-Lee (2003).

(f) **Emergence of a cohesive student-centred curriculum**

Although specific to Marg's Year 9 'boys' class', this outcome has important implications that are worthy of further investigation. Marg's students had been selected to be part of her boys' programme because of a record of poor work habits and under-achievement. The boys' programme at Tarua College, with boys-only classes at Years 9, 10 and 11, was in many respects separate from the traditional scholastic mainstream programme at the college.

> So I've been given the freedom to run this class as I choose, as long as I show that we're being successful and improving our literacy levels and things like that. So, yeah, I take a real holistic approach.

Marg believed it was essential that her students first developed improved attitudes towards school and learning, improved self-confidence, and improved self-management and interpersonal skills, before they would be in a position to achieve academic success.

With her holistic and student-centred approach to learning and teaching, she immediately saw the potential in considering the important big-picture question, *What is it really important for my students to learn?* The intrapersonal focus of her term one Who Am I? unit, directly addressed her personal and social learning goals for her students, while the future-oriented throughline of *Who am I becoming?* provided an ideal springboard for their intrapersonal reflection, including educational and career aspirations, goal setting, and exploring strategies required to achieve personal goals. This unit proved to be an ideal starting point in an emerging cohesive student-centred curriculum.

The cross-curricular topic Heroes, Marg's theme for term two, linked with and flowed on from the term one topic, and again provided a valuable learning context for her students to continue to develop the intrapersonal skills and self-esteem she believed to be the necessary prerequisites for future success. Marg's goal for her students was to develop their understanding that heroes could be found at many different levels – The Hero within, personal and family heroes, at a local community level, as well as nationally and globally. In addition, she wanted them to consider the possibility that they too could be heroes for others – exploring more deeply the idea of the Hero within. From these goals she developed the throughlines:

What makes a hero a hero?

Who can be a hero?

During a spontaneous staffroom conversation with Marg and John towards the end of term two, we discussed possible themes for term three. They were keen to explore careers and goal-setting, viewing this as a valuable development on their term one throughline *Who am I becoming?* As a result of an impromptu brainstorming exercise around the theme of Goals, we came up with the theme of Money, another rich and thought-provoking topic, which offered many possible directions and think-points as a cross-curricular English and social studies topic. It was a topic that was also very relevant to their students' lives, as many came for low income families.

The curriculum that Marg and John were developing for their students was a promising development, one that is worthy of further investigation. This emerging school-based curriculum reflected the core of the new draft New Zealand Curriculum (Ministry of Education, 2006), in that it was "connected, coherent, and balanced" and "reflects the particular needs and interests of the school's students and community" (p. 26). While the emerging cohesive curriculum was an important aspect of the programme, research suggests that Marg's ability to integrate key learning objectives into meaningful and/or real-life learning situations for her students, and her skill at structuring and sequencing lessons so that students' learning is scaffolded by valuable 'lead-in' activities, were also important factors which contributed to the successful learning outcomes (Alton-Lee, 2003; Hill & Hawk, 2000).

(g) **Improved collegiality and collegial planning**

This was another important development for Marg as a result of the project, again principally due to the separate nature of the boys' programme, which had clearly articulated holistic learning goals, and an established pedagogical approach that was aimed primarily at engaging the students positively with school, raising their self-esteem and making learning meaningful and relevant to their lives. Throughout the course of the project, Marg worked closely with her colleague, John, who taught the Year 10 boys' class. Because they shared very similar beliefs about effective learning and teaching and human potential, and were both passionate about raising the achievements of their diverse learners, they each gained a lot from their developing collegial relationship.

> At our school, while we have departmental meetings, very rarely do we plan together, so it's very much individualized what you do in your classroom. So I love working with [John] with the Year 10s, because the two of us, we trade off ideas, and I'm very much a team player like that. (Marg)

Marg and John experienced the benefits of collaboration identified by Kornhaber and her colleagues (2004) as a fundamental practice common to schools which associated MI theory with benefits for students. In both formal planning sessions and in impromptu conversations, Marg and John shared their ideas and results, gave each other constructive suggestions, and drew on each other's areas of strengths to improve their own understanding and practice. Collegial planning sessions were enthusiastic, creative and highly supportive of each other's efforts.

> But it is not merely the team work that creates the willingness to try new things – it is the joint action that flows from the group's purposes and obligations as they shape the shared task and its outcomes. (Grimmett & Crehan, 1992, p. 56)

5.3 Identified Barriers to Implementation

The participating teachers faced many difficulties in their endeavours to implement MI-based classroom programmes. These barriers fall into categories which echo the findings in the research literature, and help build a picture that goes some way towards explaining why MI-theory has barely gained a foothold in the secondary school context. That the teachers in the project were able to successfully negotiate and work around these many constraints is a reflection of the depth of commitment they have towards improving student outcomes and highlights the key role the individual teacher plays in implementing any curriculum innovation in a school.

(a) Barriers relating to Teacher Culture

Hargreaves (1992) describes teacher culture as being made up of *content* – the shared attitudes, values, beliefs, habits, assumptions and ways of doing things; and *form* – which consists of the characteristic patterns of relationship and forms of association between members of the culture.

> … teacher cultures are among the most educationally significant aspects of teachers' lives and work. They provide a vital context for teacher development. What goes on inside the teacher's classroom cannot be divorced from the relations that are forged outside it. ((Hargreaves, 1992, p. 218)

Balkanization

Tarua College has a *balkanized* teacher culture, a common feature of secondary schools that has developed as a result of their subject-based departmental structure. Balkanization is defined by Hargreaves (1992) as "a culture made up of separate and sometimes competing groups, jockeying for position and supremacy like loosely connected, independent city states" (p. 223). Teachers tend to attach their

loyalties and identities to a particular group, which is usually made up of colleagues with whom they work most closely. These groups develop their own separate cultures, which may encompass very different beliefs about learning and knowledge, teaching styles, discipline and curriculum.

Balkanization at Tarua College is evident in a number of ways:

(a) In its separate subject departmental structure

(b) In the separation of the intermediate and secondary divisions at the school

(c) In the position of the boys' programme and the Alternative Education Unit as distinct from the mainstream academic body of the school.

Other informal sub-cultures may exist at the school, but these were not apparent within the context of this research project.

The balkanized culture impacted on the teachers participating in the MI project in a number of ways. Janet and Lynn taught in the intermediate department at the school. The separate culture of the intermediate department meant that apart from one focus group meeting organised by the researcher, collaboration with Marg and Susan did not eventuate, even though this had been encouraged from the outset. In fact an initial goal of the research design had been to develop a collaborative action research group. Marg taught in the boys' programme and was very involved with special education. While the holistic student-centred goals she had for her diverse students and her classroom practices were closely aligned with those of her colleague, John, it was evident that their philosophical stance was not necessarily shared by other groups within the college.

> I'm just tired of having to battle to try and get people to understand how our boys learn best. And have been told, well, they're the bottom half, they shouldn't be passing, or things like that. (Marg)

This situation certainly concurs with Hargreaves' (1992) view that historically the balkanized departmental structure has arisen from a higher status being accorded to traditional academic subject areas at the expense of non-academic subjects. Smagorinsky (1996) has also highlighted the marked cultural bias in traditional secondary schools that undervalues practical work as compared to academic work, "placing it in the realm of 'handedness' instead of the supposedly loftier 'headedness'" (p. 13). This does not bode well for MI-based practices which encourage students to develop and demonstrate their understanding of lesson content through the use of unconventional processes, such as drawing, dancing or acting.

The manner in which Susan was affected by these conflicting cultures within the school is more complex. Firstly, she is a primary trained teacher, who has moved from the intermediate department to teach English, social studies and music in the junior secondary school. It was clear from our conversations that Susan believed there to be a vast difference in teaching philosophies, styles and strategies between primary and secondary trained teachers, with a suggestion of hierarchy and differential status when she commented, "There are two of us now, infiltrating the 9 and 10's". Additionally, Susan was now part of three separate specialist departments within the school, each with their own management hierarchy, community of teachers and established beliefs and practices about knowledge and learning. She was attempting to fit her existing beliefs and practices from the intermediate department into the existing culture of her new position, while at the same time learning from her new colleagues about being a specialist subject teacher in the junior secondary school.

> And the teacher who teaches English, like an experienced and excellent English teacher with English skills, moving [the students]

> on to NCEA, teaches completely differently to social studies. So you're going to have a teaching style that isn't conducive to where they want English to go. It will be quite different. Social studies teachers tend to be primary school teachers because we're the groupies… Whereas the English teachers are English-trained at uni. (Susan)

Hargreaves (1992) suggests that the practices and beliefs of a teacher culture become entrenched as they are built up collectively over time in response to situations that regularly occur in that particular educational context, and are passed on to new and inexperienced members of the group. I gained the impression that Susan, who is a very motivated and dedicated teacher, cannot fully reconcile her existing beliefs and practices with her new situation. Sikes (1992) warns this can lead to teachers experiencing confusion in terms of their sense of purpose and direction, and may result in a kind of alienation.

> … this is the first time I've done Year 9 [English]. It's quite a lot different. It's mostly like critiquing poetry, critiquing films, … and they've got essays coming out their ears. I don't know what the fun in that is, but we've got to sort of make fun around it. (Susan)

The balkanized culture at the college creates an overall lack of cohesion for students, as well as teachers. For instance, Susan remarked that when students moved from the intermediate department into Year 9, they encountered a completely different structure and learning culture. Classes were streamed differently, and some students could "lose it completely because it's a completely different style of teaching and if they don't fit in, you get behavioural changes – suddenly – big time!"

During the course of this project the participating teachers implemented MI-based practices in their individual classrooms, and in the process identified and managed to work around the influences and constraints of their particular situations within the school. However, the influences and constraints associated with the different sub-cultures within the school have powerful and potentially obstructive implications for the implementation of MI-based practices, or in fact any curriculum innovation, on a wider basis in the school (Hargreaves, 1992).

Lack of collegiality

> Across the world most teachers still teach alone, behind closed doors in the insulated and isolated environment of their own classroom … segregated classrooms dividing teachers from one another so they see and understand little of what their colleagues do. (Hargreaves, 1992, p. 220)

Labelled as *individualism* by Hargreaves, this is another aspect of the teacher culture at Tarua College. While the teachers are part of their respective groups and departments, they report that in fact they have little knowledge of what goes on in other teachers' classrooms. Hargreaves suggests that this pervasive culture of isolation ties teachers to the matters they face daily in their own classrooms, and does not provide the new ideas, support and feedback necessary for teacher development. In this way teacher isolation fosters conservative pedagogical practice, and discourages teachers from taking a long-term viewpoint.

> We've only got [the students] for one year, so what I can do is make it the best for them I can in that year. (Lynn)

Lynn identified isolated practice as a major barrier to the project. She recognised the potential benefits if all Year 7 teachers and their Head of Department had been involved in the MI project as a collaborative exercise, a position supported by research which has found that collegial professional development models correlate

with higher overall student achievement (Morocco & Solomon, 1999). As it happened, Lynn actually found herself more isolated during the course of the project with her colleague, Janet, being required to move classroom. Janet could not ascertain any substantial reason for this move, despite her request to management that the decision be reconsidered. I could only conclude from this that the management did not in fact value the supportive collegial relationship that Lynn and Janet had developed, a relationship that had been initiated at the request of management in the first place.

While there had been an increased sense of collegiality between Marg and John as a result of this project, the teachers reported that, generally, organisational and time constraints in the secondary school system made it difficult for them to work together, a situation that has been identified by Hargreaves (1995), who also claims that teacher cultures of isolation and balkanization, working in combination, have been found to create a major barrier to educational change and curriculum development (Hargreaves, 1991, 1992, 1994).

(b) **Barriers relating to Management Requirements**

Teachers in the project were faced with the hurdle of planning MI-based units of learning that also met departmental curriculum and assessment requirements. Stringent departmental requirements were found to promote curriculum-driven classroom programmes, and to discourage student-centred planning, curriculum innovation and teacher creativity generally. In accordance with Alton-Lee's (2003) findings, departmental requirements at the college tended to be curriculum-centred and focused on academic content and scholastic outcomes, while ignoring other holistic student outcomes, although these are also part of the national curriculum. In

this way, the dominant teacher culture at the school that values scholastic achievement is perpetuated, and teachers pursuing holistic student-centred goals do so in relative isolation. Assessment requirements have also been found to strengthen traditional scholastic practices, and make it difficult for teachers seeking to use MI as a tool for engaging students in deeper understandings of academic content (Cuban, 2004).

It is interesting to note that due to the flexibility of the management requirements in the music department, Susan experienced considerable teacher autonomy to plan a highly creative and meaningful student-centred programme, while still covering all the requirements of the music curriculum.

(c) **Barriers relating to Time**

As suggested by Cochran-Smith and Lytle (1992)., time is "a central dimension in the work lives of teachers" (p. 306). The traditional timetabled system which breaks the day into 50-minute periods makes teacher collaboration very difficult to arrange, and in this way, perpetuates the pervasive culture of teacher isolation ((Udvari-Solner et al., 2005). Lack of time has been reported as the Achilles heel of most efforts to reform classroom practice (Morocco & Solomon, 1999), a view supported by the findings of this project, where time constraints were found to be a major obstacle to MI-implementation.

Planning and implementing multi-modal lessons in an MI-based classroom programme requires extra time, even more so in the early stages of implementation. Coupled with departmental requirements for curriculum coverage and assessment, it is understandable that many teachers may find it simpler to continue curriculum-

centred practices and make use of standardised on-line curriculum planning templates and resources. The organisational complexity of the large modern secondary school meant that the teachers' daily classroom programmes were subject to regular interruptions and disruptions, due to, for example, assemblies, sports and cultural events, and student health matters. Teachers in the project reported that ongoing interruptions to effective learning time put even further pressure on their limited time with students.

Classroom observations revealed that both teachers and students worked under considerable pressure to cover set work within the 50-minute time limit, a situation which encourages teacher-centred practice and a superficial understanding of lesson content (Morocco & Solomon, 1999). Teachers regarded double periods with their students as the most effective for learning. As well, teachers reported that the complexity of the timetabled system could cause anxiety for students, which corresponds with a finding from the Te Kotahitanga project that the preponderance and pervasiveness of bells and timetables overwhelms many Maori students (Bishop et al., 2003).

The immense pressure on teachers with management and extra-curricular responsibilities was also noted. Dedicated and hard-working teachers who take on extra responsibilities run the risk of high levels of stress and potential burnout due to the many demands on their time. Extra responsibilities also mean extra time away from their classrooms, which can break the flow of learning for their students. Teacher absences usually necessitate the use of relief teachers. However, if teachers are called away on urgent matters, as can happen with Deaning responsibilities, students are more likely to be left to manage themselves.

It is easy to understand why teachers may be reluctant to take on the extra workload involved with planning and implementing student-centred MI-based activities.

> I was up here Friday night till 7, did 4 more hours on Saturday, and thought I was really on top of things Sunday. Got in here Monday, and within five minutes I felt like I was drowning. So it's learning to work smart, but I've learned a lot from this, and I think I'll be better at it next time. (Marg)

(d) Barriers relating to Personnel

A number of factors relating to personnel were identified as being actual or potential barriers to MI-implementation.

Leadership

Teachers felt that more overt interest and support for the MI project from the principal and management team would have been valuable, particularly as they had been encouraged by the principal to participate. The research literature confirms that the school principal is the key leader for educational change. Even though they might not be directly involved in the implementation process, principals need to continue to demonstrate their commitment to the project (Hall & Hord, 1987). Matsumoto (1999) suggests that if teachers are the "lead players" on the education reform stage, then principals need to be the "best supporting actors", citing the relationship between principals and teachers as a key factor in teachers' openness to change, risk and experimentation (p. 163).

Teacher Training

The participating teachers were all primary-trained. As a result of their experience working in the secondary school environment, they generally perceived a difference in philosophy and teaching style between primary and secondary trained teachers. If this is typical, this suggests that secondary trained teachers are likely to require extra support in implementing MI-based, multi-modal and/or co-operative learning activities in their classroom programmes.

Personnel Changes

A situation highlighted in the study was how a change of personnel, particularly in a position of management, can potentially impact on implementation of innovations if the new staff member does not understand or support the initiative. This points to the need for a cohesive approach to staff appointment and induction, with a view to achieving whole-school alignment in terms of shared values and goals regarding student achievement (Alton-Lee, 2003).

Relief Teachers

The use of relief teachers was found to be another barrier as teachers endeavoured to implement MI in their classrooms. Due to the complexity of the timetabled system, teachers did not know in advance who their relievers were to be, and overall they had little contact with them. Teachers proposed that relievers were less likely to know students well, or to understand their personal strengths and needs, which does not fit readily with an MI-based philosophy. Susan also suggested that her Year 10 students held a negative view of relievers. Overall, the teachers reported that the use of relief teachers could break the continuity of learning for students and could work against curriculum innovations.

> … they had a reliever yesterday, and I thought the work they did was below the standard I would expect, and I think they mucked about, and I'm actually going to get them to redo it today. (Janet)

Level of teaching experience

Janet was beginning her fifth year of teaching at the outset of the project, the least experienced member of the research team. Throughout the study she had a tendency to be concerned about classroom management, particularly in terms of implementing activity-based lessons. She also felt that because of the nature of her students, they would not be able to cope with activities that involved choice. During classroom observations Janet always demonstrated effective classroom management techniques, so the basis of her concern was unclear. Research does suggest, however, that concerns about classroom management, which is more common for beginning teachers, can be a constraint to implementing classroom innovations (Roehrig, 2004). Bell and Gilbert (1996) suggest that using new activities in the classroom, particularly those that involved more movement around the room by students, student choice or student-led learning, can make some teachers feel as though they have little or no control, even when they in fact do. This highlights the need to explore and develop with teachers their beliefs about classroom management and control.

Teacher's personal situations

Situations in teachers' personal lives can impact on their professional lives at school. This was particularly true in the case of Lynn, who was having a very stressful year due to a variety of family situations that had arisen. As a very experienced teacher, Lynn had been able to continue providing an effective multi-modal classroom programme for her students despite these personal stresses, but

she had not had the extra energy needed to plan, implement and experiment with MI-based innovations.

(e) Barriers relating to External Pressures on the School

Schools today operate in an environment of market-driven competition and parental choice, with public perception of school effectiveness often based on overall student achievement on external qualifications (Morley & Rassool, 1999). This can result in the school placing higher value on those aspects of education that are measurable and enhance its public image, which may come into conflict with some teachers' holistic goals for their students. Hawk and Hill (1996) found that pressure to prepare students for external examinations created dilemmas and frustrations for teachers, who had to sacrifice teaching to meet students' needs, for pressured coverage of the curriculum and examination preparation. Certainly this was the case in Marg's boys' class.

> So we're getting ready for our exams at the moment, which are quite a few weeks away, but this school term my focus is on the exams, and what's in them, recapping and making sure we've got all the skills, because we need a bit of practice. (Marg)

External pressures on the school impacted on the teachers' practice during the project, as a result of the school-wide mandated teaching requirements which were introduced following notification of the school's disappointing NCEA results from the previous year. The aim of the requirements was to ensure a standardised approach to lesson planning, implementation and assessment, in a bid to raise student achievement, as well as minimising classroom interruptions, as this had been identified as a barrier to effective learning time. In promoting an assessment-

driven curriculum and a traditional approach to teaching, these new requirements were likely to stifle teacher innovation.

The literature proposes that imposed change of this nature, has its basis in a deficit model of teachers, suggesting that teaching is inappropriate or inadequate. This will naturally affect teachers' perceptions and responses to the new requirements. It does not take into account teachers' individual teaching situations, their values and beliefs, their aims and purposes, or the teacher culture they are part of. Understandably, imposed change has been found to be notoriously unsuccessful (Sikes, 1992).

Certainly, the changes imposed at Tarua College impacted negatively and most noticeably on teacher morale. The teachers questioned the lack of prior consultation with experienced teachers, the need for all teachers to first understand the reasons for the introduced changes, the speed with which the change was implemented, and the need to trial proposed changes to identify and overcome any potential problems. However, with time, as teachers adjusted their practices to accommodate the new changes, it was noted that their morale was on the rise again.

Most significantly, however, the inflexibility of the new requirements regarding school trips, assessment schedules and student work required to be completed in a period was most likely to prove a huge barrier to the successful implementation of MI-based classroom programmes.

5.4 Summary

The aim of this research project was to support a group of four teachers as they attempted to interpret and implement MI-based programmes in their junior secondary school classrooms, while identifying the barriers they faced in the process. The implications of the results and suggested solutions to issues raised are considered in the final chapter. The findings of this study support the research literature that suggests that teachers adopt MI theory because it fits with and validates their existing beliefs, practices and understandings about learning and teaching.

The following outcomes for teachers as a result of the MI project were noted:

(h) Teachers developed an increased awareness and understanding of student diversity.

(i) Teachers demonstrated extended teaching practice and enhanced teacher creativity.

(j) MI theory was found to provide an improved planning framework for teachers.

(k) Teachers' beliefs about learning and intelligence were affirmed and extended, as was their understanding of MI theory.

(l) Teachers experienced improved confidence in their abilities as teachers.

(m) MI theory provided the basis for the emergence of a cohesive student-centred curriculum.

(n) Teachers experienced improved collegiality and the benefits of collegial planning

As a result of the project, many barriers to implementing MI theory into the junior secondary school classrooms were identified, under the following categories:

(a) **Barriers relating to Teacher Culture**

(i) Balkanization, which relates to the conflicting beliefs and practices associated with the different and competing sub-cultures within the school.

(ii) Lack of collegiality, due to the pervasive culture of teacher isolation common to the secondary school context.

(b) **Barriers relating to Management Requirements**

Stringent departmental requirements were found to promote curriculum-driven classroom programmes, and to discourage student-centred planning, curriculum innovation and teacher creativity generally.

(c) **Barriers relating to Time**

(i) The traditional timetabled system of 50 minute periods makes teacher collaboration difficult, encourages curriculum-centred practices and a superficial approach to teaching and learning, and can cause anxiety for some students.

(ii) Lack of time due to the pressures of curriculum coverage and meeting assessment requirements.

(iii) Extra time required to plan and implement MI-based multi-modal lessons.

(iv) Regular interruptions to daily schedules due to school events.

(v) Too many demands on teachers' time, particularly those with management and extra-curricular responsibilities.

(d) **Barriers relating to Personnel**

(i) Need for supportive leadership of curriculum innovation.

(ii) Teacher training may not adequately prepare teachers for implementing student-centred, multi-modal classroom programmes, which make effective use of co-operative learning situations.

(iii) A change of personnel, particularly in a position of management, can potentially impact on implementation of innovations if the new staff member does not understand or support the initiative.

(iv) The use of relief teachers can break the continuity of learning for students and can work against curriculum innovations.

(v) Less experienced teachers may be reluctant to implement activity-based lessons due to classroom management concerns.

(vi) Stresses in teachers' personal lives can impact on their enthusiasm or energy for classroom innovation.

(e) **Barriers relating to External Pressures on the School**

External pressure placed on a school due to the publication of NCEA results may result in an assessment-driven curriculum and a traditional approach to teaching, which is likely to discourage teacher innovation.

CHAPTER 6: IMPLICATIONS & RECOMMENDATIONS

> **New Zealand is transforming into a knowledge society; that means our education system needs to transform. We can no longer rely on a system that tolerates failure for any students. A 21st century education system must be responsive and flexible enough to ensure every young person can achieve their potential and is set up for life-long learning.**
>
> **Over the last two decades we have been moving toward the kind of system that can support this change. Tomorrow's Schools made stronger connections between schools and the communities they serve. This was a first step in acknowledging that a 'one size fits all' system can't provide the kind of educational success we expect for all students. (Ministry of Education, 2007)**

6.1 Introduction

The call for educational reform is now loud and clear. It is embodied in the vision, principles, values and key competencies outlined in the draft New Zealand Curriculum (Ministry of Education, 2006). In terms of educational reform, MI theory has much to offer. The findings of this project, amply supported by the research literature, suggest that MI theory can provide a valuable philosophical and structural framework that can help teachers develop a greater awareness of the wide-ranging differences among their students, as well as the understanding that a uniform approach to teaching and learning meets the needs of too few. However, the project findings also suggest that due to entrenched secondary school structures and teacher cultures, reform is not likely to be an immediate or straightforward process.

This final chapter presents the implications and recommendations resulting from the research findings. The small scale nature of this qualitative study should be kept in mind when considering these issues. It should also be noted that these issues are inter-related and in their real context may not be able to be separated, but for the purposes of this discussion, they are considered as separate factors.

6.2 MI theory underpins effective teaching practice that meets the needs of diverse students

> We have learned that genuine and sustainable changes in culture and dedication to inclusive schooling depends on people who become motivated by their emotions, values, beliefs and social bonds with colleagues rather than by outside forces. (Thousand & Villa, 2005, p. 67)

Because teachers are placed at the intersection between students and the curriculum, educational change ultimately depends on them (Nelson, 1999). Certainly the four teachers in this project were central to the successful implementation of MI-theory. As hard-working and committed teachers, and keen learners themselves, they were all motivated to explore ways that might better provide for the needs of the diverse learners in their classrooms. They embraced the supportive collaborative relationship each developed with the researcher during the course of the study, and were open and honest about their thinking, their concerns, their uncertainties and their hopes. They were prepared to take risks and they persevered, even when faced with frustration and difficulty. These findings confirm the claim that the dedication, energy, imagination and expertise of teachers is critical to the quality of teaching and learning in schools (Hargreaves, 1992).

It is notable that the reported outcomes for teachers as a result of their involvement in the project, particularly in terms of their greater awareness and understanding of student diversity, and their extended use of multi-modal teaching practices, coupled with their existing holistic and student-centred approach, are closely aligned with the characteristics of quality teaching identified in a number of significant New Zealand studies (Alton-Lee, 2003; Bishop et al., 2003; Hawk & Hill, 1996; Hill & Hawk, 2000). Alton-Lee (2003) found that teaching that is responsive to student diversity can have very positive impacts on low and high achievers at the same time.

Implications

This outcome suggests that MI theory, as a philosophical and structural framework for teachers, has the potential to help teachers develop a greater awareness of the wide-ranging differences among their students, as well as the understanding that a uniform approach to teaching and learning meets the needs of too few.

6.3 Teachers' beliefs underpin teaching practices

The results of this study support Kornhaber's (2004) finding that teachers are more likely to adopt MI theory if it fits with their existing practices, and their beliefs and understandings about learning and teaching. It is significant that the four teachers who volunteered for this project were all primary-trained teachers, although they were working in a secondary school setting. They all embraced constructivist, student-centred philosophies of learning. They did not see their role as transmitters of knowledge. Instead they viewed knowledge as a constructive process, taking into account learners' prior knowledge, and structuring learning programmes to meet the identified needs of students (Bishop et al., 2003). They built caring

relationships with students and worked towards their students' social and emotional development, as well as academic achievement. They already used a variety of multi-modal learning strategies to meet the needs of their diverse learners.

A significant theme that emerged from the data, related to an apparent conflict in teacher beliefs at the college. The beliefs and practices of the four participant teachers were clearly holistic and student-centred. However, the data suggests that these might not be typical of the beliefs and practices of their colleagues. It is readily accepted in the research literature that teachers' beliefs have a significant impact on their teaching practices (Bell & Gilbert, 1996; Ethell & McMeniman, 2001; Guskey, 1985; Nelson, 1999; Pajares, 1992; Roehrig, 2005). Teachers' beliefs about the nature of knowledge and the nature of learning will govern their approach to teaching – the strategies they use and the role they take in the process. Bell and Gilbert (1996, p. 155) propose that teachers' beliefs range along a continuum, characterised by two extreme positions.

> The first position is governed by a set of beliefs that knowledge is real and exists independently of people; that students are passive potential recipients of that knowledge; and that the teacher is an expert whose task is to present knowledge directly, in a logical sequence, to the students. The second position is governed by the contrasting set of beliefs that particular knowledge is the construction of people; that students learn by reconstructing their own ideas in the light of their experiences and socially agreed knowledge; and that the teacher, whilst having a thorough grasp of the particular knowledge, has the task of facilitating the reconstruction, extension or replacement of

students' existing knowledge, using whatever teaching techniques seem appropriate.

Implications and recommendations

The outcomes of this research project, supported by the research literature, suggest that the area of teacher beliefs is an important area for further research, particularly if schools are to be able to successfully adopt a more holistic and student-centred approach to learning, as stipulated in the reform rhetoric. If MI theory is adopted by educators because it fits with their existing beliefs and practices, does this suggest then that one of the reasons for its general lack of acceptance in secondary school settings is because secondary school teachers normally adhere to quite different beliefs and practices? Entrenched school structures and cultures are also built on shared beliefs about human learning potential. Accordingly, a comparative study of primary and secondary pre-service training programmes to investigate the degree of emphasis that is placed on the philosophical and theoretical nature of intelligence, knowledge and learning may uncover some significant differences. If insufficient attention is paid to these matters in the course of teacher training, this would suggest that teachers are left to create their own theories about learning and intelligence. It has been found that personally constructed beliefs will often be based on teachers' own schooling experiences, they may be optimistic or pessimistic, they are usually unconscious, and may work against students' welfare (Campbell & Campbell, 1999; Costa, 1999).

Similarly, a comparative study of the beliefs of practicing primary and secondary teachers about intelligence, and the nature of knowledge and learning, may throw additional light on this matter. Pajares (1992) suggests that explicit studies on

teachers' beliefs have tended to be avoided because of the difficulty in clearly defining beliefs, and their complexity means they do not readily suit empirical investigation. Kagan (1992) makes the point that beliefs cannot simply be inferred from teacher behavior, as teachers can follow similar practices for very different reasons.

6.4 The need for a cohesive school culture

> In a nutshell, multiple intelligences is about a differentiated curriculum, and its consequences in a secondary school system is that you'd have to have the whole school run that way and have it coming from the top – and teachers would have to buy into it. (Lynn)

Teachers' beliefs and practices form the essence of a school's culture (Timperley & Robinson, 2002). The entrenched teacher cultures of isolation and balkanization at the college were found to create an overall lack of cohesion for students, as well as teachers, and represented a major barrier to educational change and curriculum innovation (Hargreaves, 1991, 1992, 1994). As discussed earlier, differences in beliefs and practices were apparent between the balkanized teacher cultures within the college, most significantly, between teachers working in the intermediate department and those in the secondary school.

> Secondary teachers actually like some of the students being streamed because then they can target the type of learning to that stream. But the primary teachers say that you should be able to teach all levels in a classroom… But [secondary teachers] haven't been taught to do that in their teacher training. (Susan)

Cuban (2004) proposes that curriculum reform efforts are usually only implemented superficially in secondary schools, due to:

(a) Entrenched cultural beliefs that include the importance of competition, and notions about which students are the best to teach, and which are the hardest to teach;

(b) Entrenched secondary school structures, which refer to the 150-year-old age-graded school with self-contained classrooms, and a curriculum that is divided into chunks for each level and timetabled into 50-minute periods;

(c) External assessment demands that lead to traditional scholastic practices;

(d) The powerful and constraining influence on the school of larger societal and political values and contexts.

Certainly, the entrenched structures and cultures at Tarua College made it very difficult for teachers to develop collegial and collaborative relationships. These are regarded as key contributors to successful curriculum change and implementation (Grimmett & Crehan, 1992; Hargreaves, 1994; Matsumoto, 1999).

While the participating teachers each had her own vision for her learners, they were unable to articulate a shared school-wide vision. They were aware that the school had a written vision, but this was in no way a shared and living document. Barth (2001) suggests that "the capacity to create purposeful reform rests with the capacity of educators to create an authentic vision for their school" (p. 195).

Implications and recommendations

If schools are serious about educational reform which is focused on raising the achievement of *all* students, creating an authentic, meaningful and shared vision that is based on common values and beliefs, is the necessary starting point for transforming existing teacher cultures and structural constraints. Cohesive school visions provide a clear basis for the development of collaborative school cultures and

a focus for the collective efforts of school faculty, as they encompass fundamental questions, such as:

- *As a community, what are the core values that we hold dearest?*
- *What are our beliefs about the nature of intelligence and human learning potential?*
- *What are our beliefs about the nature of knowledge and learning and teaching?*
- *What knowledge, skills, understandings and attitudes do we want our students to have by the time they leave school?*
- *What are the implications for our curriculum, school structure and teaching practices?*

As Sergiovanni (1984, p. 9) suggests, "the more understood, accepted and cohesive the culture of the school, the better able it is to move in concert towards ideals it holds and objectives it wishes to pursue."

Due to the large size and structural inflexibility of secondary schools, any efforts to transform entrenched teacher cultures in order to successfully implement MI-informed practices, will require an in-depth, school-wide model of professional development, such as the model developed as part of the Te Kotahitanga project (Bishop et al., 2003).

6.5 MI theory underpins a cohesive, student-centred curriculum

Implementing MI theory in the course of this project led to the emergence of a cohesive, student-centred curriculum. Although specific to Marg's 'boys' class' as outlined in the preceding chapter, this is regarded as a significant outcome, which has implications worthy of further investigation. The curriculum which Marg and her

colleague were developing collaboratively reflects the core of the new draft New Zealand Curriculum (Ministry of Education, 2006), in that it was "connected, coherent, and balanced" and "reflects the particular needs and interests of the school's students and community" (p. 26).

Zorfass (1999) suggests that a collaborative and reflective process of curriculum development can in itself be a powerful form of professional development, as it enables teachers to learn new skills and strategies, encourages more effective collegial relationships, and helps them look at their students in new ways. She suggests that the successful implementation of curriculum innovations requires:

(a) a shared desire to implement change

(b) a culture of respect and trust for each other as professionals

(c) a shared view of the teaching/learning process

(d) an understanding that curriculum design is a recursive process

Implications

The design and development of a cohesive, student-centred curriculum is closely linked with the development of a cohesive school vision, which as a process will involve school communities in clarifying the important skills, knowledge, attitudes and values they believe to be important for their students to acquire during their time at school. Developing a curriculum that is connected, coherent and balanced, and relevant to the school community, which is a fundamental aspect of the new draft New Zealand Curriculum (Ministry of Education, 2006), will require schools to embark on a school-wide, collaborative and in-depth process. As a philosophical and curricular framework, MI theory has the potential to be of value in this process. While the process may challenge some teachers' existing beliefs and practices in the

balkanized secondary school teacher culture, it is likely to prove to be a powerful professional development that will foster collegiality, and help teachers to consider their students in new ways (Zorfass, 1999).

6.6 The need to address the constraints of time

Lack of time was identified as a major constraint to planning, implementing and reflecting on MI-based lessons. In describing time as the Achilles heel of most efforts to reform classroom practice, Morocco and Solomon (1999) have chosen an apt metaphor. Faced with the pressure of meeting departmental requirements for curriculum coverage and assessment, secondary school teachers and students also work under considerable daily pressure to cover set work within the 50 minute period of the traditional timetabled system. The timetabled system is an entrenched structural barrier which impedes curriculum innovations and makes teacher collaboration very difficult.

Implications and recommendations

If schools are serious about curriculum reform, addressing the issue of time is essential. This will require innovative and original solutions. For example, one successful innovation that is noted involves junior secondary schools restructuring their school day around block scheduling, with interdisciplinary teams of teachers in charge of a common group of students. This strategy has considerable potential for the interdisciplinary planning of MI-based units, and also means that when the group of students is involved in activities such as art or physical education, the teachers are free to meet (Morocco & Solomon, 1999). Cochran-Smith and Lytle (1992) make the point that as secondary teachers have more release time allotted for planning

during the school day than their primary colleagues, this suggests it might be easier to form collaborative teacher groups in secondary schools than in primary schools.

Thousand and Villa (2005) suggest that as time is one of the most highly valued commodities in education, then it might be used as an incentive with teachers for educational reform. They have compiled a comprehensive and innovative list of strategies used by schools to make time for collaborative planning, teaching and reflection. However, while it is acknowledged that time for collaborative reflection and planning is vital for curriculum reform, if this means that regular classroom teachers have less time with their students, the overall effect of this on students' learning must also be taken into account.

6.7 The need for research into student outcomes of MI-based teaching programmes

This project has been the first stage in an exploratory investigation, which aimed to identify:

(a) whether MI theory could be successfully implemented into junior secondary school classroom programmes; and

(b) the possible reasons why MI theory has generally had little impact on secondary school practice.

The participating teachers' experiences in attempting to implement MI-based units of learning were the primary focus of this investigation.

Implications

To continue to build on the evidence base of outcomes associated with MI-informed teaching practices, it is important that research be undertaken with the aim of ascertaining the outcomes for students as a result of MI-based programmes.

6.8 Limitations of this study

This was a small scale, qualitative multiple-case study and its results should be considered in that light. Data was gathered using a variety of methods over a period of six months, which took place during the first two terms in the school year. If time had permitted, the project could have been improved by:

(a) Dedicating more time prior to the commencement of the project to developing teachers' deeper understanding of MI theory. The half-day MI workshop was barely sufficient as a base-line starting point. However, for the purposes of this research project, the perceived need to reduce the demand on participant teachers' time was a constraint.

(b) Ideally the project should have been extended for the duration of the year. This would have provided more time and experience for teachers to deepen their understanding of MI theory and how it might inform their practices. The data collected over this extended period would have also provided a more reliable evidence base.

6.9 Conclusion

The outcomes of this project confirm findings in the research literature, which suggest that MI theory can provide a valuable philosophical and structural framework that helps teachers develop a greater awareness of student diversity,

enhanced teaching practice, as well as the understanding that a uniform approach to teaching and learning meets the needs of too few. It is significant that the reported outcomes for teachers from this project, combined with their existing holistic and student-centred beliefs, are closely aligned with the characteristics of quality teaching for diverse students as identified in a number of significant New Zealand studies.

However, despite these positive outcomes for teachers, the project also identified a number of deep-seated structural and cultural barriers characteristic of the secondary school context, which suggest that the adoption of MI-based teaching practices on a wider scale is unlikely without a major school-wide professional development initiative.

Despite these major obstacles to MI implementation, I believe this research project to be timely. The Ministry of Education is calling for a transformation of our education system to one that meets the needs of our 21st century knowledge society, in that it does not tolerate failure for any student and sets every young person up for life-long learning (Ministry of Education, 2007). This call for reform is embodied in the concept of 'personalising learning'. I propose that MI theory offers teachers the philosophical understanding and a structural framework that will enable them to collaboratively develop and implement relevant and meaningful learning programmes that do just that.

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APPENDIX A

MI RESOURCES

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APPENDIX B

MI INSTRUCTIONAL MENUS

LINGUISTIC MENU
Use storytelling to …
Conduct a debate about …
Write a poem, myth, short play, or news article about…
Relate a short story to…
Create a radio programme about…
Conduct an interview with … on….
Write a letter to …. about ….
Give a presentation on …..
Give a persuasive speech ….

LOGICAL-MATHEMATICAL MENU
Invent a strategy game that …
Create a timeline of ….
Design and conduct an experiment on ….
Use a Venn diagram to explain …
Categorize facts about …
Graph ….
Create a business proposal to …
Use …. thinking skills to ….
Conduct a survey …
Create a sequence of steps ….
Design a questionnaire to ….

VISUAL-SPATIAL MENU
Create a chart or map …
Create a Power Point slide show …
Create a video ….
Design and build ….
Create a mock-up ….
Create a poster to demonstrate ….
Draw….
Paint ….
Sculpt ….
Create a brochure or advertisement for ..
Invent a game to demonstrate ..
Create a cartoon or comic book …
Create a mindmap ….
Make a magazine ….

KINESTHETIC MENU
Role play or simulate ….
Create a series of movements to explain …
Choreograph a dance about ….
Build or construct a ….
Create a diorama …
Produce a play …
Go on a field trip …

MUSICAL MENU
Give a presentation with musical accompaniment
Create a musical….
Relate the lyrics of a song to …
Research the music of particular era/culture
Perform an item
Write a song
Create sound effects
Create a radio show
Explain how a piece of music is similar to …
Collect and present songs about ….

NATURALIST MENU
Conduct a nature experiment
Keep a journal of observations about …
Care for plants or animals to learn about ..
Create a model of an animal showing adaptive features
Make a nature video
Report on a natural phenomenon
Invent categories for …

INTERPERSONAL MENU
Do a co-operative project …
Role play diverse perspectives …
Teach someone else about …
Conduct class meetings …
Collaboratively plan rules or procedures to ..
Conduct an interview
Create a talk show/game show
Undertake a community service project
Participate in a group to …

INTRAPERSONAL MENU
Keep a personal journal
Set and pursue a goal to …
Describe qualities that will help you successfully complete …
Describe how you feel about ..
Explain your philosophy about …
Create a journal from the perspective of ….
Describe your personal values about …
Make a video about yourself
Write an autobiography

Adapted from Kagan & Kagan, 1998; Campbell, Campbell & Dickinson, 2004)

APPENDIX C

MI PLANNING GRID

TOPIC:	**THROUGHLINES:**

LINGUISTIC	**LOGICAL/MATHEMATICAL**	**VISUAL/SPATIAL**	**KINESTHETIC**
MUSICAL	**NATURALIST**	**INTERPERSONAL**	**INTRAPERSONAL**

APPENDIX D

INFORMATION FOR PRINCIPAL AND CONSENT FORM

RESEARCH PROJECT
IMPLEMENTING MI THEORY IN SECONDARY SCHOOL CLASSROOMS

From 1995 until 2004 I was principal of Matahui Road School, a primary school in Katikati, where we very successfully implemented Gardner's theory of multiple intelligences (MI theory), to the point where it became a fundamental aspect of the school philosophy. Since retiring from the school I have been studying towards a Master of Education degree at the University of Waikato, with a focus on MI theory.

MI Theory

Briefly, MI theory proposes that every individual has his or her own unique profile of at least eight relatively independent intelligences: verbal-linguistic, logical-mathematical, visual-spatial, bodily-kinesthetic, musical, naturalist, interpersonal and intrapersonal. These intelligences are genetically based, can be developed with enrichment and instruction, and work together in complex ways. Gardner maintains that an individual's multiple intelligence profile is a better predictor of success in life than traditional IQ assessments.

MI theory has been embraced by many schools and individual teachers around the world, because it helps explain the vast range of individual difference encountered daily in every classroom. Its influence, however, has been mainly at primary school level, with only limited impact on secondary school practice. Yet research findings suggest that when MI has been applied in secondary school settings, it has been found to have a wide range of positive outcomes, including:

- Improved academic outcomes, including for minority students and students with learning disabilities
- Improved student motivation, self-confidence and participation
- Positive influence on teacher beliefs about intelligence, learning and student achievement
- Enhanced student/teacher relationships
- Development of a supportive school culture and improved collegiality
- Enhanced teaching practice

MI-Based Research Proposal

This letter is an invitation for a group of four of your teachers (Year 9 or 10) to participate in an action research project over a six month period to investigate whether MI theory can be successfully implemented in a junior secondary school programme and to identify the factors that constrain MI implementation. The outcomes of this research will form the basis of my thesis.

Participation in this project will involve your teachers as follows:

1. Two one-hour audio-taped interviews (at commencement and conclusion of project)

2. Participation in a half-day MI workshop, to establish a baseline understanding of MI theory and how it might be implemented in classroom programmes. It is envisaged that this will be outside of school time, at a time to be negotiated with the teachers.

3. Participation in one or two Focus Group meetings (approximately 2 hours each) during the middle phase of the project. It is envisaged that these will be outside of school time, at a time to be negotiated with the teachers.

4. Teachers will spend time reflecting on the needs of their class, planning MI-based interventions, reviewing the outcomes of those interventions as a basis for the next action cycle, and communicating informally with the researcher as needed throughout the process. It is estimated that reflective sessions will involve teachers for approximately one hour per week.

5. Optional classroom observations of MI-based interventions by the researcher, with the consent of the teacher. Observations will be recorded in the form of field notes, and if possible, some lessons will be video-taped, as this would be a valuable tool in aiding the teacher's recall of events, as well as giving the teacher the opportunity for a wider and more considered view of the impact of his or her intervention. Observations will be preceded by a short interview (approximately 10 minutes – this may be by telephone) to ascertain the teacher's goals for the session. A follow-up interview (approximately 30 minutes) at a time to be negotiated with the teacher, will consider the outcomes of the intervention, the difficulties the teacher may have encountered, and possible future developments.

This action research project offers participating teachers an opportunity for intensive professional development. Through the action research cycle of collaborative planning, implementation, review and reflection, they will reflect on their educational philosophy and teaching practice, and the different needs of the diverse learners in their classrooms. We will work alongside each other as co-researchers on this project. Your teachers are the curriculum and classroom experts. My role will be chiefly to facilitate and record the process, to guide, question and provide constructive feedback, to offer a different perspective, and to provide your teachers with the support and resources they may need as they investigate and implement new ways to approach the curriculum so that more students are able to achieve successful learning outcomes.

Teacher participation in this project is voluntary. Their informed consent will be obtained prior to the commencement of the project. Teachers will have the choice to not answer particular interview questions, to refuse classroom observations by the researcher, and they have the right to withdraw from the project after consultation with the researcher at any time prior to the final day of Term 1, 2007. As principal, you may also withdraw your consent to your school's participation prior to this date. The time and venue for all interviews and meetings will be negotiated with the teachers with the aim of minimising disruption to student learning and/or conflict with teachers' other professional obligations.

Confidentiality

Participants' confidentiality will be respected at all times. The school and teachers will not be identified in any written material resulting from this research project. If research results are to be used for purposes outside of this project, for instance, as part of a professional development presentation, all care will be taken to protect the identity of the school and participants. All research data in the form of notes, audio-tapes and video-tapes will be stored securely throughout the study at the researcher's home. Videotapes will only be viewed by the researcher and participating teachers.

Please consider giving your approval for your school to be involved in this research project. I believe it will be of great professional benefit to participating teachers, while the outcomes experienced by students and teachers will also be of interest to your school management team.

If you agree to your school's participation, can you please read and sign the attached Consent form, and bring this professional development opportunity to the attention of your staff. I will then arrange a meeting with interested teachers, at which time I will fully inform them of the nature of the project.

If you have any queries, or require further information, please do not hesitate to contact me by telephone on 07 552-0775, or by email at scapens@xtra.co.nz . Similarly, if any queries or concerns should arise during the course of the project, please contact me. If you should feel a matter has not been satisfactorily resolved, please contact my research supervisor, Roger Moltzen, by phone on 07 838 4695, or email at rim@waikato.ac.nz

Yours sincerely

Mennie Scapens

PRINCIPAL – INFORMED CONSENT

RESEARCH PROJECT:
IMPLEMENTING MI THEORY IN SECONDARY SCHOOL CLASSROOMS

I have read the attached letter outlining the proposed research project, and understand what is required of participating teachers - the nature of the activities they will be involved in, and the approximate time commitment required of them.

I also understand that:

- Teacher participation in this project is voluntary and their written informed consent has been obtained
- The maximum size of the research group is four teachers. If more than four teachers apply, selection will be based on three factors – the subject they teach, their level of teaching experience, and their willingness to take a reflective stance towards their teaching. (The researcher will conduct a brief interview with interested teachers to gauge this). If less than three teachers apply, the project will not go ahead at this school.
- Participating teachers can withdraw from the study after consultation with the researcher at any time prior to the final day of Term 1, 2007.
- Participating teachers have the right to decline to have classroom observations, or to have observations videotaped
- Informed consent from all students and/or their caregivers will be obtained prior to videotaping classroom observations. Students, for whom permission has not been obtained will not be videotaped during classroom observations
- Videotapes of classroom sessions will only be viewed by the researcher and participating teachers
- Research information obtained in the course of this project will provide the basis for the researcher's Master of Education thesis. Research results may also be used in subsequent workshop or conference presentations, and/or in articles written for educational or research journals. The school and participants will not be identified, their confidentiality respected at all times.
- If I have any queries or concerns throughout the course of the project, I can contact the researcher, Mennie Scapens, by phone at 552-0775, or email at scapens@xtra.co.nz
- For any unresolved issues, I should contact the research supervisor, Roger Moltzen, by phone on 07 838 4695, or email at rim@waikato.ac.nz

I give consent for the school to be involved in this project.

Signed: _____ Date_____

APPENDIX E:

INFORMATION FOR TEACHERS AND CONSENT FORM

RESEARCH PROJECT
IMPLEMENTING MI THEORY IN SECONDARY SCHOOL CLASSROOMS

From 1995 until 2004 I was principal of Matahui Road School, a primary school in Katikati, where we very successfully implemented Gardner's theory of multiple intelligences (MI theory), to the point where it became a fundamental aspect of the school philosophy. Since retiring from the school I have been studying towards a Master of Education degree at the University of Waikato, with a focus on MI theory.

MI Theory

Briefly, MI theory proposes that every individual has his or her own unique profile of at least eight relatively independent intelligences: verbal-linguistic, logical-mathematical, visual-spatial, bodily-kinesthetic, musical, naturalist, interpersonal and intrapersonal. These intelligences are genetically based, can be developed with enrichment and instruction, and work together in complex ways. Gardner maintains that an individual's multiple intelligence profile is a better predictor of success in life than traditional IQ assessments.

MI theory has been embraced by many schools and individual teachers around the world, because it helps explain the vast range of individual difference encountered daily in every classroom. Its influence, however, has been mainly at primary school level, with only limited impact on secondary school practice. Yet research findings suggest that when MI has been applied in secondary school settings, it has been found to have a wide range of positive outcomes, including:

- Improved academic outcomes, including for minority students and students with learning disabilities
- Improved student motivation, self-confidence and participation
- Positive influence on teacher beliefs about intelligence, learning and student achievement
- Enhanced student/teacher relationships
- Development of a supportive school culture and improved collegiality
- Enhanced teaching practice

This letter is an invitation for you, together with three other teachers at your school, to participate in an action research project over the next six months which aims to investigate whether MI theory can be successfully implemented in a junior secondary school programme and to identify the factors that constrain MI implementation. The outcomes of this research will form the basis of my Masters thesis.

During the course of the project you will reflect on your educational philosophy, teaching practice and the different needs of the diverse learners in your classrooms.

Your participation in this project will involve you in the following activities over the next six months:

1. Two one-hour audio-taped interviews (at commencement and conclusion of project)

2. Participation in a half-day MI workshop, to establish a baseline understanding of MI theory and how it might be implemented in classroom programmes. It is envisaged that this will be outside of school time, at a time to be negotiated with the participating teachers.

3. Participation in one or two Focus Group meetings (approximately 2 hours each) during the middle phase of the project. It is envisaged that these will be outside of school time, at a time to be negotiated with the participating teachers.

4. You will need to spend time reflecting on the needs of your class, planning MI-based interventions, reviewing the outcomes of those interventions as a basis for the next action cycle, and communicating informally with the researcher as needed throughout the process. It is estimated that reflective sessions will involve teachers for approximately one hour per week.

5. Optional classroom observations of MI-based interventions by the researcher, with your consent. The researcher's observations will be recorded in the form of field notes, and if possible, some lessons will be video-taped, as this would be a valuable tool in aiding your recall of events, as well as offering you the opportunity for a wider and more considered view of the impact of your classroom intervention.

6. Observations will be preceded by a short interview (approximately 10 minutes – this may be by telephone) to ascertain your goals for the session, and a follow-up interview (approximately 30 minutes) at a time to be negotiated with you, will consider the outcomes.

The nature of action research involves us working alongside each other as co-researchers, in a cycle of collaborative planning, implementation, review and reflection. You are the curriculum and classroom expert. My role will be chiefly to facilitate and record the process, to guide, question and provide constructive feedback, to offer a different perspective, and to provide you with the support and resources you may need as you investigate and implement new ways to approach the curriculum so that a wider range of students are able to achieve successful learning outcomes. At your request, I will be available to assist you in planning classroom programmes, and will work alongside you when implementing them. My level of involvement is up to you.

Your participation in this project is voluntary. You are able to choose not to answer particular interview questions, to refuse classroom observations by the researcher, and you have the right to withdraw from the project after consultation with the researcher at any time prior to the final day of Term 1, 2007. The time and venue for all interviews and meetings will be negotiated with you with the aim of minimising disruption to student learning and/or conflict with your other professional and personal obligations.

Confidentiality

Your confidentiality will be respected at all times. The school and participating teachers will not be identified in any written material resulting from this research project. If research results are to be used for other purposes, for instance, as part of a

professional development presentation, all care will be taken to protect the identity of the school and participants. All research data in the form of notes, audio-tapes and video-tapes will be stored securely throughout the study at my home. Videotapes will only be viewed by you and the researcher, and with your consent, and their agreement, the other participating teachers. You will retain ownership of video-recordings. Any use of them beyond this project (e.g. for professional development purposes within the school) will be at your discretion and will require the informed consent of the students and their parents/caregivers.

I would very much appreciate your involvement in this research project, which I believe will be of great personal and professional benefit to you, while the outcomes experienced by students and teachers will also be of interest to your school management team. If you are interested in participating, I would like to arrange a meeting with you and other interested teachers, at which time I will provide further information, and you will have the opportunity to discuss any concerns.

If you have any queries, or require further information, please do not hesitate to contact me by telephone on 07 552-0775, or by email at scapens@xtra.co.nz . If queries or concerns should arise at any time during the course of the project, please contact me. However, if you feel the matter has not been satisfactorily resolved, please contact my research supervisor, Roger Moltzen, by phone on 07 838 4695, or email at rim@waikato.ac.nz

Yours sincerely

Mennie Scapens

TEACHER – INFORMED CONSENT

IMPLEMENTING MI THEORY IN SECONDARY SCHOOL CLASSROOMS

I have read and discussed the attached letter outlining the proposed research project with the researcher. I understand the nature of the activities I will participate in, and the approximate time commitment that this project will require of me.

I also understand that:

- My participation in this project is voluntary
- I can withdraw from the study after consultation with the researcher, at any time prior to the final day of Term 1, 2007
- The maximum size of the research group is four teachers. If more than four teachers apply, selection will be based on three factors – the subject they teach, their level of teaching experience, and their willingness to take a reflective stance towards their teaching. (The researcher will conduct a brief interview with interested teachers to gauge this). If less than three teachers apply, the project will not go ahead at this school.
- I have the right to decline to have classroom observations by the researcher, and/or to have these sessions videotaped
- Videotapes of classroom observations will only be viewed by myself, the researcher, and with my consent and their agreement, the other participating teachers
- Any information generated in the course of this project will be kept confidential and securely stored.
- Information gained from me in the course of this project will provide the basis for the researcher's Master of Education thesis. Research results may also be used in subsequent workshop or conference presentations, and/or in articles written for educational or research journals. Every care will be taken to keep my identity, and the identity of the school confidential.
- If I have any queries or concerns throughout the course of the project, I can contact the researcher, Mennie Scapens, by phone at 552-0775, or email at scapens@xtra.co.nz
- For any unresolved issues I can contact the research supervisor: Roger Moltzen, by phone on 07 838 4695, or email at rim@waikato.ac.nz

I give my consent to be involved in this project.

Signed: _____ Date: _____

APPENDIX F

FIRST SEMI-STRUCTURED TEACHER INTERVIEW

Teachers will be asked to bring to the interview a briefly written outline of their teaching experience, including:

- Number of years teaching
- Subject areas
- Class levels
- Schools, etc.

1. What led you to become a teacher?

2. How would you describe your teaching philosophy and/or style?

3. Can you tell me about a recent example of a successful lesson you have taken? What made it 'successful'?

4. What do you think are the qualities of a good teacher?

5. What is your understanding of the term 'intelligence'? How do you recognise intelligence in your students?

6. What is your understanding of the theory of multiple intelligences?

7. Describe a student in your class who you consider to be doing very well? To what do you attribute his or her high achievement? What do you think are his or her educational prospects?

8. Now describe a low achieving student in your class. To what do you attribute his or her low achievement? What do you think are his or her educational prospects?

9. Now can you describe an 'average' student in your class? What makes him or her average? What about his or her educational prospects?

10. How do you cater for these different students' needs in your classroom?

11. What qualities or skills do you believe students need to achieve success in this subject?

12. What is your understanding of 'learning'? How do students learn? How do you know they have learned something?

13. What are you hoping to achieve from participating in this research project?

APPENDIX G

FINAL SEMI-STRUCTURED TEACHER INTERVIEW

1. In our first interview you described your teaching philosophy and style. How would you describe it today? Has it changed? And if so, how has it changed?

2. Can you tell me about a recent example of a successful lesson you have taken? What made it 'successful'?

3. What do you think are the qualities of a good teacher?

4. What is your understanding of the term 'intelligence'? How do you recognise intelligence in your students?

5. What is your understanding of MI theory? What do you think are its implications for learning and teaching in your secondary school context?

6. Describe a student in your class who you consider to be doing very well? To what do you attribute his or her high achievement? What do you think are his or her educational prospects?

7. Now describe a low achieving student in your class. To what do you attribute his or her low achievement? What do you think are his or her educational prospects?

8. Now can you describe an 'average' student in your class? What makes him or her average? How do you see his or her educational prospects?

9. How do you cater for these different students' needs in your classroom?

10. What qualities or skills do you believe students need to achieve success in this subject?

11. What is your understanding of 'learning'? How do students learn? How do you know they have learned something?

12. Has your teaching practice changed through your participation in this project? And if so, how has it changed?

13. What have been the biggest barriers or difficulties you have faced when trying to implement changes to your teaching practice? How have you worked around these barriers?

15. Has this research project been a valuable process for you? Why? Why not?

APPENDIX H

MI RESOURCE LIBRARY

The basic MI library left at the school comprised the following books:

Baum, S., Viens, J. & Slatin, B. (2005). Multiple intelligences in the elementary classroom: A teacher's toolkit. New York: Teachers College Press.

Campbell, L., Campbell, B. & Dickinson, D. (2004). *Teaching and learning through multiple intelligences* (3rd ed.). Boston: Pearson Education Inc.

Kornhaber, M., Fierros, E., & Veenema, S. (2004). *Multiple intelligences: Best ideas from research and practice.* Boston: Pearson Education Inc.

McGrath, H. & Noble, T. (2005). *Eight ways at once: Book 1: Multiple intelligence + Bloom's taxonomy = 200 differentiated classroom strategies*. Melbourne. Pearson Education Australia.

Viens, J. & Kallenbach, S. (2004). *Multiple intelligences and adult literacy: A sourcebook for practitioners.* New York: Teachers College Press.