

Raising Self-Efficacy Through Ipsative Assessment and Feuerstein's Instrumental Enrichment Programme

Kit McIntyre

INTRODUCTION AND RATIONALE FOR THE ROYAL OAK PROJECT

Throughout my teaching career I have always been aware of the effects of standardised tests on the self-efficacy of my students. There were always winners or losers in the standardised methods of assessment. The extraordinary and diverse abilities of my students were often hidden in an assessment system that had quite specific criteria and a timed gateway. Searching for more effective methods of assessment, I first encountered the concept of Ipsative Assessment in Gwyneth Hughes' 2014 publication *'Ipsative Assessment: Motivation through Marking Progress'* and developed a new mindset.

Ipsative assessment is the measurement of an individual's own progress against his or her personal best. It fosters a 'strengths-based'

K. McIntyre (✉)
SENCO (Special Education Needs Co-ordinator) and Teacher School:
Woodlands Park School, Titirangi, Auckland, New Zealand
e-mail: eddiemc@slingshot.co.nz

perspective when defining the learning ability of the individual. Ipsative assessment was selected as the best assessment approach for the Royal Oak Project in New Zealand (NZ) because it measured present performance against prior performance for the student. This form of assessment is not concerned with the student's assessment related to his or her peers. I was particularly drawn to the potential for developing a strong self-belief in the students by using ipsative assessment. Albert Bandura, Department of Psychology, Stanford University, has defined self-efficacy as a motivational force. He has found that the more capable people believe themselves to be the higher the goals they set for themselves (Bandura 1991).

At the same time I also encountered the theories of Professor Reuven Feuerstein and began to question how the assessment practices in my classroom should alter. I know that one of the greatest challenges in teaching is the need to recognise the learning barriers our students face if we are to assist progress. This challenge can be even more difficult when assessment is only focused on correct and speedy answers. The learning struggle is necessary for progress and can be seen in the differing cultural perspectives of the East and West. James Stigler, Professor of Psychology at the University of California, Los Angeles, describes the learning struggle as a predictable part of the learning process. This struggle is often viewed by the West as the indicator of a low intelligence whereas in the East the struggle can be perceived as an opportunity to show your prowess in emotional resolve and persistence.

Ahead of his own time, Feuerstein also described this struggle in the 1950s. He viewed the struggle as the most important part of learning because it involved the student's journey of metacognition and his or her perception of success. When self-efficacy is not in place the motivation to learn is missing, students will often withdraw from tasks, avoiding challenges and group participation. A fixed mindset of what they can and cannot do is very entrenched.

These influences led me to the research project at Royal Oak Intermediate School. The overall goal of the project was to develop students who could problem solve before acting and could analyse their tasks and stimuli confidently. This chapter explores the results, the methods and learning journey of the students through their tasks and through their self-assessments and written reflections.

THE PARTICIPANTS OF THE ROYAL OAK PROJECT

The class consisted of academically able students from diverse cultures ranging from Samoan, Tongan, Fijian and Cook Island Maori to a minority group of three Asian and two Russian students. The setting for the project was a classroom in a centrally urban area of Auckland. With the support of the School's Board, Senior Management Team, parents and the students themselves, we embarked on a three month learning journey together. The project was designed to determine if:

1. Explicit teaching of Metacognition through Feuerstein's Mediated Learning Experience (MLE) would increase the academic performance and strategies of the students.
2. Self-efficacy could be enhanced through ipsative assessment.
3. Feuerstein's Instrumental Enrichment (FIE) would transcend cultural barriers to positively impact the academic learning of the Pasifika students in the class.

Feuerstein's Instrumental Enrichment programme provides fourteen instruments; four of these were selected for this project. They were Organisation of Dots, Comparisons, Orientation in Space and Analytic Perception. They provided the students the opportunity to develop self-efficacy, achieve the internalisation of a sophisticated vocabulary and to develop metacognitive awareness.

In this project the students were clear from the outset that they were measuring their own performance and that no one was judging their level of competence. Instead they were encouraged to self-assess their on-going metacognition and measure their increasing confidence in the tasks set. Throughout the three months of the project the students were never given teacher feedback regarding their individual performance, the focus was on developing their self-assessment skills. Interestingly, although the students were only 11–12 years of age, their written reflections provided articulate and insightful comments regarding their own progress and that of their peers. As the project progressed the students corrected errors in their own thinking, either by hearing the concepts explained in another way, experiencing accuracy when working on the instruments, or watching peers explain and demonstrate their alternative strategies at the whiteboard.

BACKGROUND TO THE THEORY AND THE TOOLS USED IN THE PROJECT

To best understand the purpose of the project it is necessary here to present some background regarding the inspiration for it, the legacy and theories of Reuven Feuerstein.

Reuven Feuerstein was a Cognitive Psychologist, Nobel Prize Nominee, genius, and for the many children he encountered in his life a beneficent 'Pied Piper'. Undeniably a humanitarian, Feuerstein transformed lives. He believed in the achievement of Special Needs children, even when no one else thought their progress was possible. Feuerstein was mentored by Jean Piaget at the University of Geneva. He would later part from Piaget's work and develop his own theories in the 1950s. Feuerstein's altruism was evident when he first encountered the surviving child victims of the Holocaust. These traumatised children were suffering from unimaginable human loss. He was faced with the question: 'How could they now learn and reintegrate into a meaningful life?'

It was very obvious that conventional forms of assessment would not be effective in determining the learning level or emotional needs of these displaced and damaged children. He could see that the traditional methods of assessment were inadequate indicators for the learning propensity and Intelligence Quotient (IQ) of these children. At this time 'Static Testing', which is testing with no intervention from the assessor and a focus on standardised results, was the predominant practice.

In response Feuerstein began to formulate his theory and design a method of assessment which was culturally universal. The Holocaust children had received no mediation of their own culture. The natural transference of family culture from parent to child had been disrupted and as a result their history and family values were now disjointed. Feuerstein knew cultural development can be interrupted or worse not transmitted due to many causes such as poverty, social discrimination and the bias of the dominant educational system. He believed that there was a collision of past, present and future when the parent was not the one to initiate their child into the structure of society. He knew assessment would be more successful if the content was not linked to a specific culture or linguistic system. A focus for the Royal Oak Project was to explore the 'handing down' of culture, or loss of it, with this predominantly Pasifika group.

This class were of particular interest because they were high achieving, motivated Pasifika students, defying a stereotype. Pasifika students are

classified as those who have moved to New Zealand (NZ) from Polynesia or identify with a Pacific Island heritage. Statistics record that Pasifika students have been under-performing in the NZ education system (Ministry of Education, NZ (a)).

The students in the Royal Oak Project were clearly able to articulate their progress and identify their learning. It is generally acknowledged that there is a bias in NZ's assessment systems favouring English as the first language and the promotion of a culture historically connected to Britain. Throughout this project, however, the Pasifika students in the class were highly engaged and reflective in the course. This group were already a high achieving cohort of students so their progress was to be expected.

Further time and focus would be needed to ascertain the breadth of impact that Feuerstein's Instrumental Enrichment training could have on long-term academic and cultural goals for this group. I could not gather meaningful evidence in the cultural 'handing down' of cultural practice in this project due to the short timeframe.

I knew from previous experience that Pasifika students are very aware of the needs of the community over self and that this would probably manifest itself in the classroom. In Polynesian culture status has a high priority. For Pasifika students, interrupting an adult or elder when speaking is highly disrespectful. Rules around showing humility in the Polynesian and Maori culture can be enigmatic and misunderstood in the classroom. This misunderstanding can alter a teacher's perception. For example, the lack of shared oral participation in the classroom can be misinterpreted as disinterest. In general the girls' lack of responses in class discussions was apparent, but their written reflections revealed that they were actually fully engaged in their learning. I came to understand that for most of the girls their cultural heritage was manifesting itself in their respectful silence. It is not unusual for Pasifika students to sit silently and listen in class.

Aware of the importance of heritage, Feuerstein believed in adding value to the existing cultural context and not erasing it. I believed that *plural identity* could possibly cause disequilibrium for the Pasifika students in the group and made reference to Polynesian history whenever possible. As a result the class studied the wayfaring skills and ancient knowledge of the Polynesian Navigators, highly acclaimed for their skills. They 'bridged' their new knowledge to ancient Polynesian themes. This included specific knowledge such as the use of Mattangs, which are ancient Polynesian

structures for measuring wave movement around an island, how constellations were used as markers in open ocean and the use of compass notches on a canoe. A new pride in the knowledge once held by their ancestors was referred to by some of the students in their summative appraisals.

THE USE OF FEUERSTEIN'S TOOLS AND THEORIES IN THE PROJECT

To remove the cultural bias in assessment, Feuerstein devised a set of tools that provided a platform for teachers to use (Feuerstein et al. 1980). The tools increase in complexity with carefully gradated levels of challenge, this set of instruments was collectively called Feuerstein's Instrumental Enrichment (FIE). Alongside these teaching tools he also developed a method of interactive and mediated learning called the Mediated Learning Experience (MLE). Both tools MLE and FIE were always delivered with the transference of the new knowledge to the curriculum in class. An example of transferring prior knowledge and making a comparison is recorded here by James, an 11-year-old Chinese boy:

I learnt that the 1, 1, 2, 3, 5, 8, 13... sequence is called the Fibonacci sequence. I notice it is also like the Pascal Triangle.

Another crucial aspect of the project was the decision not to provide individual feedback or critique in the project, instead mediator assessments were class wide and were used to inform the next steps only. This allowed the students an opportunity to focus on their own progress and develop their confidence at their own pace. Self-efficacy increased with the successful completion of each task for the students, evident in their excited responses and requests for more tasks.

MEDIATED LEARNING EXPERIENCE

MLE is an interactive experience for both the Mediator (teacher) and the student. Feuerstein refers to mediation as an intervention that allows the student to access and engage with external stimuli. In this method the Mediator enters into a learning and assessment process with the student that can best be described as a dance.

During the mediation process, the Mediator and student are altered by each other. The Mediator joins into the process of learning and makes simultaneous assessments by inviting the student to explore the environment

with prompting, guiding and questioning. The student is asked to do an analysis of the situation and the stimuli using inductive and deductive reasoning and by seeking the logical evidence in his or her responses.

The Principles of MLE

Feuerstein's theories in mediation also include a focus on targeting our Cognitive Functions in three phases, Input (Data gathering), Elaboration (i.e. mental manipulation of the data) and Output (communication of the final product to others). The Royal Oak Intermediate Project focused on how these three phases in the learning process could be enhanced. It quickly emerged that the key mediation foci for this particular class would be around impulsivity, precision and articulation at the output level.

The project had at its core Feuerstein's three principles of mediation:

1. Intentionality and reciprocity: This refers to the intent of the mediator and the receptiveness of the student to the mediated stimuli. As time passed the students began to enjoy the tasks for their intrinsic challenges.
2. Meaning: This refers to mediating the significance and meaning of the stimuli for the student. It was necessary to give the students the terminology first and then connect that terminology to the concept through a matching task. The tasks in the Instruments lead to the conversations that become the most exciting part of the mediation.
3. Transcendence: This refers to the transference of a concept to a new context. The ability of the students to transfer their knowledge to another principle or concept was evident in the majority of their written reflections.

Key mediation goals for developing the student's self-assessment skills were focused on the reinforcement of flexibility in thinking, the ability to recognise and change strategies that don't work, and behavioural self-regulation. The students would voluntarily choose to work in silence during the individual thinking tasks; they concentrated intensely without prompting. After the tasks they were encouraged to discuss and compare discoveries with their peers. They developed the need to give logical evidence in their descriptions and in their answers, reasoning became an important factor in their ability to successfully communicate with each other.

The Need for Labelling

The explicit use of sophisticated vocabulary to inform new concepts was an important part of the dialogic teaching process of the project. As they gained the vocabulary it was easier for the students to assess their own errors and their own progress. It became very apparent that the focus on the ‘labelling’ of the terms was crucial. Terminology was taught quite explicitly at that start of every session. One or two words were introduced daily and reinforced until the students grasped their meanings. The words were written on the whiteboard, discussed and explained, students would then do a correlating page in their Instrument followed by a debrief session. In time we had gathered a large enough repertoire in Feuerstein’s language to effectively converse together.

Our minds generate understanding based on the level of abstraction in words. The need for ‘labelling’ concepts and terminology in the mediation process was brought home to me when strolling one day hand in hand with my grandson Lucas on a local beach. I had asked him to tell me what colour the shells were on a beach, he immediately looked down and said ‘white.’

I asked him to look again and we crouched down to pick some up. ‘Oh!’ he exclaimed excitedly, ‘They are orange, black and green too.’

Feuerstein referred to this as Spontaneous Comparative Behaviour. He believed that the development of thinking skills in children was greatly enhanced by teaching the skills of comparison.

Later I discussed this incident with a Master Trainer from the Feuerstein Institute, Keith Prowell. He asked me if I had told Lucas at the time that we were ‘differentiating’.

I replied: ‘But he’s only three, surely that word is too complex for him to learn?’

Keith’s reply became an embedded focus in my future teaching. He asked ‘Did your grandson have the concept of the comparison?’ I replied he had. His response was: ‘Then why did you withhold the label that would enhance his understanding?’

I reflected that I had often over-simplified many concepts for students assuming that was the best approach. With further training in Feuerstein’s theories I discovered the importance of labelling. I came to realise that without labels the brain cannot use or manipulate the concepts at a higher level. I no longer withhold the abstract labels, instead I mediate their meaning.

During the project the students became particularly aware of the abstract quality of words and this was evident in Diana's reflection. Diana, a 12-year-old Cook Island Maori girl, understood and demonstrated that the meaning of words can be misinterpreted by an individual due to their own level of perception; she became mindful of this whenever she was communicating with others:

Today I learnt that people can have many images in the mind when a simple word is written. Although some ideas were similar no one's image was the same.

IPSATIVE ASSESSMENT

In keeping with the philosophy of ipsative assessment I removed all aspects of peer competition from the project. The students measured their progress from task to task against their own increasing awareness and new knowledge. Competition as a motivator was simply not needed in this context, the intrinsic desire to achieve created by the Instruments was enough. The desire to improve in tasks, and thus to feel an increasing sense of competence, was motivational in itself.

In the past I have seen the way competitive learning has the potential to undermine the efforts of the less confident students, they would inevitably lose heart and withdraw interest. They tended not to try again. The continual bombardment of failure in academic results is demoralising. When students are measured against peers it can also have a life-long and crippling impact. It is not that unusual to hear an intelligent and creative adult declare that they are no good at maths regardless of the fact they inevitably employ some form of mathematics on a daily basis and have not experienced mathematics lessons in decades.

Although I acknowledge the value of competition when a student can productively pace themselves against a peer, I found that even the students who saw themselves as the most able had never learned how to fail. This impeded their ability to recognise the value in analysing their mistakes and developing perseverance. Seeking the praise of their teacher was overly important so even impartial critiques were crushing. In my experience well-meaning parental expectations could also hinder the student's progress. Competitiveness in the classroom resulted in a 'fear of failure'

mentality and a lack of risk taking by many students. Hughes (2014) reminds us that competitive assessment has a price to pay when many learners are not personally and academically fulfilled.

During the project the students were not aware of their peers' levels of achievement because any individual results were issued privately. This approach allowed them to gauge their own development in tasks and to undertake the Ravens (1936) and e-asTTle Reading Test without performance anxiety. The lack of a competitive focus provided the students with a far greater opportunity to work collaboratively, sharing ideas and strategies for mutual benefit.

DATA GATHERING ACTIVITIES DURING THE PROJECT

During the total period of three months, the students received three 45 minute sessions per week. Assessment data was gathered through the following:

1. Written student reflections and appraisals. Students recorded their feelings of competency and reflected on major learning for 5–10 minutes after each session. Mid-way through the course the students were asked to appraise their satisfaction with the programme and then mark that on a continuum line. They consistently rated themselves between 80 % and 100 % satisfied in their responses.
2. The Ravens IQ Test

This IQ test was selected due to its figural, rather than verbal, content. Accepting 'the limitations of psychometric testing' as outlined by Caroline Gipps (1994), the Ravens Test was selected specifically to assess if FIE mediation could impact student performance and was not implemented to achieve a standardised score. No assistance was provided during the testing, the students worked silently for approximately 30 minutes.

The Ravens Test was administered again eight weeks later after brief exposure to Feuerstein's extension work (Variations 2). These results displayed an increase in performance for 75 % of the students. The results showed an overall 10.6 % increase in the scores of the class as a whole over a 3-month period.

3. E-asTTle Reading Test. The students received Feuerstein lessons in lieu of two thirds of their reading sessions for eight weeks. E-asTTle

Reading tests (Ministry of Education, NZ (b)), administered in many NZ schools, were used as pre and post-test and administered by the school. The results showed significant changes in approach and despite the short time frame an increase in 1–2 sublevels was noted for 67% of the students tested.

4. A standardised FIE task to determine speed and accuracy. The students were given Page 7 of the ‘Organisation of Dots’ Instrument as a timed pre – and post-test. The tasks in the Organisation of Dots requires the students to identify and outline within an amorphous cloud of dots, a series of overlapping geometric shapes such as squares, triangles, diamonds and stars (Feuerstein, Falik & Rand 2006, p. 215)
5. Anecdotal information regarding student participation. Impartial observers were requested to view the class in action and record empirical data. Observers remarked on the engagement and the sophistication of the language used by the students.
6. Mediator reflections were gathered in the form of a daily journal and lesson planning.

WHAT THE STUDENTS REPORTED

Recognising Progress Through Comparisons

The students were clear that they were measuring their own performance and their written reflections were astute. For example Helen, a Chinese girl aged 12 years, describes how willing she was to take risks:

Today I was very impulsive because I was nervous and wanted to get a head start. I managed to finish page 7. I realised that it was a lot easier than the first time I did it. I stuck with my plan and it worked throughout the whole page.

I was exceptionally proud of our class test results as we made huge improvement. I can’t wait to try a new instrument next week. When I took the first glance at the C-10 question I was clueless. In the end it was a hard choice between 2 answers. Luckily I had a strong confident friend who persuaded me with her logical evidence, and I agreed with it a hundred per cent. We looked at how to compare and contrast. I was a bit afraid to put my hand up, because I have to be really precise. Hopefully I’ll be able to take risks more often.

Helen realised that sometimes it can be a challenging choice when there are two answers closely aligned and she needed to compare and differentiate between her choices carefully. She will be able to recognise this again in another context if her self-efficacy remains intact. She was open to the persuasion of a peer based on his logic. She showed that she was perceptually aware of others. Her written reflection allowed me to view rich information about the way she processed external information. Knowledge of MLE enabled me to assess the clues in her responses.

The students were not only self-reflective, but peer mediation also became a natural and productive aspect of learning for these students. Group work changed from the issuing of traditional roles such as leader, scribe, organiser, etc. to an arena where the group actively listened to the person with the ‘best’ logical evidence.

Slowing Down and Attention to Detail

Planning, finding reference points, the use of comparison and defining a problem were all thinking processes explicitly taught in the FIE programme. Lessons were based on ‘bridging’ specific concepts to new contexts. In Feuerstein’s Instrumental Enrichment Programme the levels of abstraction, complexity and novelty in tasks are planned for. It became apparent there was a need for these students to slow down and search systematically for reference points. They needed to determine the ‘novelty’ by scanning the differences and similarities to previous work or pages and then analyse exactly what the task was asking of them. For example Rose, a European girl aged 11 years, consistently used the FIE language accurately and formed strategies for her tasks. Rose recognised that by focusing too hard in one area she had missed the big picture.

Today’s focus was all about precision. I realised that I was focusing on just one area and was blocking out all of the other possibilities of the shapes. I then applied ‘conservation of constancy’ to my strategy and I was able to come up with more shapes. Although I didn’t do much, I still feel proud because of my strategy and reflecting during the task.

Mediating an attention to detail for these students meant a focus on accuracy because even when students have success they may not recognise why. Asking the students to explain further, even when they were already correct, helped their metacognition. The students noted that they had

improved their e-asTTle Reading Test performance due to their focus on minimising impulsive behaviours; they slowed down when reading instructions and used structural analysis to break down comprehension questions.

Many of the students reflected that the mediation had an effect on how they now approached their summative academic tests in class and their subsequent classwork. Any incorrect answers offered exciting opportunities to back-track and discover which of the cognitive functions was involved. Feuerstein proposed that we do not have to assume that failures are due to a low IQ or lack of understanding around the content, but instead to consider that there was in play a cognitive function which needed to be developed or modified.

As the Mediator I also kept a reflection journal. I appreciated the opportunity to witness the self-efficacy developing in each student so quickly. I was particularly impressed by the way the students were so receptive to the ideas of others. Greta, Samoan girl aged 12 years, demonstrates the confidence to speak up:

Today I learnt the definitions of new vocabulary such as Gestalt, logical evidence, transcendence, and word association. During the 'Variations' pages I could see that James had a different answer to mine so I persuaded him and my group to change using logical evidence and with words like elimination and infer, in the end everyone in my group agreed with me.

Greta developed thinking skills that began with an elimination process first and then developed more effective strategies. She was a quiet girl who became increasingly confident in her ability. Greta found the voice to persuade others and consequentially her self-efficacy and presence in the classroom grew.

I found that teaching metacognition was a very uplifting process because the Instruments generated valuable insights. By the end of the project, I noticed there was an intrinsic desire to 'beat' the challenge of the pages so the student motivation to do the tasks was consistently high. The phrase 'Stop and Think' became a classroom mantra.

In the beginning, some of the students articulated that they were hesitant to raise their hand to give an answer because they knew there would be further, probing questions such as: *'Why is that so?'* or: *'Are you able to give some logical evidence to show that?'* In time they had confidence in their answers and practised presenting their oral answers in a defined and succinct manner.

For example, Antony, a Samoan boy aged 12 years, displayed quick visual perception. I knew that at a more challenging level this was not always going to work for him and noticed he struggled to give detailed answers in class. To mediate this he was set the task of mindfully reviewing the strategies he was using and then articulating his process to the class. He enjoyed the challenge and over time improved the detail of his replies, altering his language to use more specific terms and vocabulary. He moved from saying *'That thing down there'* when pointing to the whiteboard, to saying: *'I am referring to the black, vertical line which is situated on the far left of the whiteboard, and is south of the equilateral triangle which you have just drawn.'*

Developing Self-Assessment

The goal was always to encourage the students to assess themselves and to acknowledge surpassing their personal best. A developing confidence in his ability is evident in Isaac's reflection below. Isaac, a Russian boy aged 11 years, emerged early in the project as an alternative thinker and a highly intelligent student.

It was very interesting doing the Analytical Perception page because I like to synthesise the columns together. It was fun talking about Feuerstein in our real life use. I am training my brain to think in a smarter, more systematic way to help me in life. It allows me to think in a higher order way and a lot of the things we learn can help us in tests and other things. I feel as though my IQ has risen just by being here! I know it has helped because I am able to use the language in normal speech and I am able to complete puzzles I couldn't do before.

Isaac's feelings of competence grew visibly in class interactions, he had temporal concepts in place and could visualise using new strategies in the future. Isaac was able to justify how and why he was improving. This is an example of ipsative self-assessment; Isaac is successfully and mindfully assessing his own progress.

Awareness of Others

Continued mediation for Isaac included a deeper awareness of his classmates. He could be quite esoteric in his answers. He answered in great

depth and with insight but at such a higher order level that he left his peers confused. He had an excellent bank of general and science based knowledge to draw on for his age. He transcended concepts with ease and could confidently demonstrate his thinking strategies. With regard to his self-efficacy I noticed he was reluctant to write, previous failures and a lack of ability in articulating specific detail in his responses had taken their toll. I mediated by asking him to specifically focus on how he was answering and consciously focus on the likely perspective of those the others who were listening. With practice and the resulting awareness of his peers he became more articulate and less egocentric in his perspective.

Through his mediation the others in the class also gained an awareness of how they were communicating. A highlight in the project included an unexpected demonstration by Isaac and a fellow student who confidently collaborated and explained the Liar and the Grandfather paradox to the delight of their class.

Assessment during class time was targeted at the class wide impulsivity in answers. We focused on any inability to define the problem or poor verbal tools in articulating a detailed and precise answer. Curiously, the lack of precision in verbal responses was prevalent in the most academically able boys. Further discussions with their teacher confirmed the same lack of detail in their written work.

The development of self-efficacy in the group was particularly noticeable in the comments and results recorded by Thomas, an 11-year-old European student. He struggled at the start of the programme and considered himself to be the lowest achiever in the class. His self-esteem was low. Interestingly by the end of the project his test and task results were radically improved. He achieved a score of 35 % in the initial Ravens Test and 74 % in his retest.

Today I learnt how our brain sees things and it was very interesting, also the test was very interesting. My thinking was so fast and I found relationships and used a systematic search.

Thomas understood the need to link relationships visually and use a system in his tasks. His growing confidence was clearly evident. His self-image noticeably changed with the undeniable evidence of his increased successes and results.

Being Logical and Systematic with the Instruments

Pursuing logical evidence was a large part of group work. These students clearly enjoyed learning about their own thinking processes. As part of the 'bridging' process from the Instruments into the NZ Curriculum for the group, their reading teacher introduced a class novel which was themed around ancient Polynesian wayfaring. As a qualified Educational Psychologist she was particularly skilled in the use of Socratic questioning, this was evident during follow up sessions with the class. Impressively the students could connect their answers regarding the novel to the Organisation of Dots Instrument.

Another popular Instrument with this class was the Comparisons Instrument. When using this instrument I particularly enjoyed teaching superordinates: the students were encouraged to think about categorisation and classification at the highest level. They were getting used to comparison as a thinking process and successfully compared two images, Paul Gauguin's 'When Will You Wed?' and Kandinsky's 'Composition IV'. They used their new knowledge of structural analysis to compare both paintings, particularly in terms of the superordinates of colour, shape, line and direction only. This increased their ability to think in the abstract. The task also led to a discussion about the difference between representation and reality.

Mediating Mathematics was easier using the Instruments. We developed terminology in mathematical discussions or when recognising patterns, completing sequences, defining the characteristics of geometric shapes. They improved their ability to describe the direction and labelling of a line accurately. Mediating the Spatial Orientation instrument involved hands on experiences with the use of compasses and maps, etc.

Interestingly throughout the project the class continually asked to do more pages from the Organisation of Dots Instrument. The growth of their self-efficacy through this Instrument was easy to view and as a result they confidently tackled the other tasks. They often commented that they were beginning to enjoy the process of reflecting on their thinking. They were motivated to write. I noted the change in volume and sophistication in each of the students' journals over the time of the project.

Through their written statements for each session I could assess if the students were developing their metacognitive language. For example in the following self-reflection it was evident that Zoe, a 12-year-old Fijian girl, could describe the transference of concepts. She demonstrated that

she had a developing understanding of inductive and deductive reasoning. She recognised that she could break something down to its smallest components to build a concept again and could articulate that:

Today we learnt about Analytic Perception, I think this means when you break a picture apart to bring out the answer. We used jigsaw pieces as an example. Our mediator has taught us the possibilities when you see things, I think those possibilities can be used anywhere, especially in my learning.

I did not share my responses with the students at the time because I did not want to interfere with their growing skills in self-assessment. The students could highlight for themselves most of the areas that needed further mediation. Errors became a source of information and not a source of shame for the students so their dignity remained intact. Organising students into streamed academic ‘ability’ groups seemed now to be a less effective method of doing assessment in a classroom.

IN CONCLUSION: THE BENEFITS OF FEUERSTEIN’S STRENGTH-BASED AND INTERACTIVE ASSESSMENT METHODS

Feuerstein’s theories offered a new way of looking at student output in the project and for assessing their propensity. I gained invaluable insight into the students’ abilities as a partner rather than as an authority figure in the classroom. Within every interaction the Mediator is simultaneously assessing Feuerstein’s Cognitive Functions. These are observed through the students’ statements or actions. As a Mediator you are in a state of high interest throughout the process which improves task satisfaction for both parties.

This form of interactive mediation and contextual assessment is echoed in Feuerstein’s assessment method, which he termed the Learning Propensity Assessment Device (LPAD) (Feuerstein, Feuerstein, Falik & Rand, 2002). Propensity is defined here as proclivity or inclination towards learning. I was personally fortunate enough to be trained in this form of Dynamic Assessment by Dr. Louis Falik, Senior Scholar at the Feuerstein Institute, distinguished psychologist, confidante and colleague to Reuven Feuerstein. The theory of Dynamic Assessment had a strong influence on my co-constructivist philosophy and approach to this project.

Matthew Poehner, Assistant Professor of World Languages Education and Applied Linguistics at The Pennsylvania State University, has researched the role of Dynamic Assessment in second language development. He explains that Dynamic Assessment is based in the Vygotskian notion of the Zone of Proximal Development (ZPD) and that it offers a framework for co-construction with learners, simultaneously revealing the full range of their abilities and promoting development (Poehner 2008).

Ipsative and Dynamic Assessment are both designed to promote a productive 'strengths-based' approach to learning. During the interactive process of Dynamic Assessment the assessor can see if the student can internalise a strategy and gain the required language to continue the test. The increasing confidence of the student throughout this type of interactive assessment offers a further growth in self-efficacy. As with ipsative assessment, Dynamic Assessment ensures that dignity and insight are at the core of any assessment process.

During the project it became apparent that Feuerstein's MLE programme created such 'feelings of competency' and self-efficacy in the students that they were eventually taking risks by answering confidently in class. The evidence of student self-efficacy was apparent in their remarks in class and their copious written reflections. The classroom teacher reported that they had a willingness to adopt new thinking strategies in mathematics and writing and this was also described by the students. The students reported a confidence in their improved performance and an emerging sense of control across their curriculum work. In debriefing sessions the students generally concurred that they had a new control over their learning behaviours, especially in tests.

The class dynamic during the tasks was very cohesive and supportive because the focus was not on competitive behaviours or extrinsic reward. As a result the students successfully collaborated, shared their strategies and supported the growth of skills and ideas in each other. From the written reflections it was clear that every student in the class, regardless of level, was aware that he or she was achieving and surpassing their personal best in every session. There is evidence here that ipsative assessment is motivational for all learners and not only for high achievers (Hughes 2014).

Despite varying levels of competence all of the students were engaged in the Instruments and responded immediately to the intrinsic challenges. There was an instant gratification and a desire to increase the level of challenge. They were consistently keen to prove their skills indicating that their self-efficacy had in fact increased. The class confidently

used a sophisticated vocabulary well above their expected age level in other areas of their learning.

The project at Royal Oak Intermediate School became a vehicle for improving my skills as a teacher because the process was so interactive. The project confirmed for me that a ‘one size fits all’ method of assessment is out of step with a modern teaching pedagogy, a pedagogy which promotes individualisation (personalised learning) and differentiation in teaching. I am grateful to the students and the school for their willingness to take a risk and trial something new. It is hoped the students will continue to use the metacognition they have gained as they progress through their school life, and that they will always retain the feelings of self-efficacy they have developed at this young age. I am indebted to them for the lessons they have taught me.

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Kit McIntyre is a Primary School teacher in New Zealand. In her career Kit has taught Art and Art History at Secondary Level, with roles as Head of Department, Dean and National Moderator. In 2005 she received the Royal Society of New Zealand Primary Science Teacher Fellowship, involving 5 invited visits to Thailand. In recent years as Team Leader Kit has specialised in teaching boys, predominantly Polynesian, who have had academic or behavioural delays. In 2014 she worked as a Resource Teacher of Learning and Behaviour. This involved support for students and their teachers in learning differences such as Autism Spectrum Disorder. She is currently pursuing her interest in Feuerstein's Thinking Skills and ipsative assessment in her classroom.