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Multiple Intelligences Theory, Action Research, and Teacher Professional Development: The Irish MI Project

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Abstract: This paper presents findings from an action research project that investigated the application of Multiple Intelligences (MI) theory in classrooms and schools. It shows how MI theory was used in the project as a basis for suggestions to generate classroom practices; how participating teachers evaluated the project; and how teachers responded to the professional experience. Teachers reported successful student outcomes including more interest and motivation, better recall and deeper understanding, higher attainment, improved self-esteem, and more fun and enjoyable classroom experiences. For teachers themselves, the project was a challenge. They needed more planning time, more persistence, more collegiality, and more management support. All involved in the project found the experiment worthwhile, exciting, and a stimulus for radical change in their pedagogic practice and thinking. Teachers renamed and extended existing practices to include MI approaches and this led to a methods-shift and, ultimately, to indications of a mind-shift. It was apparent in the Irish MI Project that the premising of curriculum content and delivery, state certificate assessment, school organisational practices, and attitudes on a narrow, untenable and unfair construct of intelligence can result in educational exclusion and disadvantage for many students. Thus, it is suggested that the agency of intelligence in educational failure merits attention.

Introduction

This paper presents findings from an Irish action research MI project that investigated MI theory-in-use in classrooms and schools. It shows how MI theory was used in the project as a basis for suggestions to generate classroom practices, how participating teachers evaluated the project, and how teachers responded in a personal professional context to the experience of the MI initiative. It then goes on to consider some of the implications of the findings from the study for educational policy and practice in Ireland. It suggests that an interrogation of intelligence would provide a worthwhile additional and alternative lens with which to view and understand educational disadvantage. It is hoped that this position, in turn, might be instructive beyond the Irish context.

The paper is in five parts. First, the theory of MI and the Irish background are outlined. Secondly, the Irish MI project is described. Thirdly, it shows how MI theory was used in classrooms. Fourthly, teachers' responses to the MI experiment are detailed. Finally, the findings are discussed.

MI Theory and the Irish Background

The idea of intelligence as a general and measurable ability, with “innately determined limits, differing markedly from one individual to another and parallel to those in human bodily development” (Chitty 2011, p.238) was born in 1869 with the publication of Francis Galton’s book, *Hereditary Genius*. In the latter part of the twentieth century, constructs of intelligence became more complex. There was a move away from understanding intelligence as a unitary, innate capacity, measurable by an IQ test. More than other theories that moved away from an IQ-dominated construct of intelligence, Howard Gardner’s theory of Multiple Intelligences (MI) caught the imagination of educators and since the mid-1980s Gardner’s theory has been applied in educational contexts.

The theory of Multiple Intelligences was first proposed by Gardner in 1983 in *Frames of Mind* as a direct challenge to the “classical view of intelligence” (Gardner *et al.*, 1996, p.202-203). Gardner (1993) defined an “intelligence” as the ability to “solve problems or fashion products that are of consequence in a particular cultural setting or community”. He went on:

The problem-solving skill allows one to approach a situation in which a goal is to be obtained and to locate the appropriate route to that goal. The creation of a cultural product is crucial to such functions as capturing and transmitting knowledge or expressing one’s views or feelings. The problems to be solved range from creating an end for a story to anticipating a mating move in chess to repairing a quilt. Products range from scientific theories to musical compositions to successful political campaigns. (p.15)

According to Gardner, there are at least eight relatively autonomous but interconnected intelligences: linguistic, logical-mathematical, visual-spatial, bodily-kinaesthetic, musical, interpersonal, intrapersonal, and naturalist. He has based his claims for the existence of at least eight intelligences on psychological, neuropsychological, neurobiological, historical and evolutionary evidence as well as on findings from psychological experimental tasks. With Kornhaber he has stated that intelligence is not a “thing”, but rather “a potential, the presence of which allows an individual access to forms of thinking appropriate to specific kinds of content” (Kornhaber and Gardner, 1991, p.155).

MI theory has been criticised on many grounds: for not offering a clear program for educators to use in implementing MI theory in schools (Levin, 1994); for the arbitrary nature of the intelligence categories (White, 1998); and for the lack of sound science underpinning it (Waterhouse 2006a). Although Waterhouse’s critique that MI theory lacks adequate empirical support and should not be the basis for educational practice was rejected by Gardner, on the basis of four evidentiary claims for the theory (Gardner and Moran, 2006), Waterhouse (2006b) and others remained unconvinced. Meanwhile, despite the fact that *Frames of Mind* contained only a few paragraphs on educational implications of the theory and these only “because of the funder’s interest” (Gardner, 1993, p.xii), the impact of the theory on education has been far-reaching. MI theory was especially prominent in Ireland, a result of what O’Sullivan (2005, p.422) called “a form of guerrilla combat ... (by) a small but committed membership of intellectuals and activists”.

In fact, engagement throughout the Irish education system with the theory and application of MI was “phenomenal” (O’Sullivan, 2005, p.421), albeit for sociologists of education (e.g., Lynch, 1992) and curriculum developers more than for psychologists of education. Two teacher and classroom-based action research projects (Hanafin, 1997; Fleischmann, 1998) received widespread attention and were influential in bringing Multiple Intelligences theory into the mainstream of Irish education policy. References to MI theory and publications from the Irish MI project described in this paper were included at various levels of curriculum development and discussion from the revised primary curriculum (Government of Ireland, 1999) to reporting on exceptionally able students (NCCA, 2008) to

considerations of early childhood education (NCCA, 2009). Research and publications from the Irish MI Project highlighted the radical equality implications of MI theory (Flynn, 2000) as well as equality and the intersection of special education, MI practices and improved teaching and learning in mainstream schools (Hanafin *et al.*, 2002), and equality and assessment issues in higher education (Hanafin *et al.*, 2007).

Change, however, takes place slowly and with difficulty, if at all. Despite unprecedented waves of curriculum reform in Irish schools over the last twenty-five years (Gleeson, 2010), including an entirely revised primary curriculum, the introduction at post-primary level of new programmes (e.g., the Leaving Certificate Applied) with innovative assessment techniques, the revision of Leaving Certificate subjects, and the presence of some oral, aural, project and practical assessments in state certificate examinations (Gleeson, 2010, Williams and McDonald, 2013), the little systematic research (Smyth and Banks, 2012) that exists on the teaching methods used in Irish schools, suggests that teaching methods have changed relatively little (Smyth and McCoy, 2011). The holistic ethos of the revised primary curriculum is threatened by the focus on literacy and numeracy, to the exclusion of other educational objectives (Ó Breacháin and O'Toole, 2013); there is a continued dominance of didactic approaches in post-primary education (Gilleece *et al.*, 2009); and there is a neglect of the development in education of the affective domain that amounts to indifference (Lynch *et al.*, 2007).

Such curricular calcification may be explained, in part at least, by one of the most influential educational policies of the last 50 years (Natriello, 2009), namely the imposition of high-stakes testing requirements, i.e., the use of standardized student achievement tests as a “primary mechanism to evaluate the performance of students, their teachers, and their schools” (Natriello, 2009, p1101). High-stakes testing is in place at all levels throughout the education system in the Republic of Ireland with standardized assessments (e.g., PISA) at primary level and two high stakes national examinations (Junior Certificate and Leaving Certificate) at post-primary level. Ireland, as elsewhere, shows the well-documented “backwash” effect (Smyth and Banks, 2012, 303) of high-stakes assessment on teaching methods, with, for example, a reduction in more “engaging, student-centred activities within the classroom”, a preponderance of “teacher-led instruction”, little group-work or project-work, and “frequent practising of previous exam papers” in years when testing occurs (Smyth and Banks, 2009, 300).

In the Irish MI project, the application of MI theory to enhancing teaching, learning and assessment in schools, colleges and universities was informed by a view that much of the formal curriculum, mediated through individual subject syllabuses and textbooks, prioritises the linguistic and logical-mathematical intelligences at the expense of other intelligences (e.g., Lynch 1992; Drudy and Lynch, 1993; Hanafin *et al.*, 2002). Subjects that rely on these intelligences (languages, mathematics, science) make up the greater part of the formal curriculum, both at primary and post-primary school levels. Curricular provision for subjects that do not rely largely on the linguistic or logical-mathematical intelligences is low. And they may not be taught through intelligence strengths that suit students who take them and may rely on teaching methods and textbooks that are largely linguistic in nature. Furthermore, these subjects are often assessed through linguistic means, further disadvantaging students who are not strong in those areas.

Finally, students whose strengths are in those high-status subjects are well-catered for in curriculum terms also receive little opportunity to develop their other intelligences. Nor is that considered a problem. So highly are linguistic and logical-mathematical intelligences regarded that there seems to be little reason to try and develop other intelligences in students who are not strong in them. In Irish second-level schools students are still assessed in most subject areas by written examinations. Although some subjects use practical tests, or oral and aural assessments, the main emphasis is still on encoding knowledge throughout the use of linguistic symbols. When linguistic skill is not the medium for expressing knowledge,

logical-mathematical skills predominate. There are few subjects in which spatial and musical intelligences are assessed and these are taken only by a minority of students.

The problem with this strong emphasis on two intelligences is that student learning opportunities may be constrained by the teaching, learning and assessment practices that derive from it; students capable in many domains are considered lacking in intelligence because they are not strong in those two areas; and school organisational practices such as ability grouping, streaming and banding that arise from this narrow emphasis can have negative consequences for many students and for their beliefs about themselves. This narrow emphasis on two intelligences was an issue that was the starting point for Gardner's theory and that concerned him more broadly, especially from his observations in the US context. Accordingly, it seemed appropriate to explore his thinking to address the issue in education in Ireland. The Irish MI project, informed by curricular and equality implications of Gardner's theory, will now be described.

The MI Project

The MI project was located at an Irish university and was undertaken in two phases. Phase one, which ran over the first two years, was concerned with reviews of literature, curriculum development, developing a library of resources, research on teachers' understandings of intelligence, and research on assessment modes and techniques in the Republic of Ireland (mainstream and other) in the last twenty years. This was followed by a three-year action research phase, during which the teacher data, learner data and classroom-data referred to later on were collected.

The action research project aimed to use an MI framework in a number of Irish classrooms and schools in one region in the country to develop MI teaching, learning and assessment approaches. Approximately thirty teachers were involved (17 women and 13 men) working in primary, secondary and special needs schools.

The Irish MI project, mindful of contemporary curriculum discourses (Pinar 1995, 2008), was developed as an emancipatory action research project (Hanafin, 2000). As social research connected to an educational intervention (Boog, 2003), the project's activities were underpinned by theories of critical (Freire, 1998; Giroux, 1988; Kincheloe and Sternberg, 2000) and engaged pedagogy (hooks, 1994) while its conceptual platform drew on expertise from previous Irish projects in which teachers turned curriculum proposals into effective practice using reflective inquiry (Leonard, 1988; Leonard and Gleeson, 1999).

Professional Development Programme

The professional development (PD) support programme for the 30 participating teachers included a series of lectures, seminars, and workshops over five academic terms. Content, timing, and delivery of the PD support programme were negotiated with participating teachers and the programme was largely determined by their emerging needs as they engaged in the action research. Most sessions took place in the evenings and at weekends. Materials, strategies and approaches were developed and tested by participants. These were initially developed by the research team. Very quickly, however, participating teachers themselves became the driving force in expanding the range of materials used. A large body of books, articles, video-tapes, audio-tapes and other materials was obtained by the project team to develop a resource library that was used by participating teachers and by many other interested teachers and researchers. Primary support for participating teachers during the project was provided by the project team (project director, two research fellows, two research

assistants and secretarial / administrative support). Support was also provided by other faculty at the host university and by visiting faculty from other universities.

Many participating teachers expressed a desire for more information about the theory of MI, about Teaching for Understanding, and about assessment issues, as well as about lesson planning and dialogical pedagogy. An issue that arose frequently concerned the inter-relatedness of the intelligences and its implications for teaching and assessment. In this context, the importance of not equating an MI framework with a particular set of teaching strategies became important. How to measure 'felt success' in relation to teaching and learning within an MI framework also emerged as an important action research question and was addressed by examining teachers' reflective journals, lesson data, assessment data, contributions from students, and evaluations.

Other needs identified by participating teachers included the need for teachers to build planning time into their practice, the need for resources, the need to address the possible isolation which could occur without whole-school support, and the need for classroom practice to embody as far as possible the full richness of the insights of MI theory. Responses from participating teachers showed increasing sensitivity in this regard, and they pointed to the need for support in the area of lesson planning for dialogical processes.

The importance of school organisational and school support structures for MI practices emerged early in the project. Support from colleagues and management for changing practices was identified as both desirable and necessary for participating teachers. The project began to address the whole-school implications of working within an MI framework through information sessions and social evenings for principals in the participating schools. In this context also, a project newsletter was disseminated to participating teachers' schools and more widely within the education community.

Action Research

The action research element of the project commenced with a colloquy which focused on the theory of MI, assessment issues, teaching for understanding, lesson planning, reflective journaling, and MI strategies and approaches in classrooms. Subsequent week-end and evening sessions focused on action research, integrating curriculum and assessment in an MI framework, dialogical pedagogy and lesson planning, teaching for understanding, authentic assessment, and portfolio assessment. Some of the most exciting and effective moments occurred during sessions when participating teachers shared materials, approaches and classroom experiences. All PD sessions were video-taped.

The project team began to articulate a common conceptual platform early in the action research phase. There was an emerging understanding of what constitutes MI practices. This derived from the experiences of the project team and participating teachers, from the analysis of data, and from seminars, discussions and other meetings.

The research design took cognisance of the action research cycle of problem inquiry, action plan, reflection and re-evaluation of problem. The problem was defined as follows: current teaching, learning and assessment structures in Irish schools are narrow, drawing largely on linguistic and logical-mathematical intelligences. The question we started with was: "how might the theory of MI be applied in classrooms in order to lead to improved teaching, learning and assessment?". Re-framed questions included "what are MI classrooms?", and "how can I make my classroom an MI classroom?". Templates were developed for lesson planning, lesson evaluation and for reflective journaling and these were modified as the project progressed. Data from approximately 150 lesson hours were collected. In addition, teachers also provided supplementary materials from students including videotapes of lessons.

Dissemination

Dissemination of project activities started in the early months of the project and was much greater than had been initially anticipated. Some dissemination had been planned but much of it was externally driven and resulted from high levels of interest among educators. Planned dissemination included sessions on post-graduate programmes in education at the host university and sessions with educators regionally and nationally. Weekly seminars were held in the Education Department of the host university to discuss project progress and future directions. There was also dissemination at seminars for new academic staff at the host university and open fora for teachers and school principals in the region. Public seminars were held for participating teachers, policy makers, co-ordinators of national programmes, and the general public. The project's newsletter was widely distributed to several hundred individuals and institutions at many levels in the education system.

MI Theory into Practice

The PD programme focused on, and developed, a number of strands of MI theory and related areas. The most significant of these were understanding the theory itself, recognising and valuing the intelligences, teaching to, for and through the intelligences, entry points, a teaching for understanding (TfU) model of curriculum development, and portfolio assessment. Each of these is now considered.

Naming intelligence(s)

Several of the early PD sessions explored the theory of MI, the project team's understandings of intelligence, the implications of those understandings for classroom practices, and the potential of MI theory to change classroom practice. The team members began to identify their intelligence strengths and weaknesses and to arrive at an understanding of their intelligence profiles. Teachers began to explore whether some intelligence areas might be more dominant than others in their classrooms. That done, they were asked to consider whether it might be possible to distribute teaching approaches more evenly across the intelligences. This identification was undertaken in conjunction with, or as a prelude to, identifying student intelligence profiles.

For teachers who had not previously come in contact with the theory, a very common reaction was what one presenting teacher called the 'ah-ha' factor. There was often a strong, almost intuitive, recognition that MI theory told an important story about learners in these teachers' classrooms, particularly about learners who may have been marginalised in classrooms. In particular, many felt that MI theory explained and accounted for 'weaker' learners in classrooms. This exposed a paradox (described as macaronic (O'Sullivan, 2005)) experienced by most involved: on the one hand, there was a belief in learners' multiple intelligences and, on the other, there was a difficulty in re-naming or (re-believing) some learners as intelligent.

Intelligence Profiles and Comfort Zones

It was recognised that in classrooms where student intelligence profiles resemble teacher intelligence profiles, it is likely that learning takes place with some ease. This happens when teachers teach through intelligence areas where they are strong and students

learn well through similar areas of relative strength. When a mismatch occurs, however, problems may arise. If teachers teach consistently or exclusively through intelligence areas where only some students are strong, then many students may struggle to learn in ways which suit neither their learning styles nor intelligence profiles. The project team quite quickly identified obvious features of their intelligence profiles and came to recognise their comfort zones. They began to see that, in their classrooms, dominant teaching styles evolved from these comfort zones. This led to a general commitment to include a wider and more frequent experience for the students in each MI

Teaching To, For and Through the Intelligences

Much of the early work on MI theory in classrooms was concerned with teaching *to*, for and teaching through the intelligences (Armstrong 1994; Campbell 1994; Lazear 1994). This led to the emergence of an approach that entails the development and use of teaching and learning strategies which focus on various intelligences in order to utilise learners' strengths as well as to develop, through exposure, areas of relative weakness. Lessons are deliberately structured to include methods which rely on movement, visual-spatial activity, group work and reflection, as well as on the linguistic and logical.

The purpose of such an approach is to provide comfort zones for all students so that learning might occur with greater ease. This constitutes teaching through the intelligences. In addition, the exposure of learners to stimuli in areas not traditionally used in their classrooms is intended to develop those intelligence areas in which they are not strong. This constitutes teaching to or teaching for the intelligence. Cognisance of the latter approach provided a useful starting point for participants in the project. It broadened the range of methods used in classrooms and it was helpful in assisting participating teachers to identify their intelligence profiles, comfort zones and dominant teaching styles. It also led to a different sense of learners in participating teachers' classrooms; students who had previously been quiet, invisible, on the margins, and lower-achieving, or who had been disruptive, highly visible and lower-achieving, surprised teachers with their responses to this new variety in method. At the same time, it did not immediately suit all students, with those who had previously felt very comfortable with teaching and learning approaches in their classroom often feeling challenged by the demands of new methods.

Entry Points

Gardner suggests that any rich, nourishing topic - any concept worth teaching - can be approached in at least six different ways. He suggests thinking about the topic as a room with at least six doors or entry points into it. "Students", he argues, "vary as to which entry point is most appropriate for them and which routes are most comfortable to follow once they have gained initial access to the room" (Gardner *et al.*, 1996, pp.203-204). The entry points are the *narrational*, *aesthetic*, *logical-quantitative*, *foundational*, *experiential* and *social-cooperative*, and map roughly onto the intelligences

The *narrational* entry point presents a story or narrative about the concept in question. The *aesthetic* entry point emphasises sensory or surface features which will appeal to learners who favour an artistic stance to the experiences of living. The *logical-quantitative* involves approaching the topic through deductive reasoning processes, or through invoking numerical considerations. The *foundational* entry point examines philosophical and terminological facets of the concept and is appropriate for people who like to pose fundamental questions. The *experiential* entry point is appropriate for those who learn best with a 'hands-on' approach, dealing directly with the materials that embody or convey the concept. Finally, the

social-cooperative suits those who learn best in group situations. In underlining the importance of using a variety of entry points, the project team members came to realise that the use of entry points illustrates the possibilities of teaching *through* the intelligences, which leads to teaching *for* the intelligences. Once familiar with the entry points, such an approach, it was recognised, may be considered for any topic for any subject area. Participating teachers using a number of 'entry points' when approaching the teaching of a topic found that the earlier experience of teaching *to* and *through* the intelligences provided a good foundation from which to proceed.

Teaching for Understanding

All teachers teach for understanding. Unfortunately, in places like Ireland where there is a dominance of the terminal written examinations, it is very often not possible to know whether students have, in fact, understood what it is we wish them to know. A TfU model (Perkins and Blythe, 1996) places understanding at the centre and at the forefront of the learning experience right throughout a course of study. On this, Perkins and Blythe (1996, p.10) point out that helping students acquire understanding is difficult work.

What then is understanding or what is the difference between understanding and knowing? The Harvard University Teaching for Understanding Project formulated a view of understanding called the 'performance perspective' on understanding. It defined understanding as a matter of being able to do a variety of thought-demanding things with a topic, like explaining, finding evidence and examples, generalizing, applying, analogizing, and representing the topic in new ways (Perkins and Blythe, 1996, p.13). The following dimensions or steps have been identified in a TfU model:

- Identification of generative topics;
- Throughlines / understanding goals;
- Performances of understanding; and
- Ongoing assessment

Working from the beginning with Gardner and the Harvard Teaching for Understanding project team, the Irish MI project team, participating teachers, and visiting and support speakers adopted these steps to help develop dialogical approaches to lesson planning and analysis.

Portfolio Assessment

The confluence of MI theory and a TfU model raised questions about assessment practices. It was recognised that if learners learn in different ways, then it makes sense for them to illustrate understanding in different ways. Thus, authentic assessment and portfolio assessment were a focus of the project and it was considered how MI classrooms might make a contribution in these areas. From the classroom data it was clear that instances of meaningful learning could occur when various MI strategies were used to activate diverse intelligences and to try and include learners with different abilities. It was considered how instances of meaningful learning might become opportunities for meaningful assessment. It was also considered that possibilities existed within the moment(s) of learning to demonstrate understanding, knowledge, recall, and improvement. Furthermore, consideration was given to how MI teaching and learning could be used for authentic assessment in the classroom. It was also found that they provided opportunities when moments of assessment became moments of learning. In other words, assessment changed from being something which occurred after the learning to being an opportunity for learning.

Teachers' Responses

The various data collected throughout the project (including lesson data, teachers' analyses, video-taped PD sessions, student work) as well as project articles articulated the Irish MI team's emerging understandings of MI theory and its applications and relevance in Irish classrooms. The data showed that there can be many different kinds of MI classrooms, that teachers could incorporate elements of the theory into their lesson planning and delivery with relatively little difficulty, that the possibilities for including more learners in classrooms increased, that the increased contact between primary and post-primary teachers yielded possibilities for students at the transition between the two levels of schooling, and that there could be greater equality in classrooms in terms of student access to learning, participation, and learning outcomes.

This section presents findings from one of these data sources, namely, the reflective journals completed by participating teachers to shed some light on how teachers themselves responded to the challenges of MI theory-in-use. The reflective journal template was developed collaboratively and modified as the project progressed. It was comprised of a number of the following questions, suggested with a view to structuring teachers' responses in order to facilitate their reflections as well as to facilitate consistency in project data:

- To what extent is this a new style of teaching for me?;
- How have I felt about adopting an MI approach?;
- Do I think an MI approach worked?;
- Where was I at the beginning of this MI experiment?;
- Where am I now?;
- What were the key points in that journey?; and
- Anything else?

Teachers completed these reflective journals after each series of lessons taught, as a means of analysing the MI project and the PD experience. The reflective journal entries formed the principal corpus of data for this aspect of the project since the focus of this aspect was professional development and they provided by far the richest data for that task. Nevertheless, in the interest of triangulation, only those themes generated from the diary entries that got support from the data yielded through the other avenues also are reported on in this paper. In this way, the themes were supported through triangulation.

Credibility, authenticity and trustworthiness of the data, and subsequent analysis, were ensured through the adoption of three safeguards (Leedy and Ormrod, 2013). First, researcher colleagues examined the data to ensure meanings were not forced onto the data. Second, participant teachers confirmed recognition of the data and analysis after verification. The third safeguard was an audit trail that was maintained throughout the data analysis.

Responses to MI Approaches

In response to the question *To what extent is this a new style of teaching for me?*, many teachers reported that this was not a new style of teaching for them. For some they were not new because they had been involved in another MI project. For others, their experience of many years in classrooms had already led to a recognition of the need for a range of strategies to reach learners. These were described by two teachers as 'teacher-tricks' and 'mental acrobatics'. For some, however, specific elements of the approach were new. On this, one teacher stated:

I have never played a music tape in class before. I would be familiar with group work and reporting back but not using different types of diagrams that students produce as a means of learning.

Some with no previous exposure to an MI framework also reported that they had been using MI approaches without recognising them as such. A typical comment in this regard went as follows:

I have used these approaches in my teaching previously but I didn't realise they were multiple intelligences approaches. I wouldn't say I used them daily up to now but maybe I used one or two weekly.

Such comments also serve to illustrate that those who had previously used a variety of what might be termed "MI methods" did so in a somewhat *ad hoc* manner, more routinely than consciously, and not within any deliberate framework of teaching and learning.

In response to the question *How have I felt about adopting an MI approach?*, responses ranged from positive to uncertain to a mixture of both. The majority of responses were positive and even those who started in a somewhat uncertain frame of mind became more positive as the experience brought confidence. Teachers spoke of enjoyment ("I enjoy it!"; "It's enjoyable to teach"; "The students enjoy the classes more") and a sense of achievement ("Students find it useful and interesting"). There were also those who felt "uncertain and at sea" and "unsure, but willing to try". Furthermore, a difficulty involved in a change of practice even with an "intellectual acceptance" was noted. On this, one teacher wrote her "brain" kept "telling me 'talk and chalk' won't just cut it any more", but "going from an intellectual acceptance of the MI approach to changing my practice was a much bigger step than I had thought it would be".

The responses to the question *Do I think an MI approach worked?* were positive. All teachers reported that the lessons taught were valuable, often in terms of student learning, student recall, student participation, and student enjoyment. Several also reported along the following lines that an MI approach, as measured in such student learning outcomes as recall, was successful:

Yes. If I gave homework like – 'learn the capital cities of all the E.U. countries for tonight', I would not be confident that all would know them or even be able to visualise the countries. Now I would be quite confident. I am especially happy that they are more aware of where countries are and what countries border them.

Responses also highlighted the backwash effect of assessment onto curriculum and the emphasis on "outcomes" which accompany this. For example, teachers reported that average class assessment results had improved during the project. The project team considered it important that such outcomes would be contextualised in new approaches to what is valued in terms of knowledge, understanding and experience and not become themselves the most important focus of teachers' aims.

Teachers also considered that an MI approach worked because students found new ways into subject content, enjoyed the experience, and participated well. One teacher wrote that an MI approach led to an "increase in student interest and motivation, an increase in student performance in assessment testing, an increase in approaches to content and pathways to learning, and better student/student relationships". Another stated that "any approach that helps the children to learn work and it opens the door for so many students".

At the same time, some difficulties were reported, particularly in relation to the need for increased planning time and for good organisational skills on the part of the teacher. On this, one teacher stated:

Yes, generally, I find that MI strategies work. Thinking them out and planning classes takes a bit more time, but it's rewarding for everybody. I like the fact that I'm challenged to work out new ways of teaching familiar material.

Yet, it was agreed that as the approach became more familiar, it became easier to implement. However, all felt that the increase in planning requirements was balanced by the benefits to learners. On teacher gave voice to this view as follows:

I enjoyed the MI approach very much. Although it represents a huge increase in planning, it also represents a huge increase in student involvement. Students' performance in assessment exercises improved significantly during the period of the lessons.

An MI approach was also seen as helping 'weaker students' contribute to lessons. Recognition of this led to discussion about the project's conceptual platform and the fact that an MI approach is about more than a variety of strategies. Crucially, it was also seen as being about re-conceptualising 'intelligence'.

Teachers also recognised difficulties in relation to the need for students to become familiar with new structures. On this, one teacher commented:

Yes, but I identified problems re. lack of familiarity with the process and found that for 1st year students a more structured approach is needed. Students were also unsure as to what they were required to do. Clearer introduction and explanation to students at the start was needed.

There was associated confusion about the degree to which one was expected to direct the activities or leave the children to choose them.

Teachers' Personal Professional Development

Teachers addressed three questions in relation to their own personal professional development during the action research project: *Where was I at the beginning of this MI experiment? Where am I now?* and *What were the key points in that journey?* In response to the question *Where was I at the beginning of this MI experiment?*, participants' prior general commitment to, and interest in, MI theory was evident. All of the teachers involved in the project were positive about the theory, about applying it in their classrooms, and about the positive outcomes they perceived to occur. This was not surprising given the largely self-selecting nature of teacher involvement and the fact that about one-third of the teachers had been previously involved in a related project. It is not suggested that this is transferable more widely and it is recognised that the Irish MI project is but one study. A range of such studies would need to be conducted, especially to try to understand the nature of possible negative responses. Additionally, there was some uncertainty about how to apply the theory in the classroom, particularly from teachers with no prior experience of it. On this, one spoke of being "unsure", of "groping in the darkness" and of "trying to overcome my uncertainty regarding my ability and endeavouring to focus on my interest in MI to boost me".

In response to the question *Where am I now?* teachers talked about the effects of experimenting with a new approach, about how practice changes, and about how their own confidence in the approach grew. Typical responses were:

I am more motivated and more competent in applying some of the strategies.

I am like a raw student, scribbling out my notes but "óg arís" (young again) in some new energy-giving way, because of MI in my teaching.

Teachers also wrote as follows of increased awareness in relation to learner needs: Gaining in awareness and ability to implement some of these strategies - more conscious of the need to include a wider and more frequent experience for the students in each MI.

More concerned to provide diverse approaches in an effort to maximise student-friendly approaches to content and learning - also, more committed to developing a broader range of intelligences in students, particularly logical-mathematical.

Finally, successful classroom experiences, hallmarked by enjoyment and learner success, were prominent among teachers' responses to the question, *What were the key points in that journey?* These included:

My excitement and enjoyment in watching the class being so involved.

Student response was enlightening in that some of them possessed abilities in the spatial and logical-mathematical area that had not surfaced before. In particular, students who were weak in the linguistic and strictly mathematical areas shone in the newer areas introduced. Comments included:

The enjoyment for all concerned throughout the series of lessons.

Students asked interesting questions not encountered with chalk-talk approach.

Was able to get across same points in different ways. Boredom was avoided. Aided memory.

Teachers' positive reports notwithstanding, it is of course impossible from participants' qualitative responses to measure how much, if any, actual improvement occurred and it is suggested that this is an area which merits further work in MI classrooms. In relation to positive elements of the PD support provided, teachers mentioned resource material being available, colleagues being interested, principal teachers being supportive, prior professional development in the area of MI being beneficial, and the project team being helpful.

The value of reflecting on practice was also deemed valuable by many, particularly because, as they saw it, successful reflection facilitated better and easier lesson planning. Increased familiarity with the theory of MI and successful experimentation and a feeling of achieving the 'big picture' were also mentioned as key points in the MI journey. Finally, such organisational and structural elements of the project as its ethos and the social elements attached to it were also key points for teachers. On this, they said that they felt a sense of belonging and a sense of shared purpose, of being included, and of being valued.

Discussion

The Irish MI project may be said to have been valuable, particularly at a level of commitment to employing or extending strategies to improve learner experience and learner outcomes in the classroom, findings that are not particularly unusual in MI projects and research (e.g., Fogarty and Stoehr, 2008). Good teachers always use a range of techniques and it may be argued that, in the project, MI theory worked only as a conceptual framework and a scaffold to accommodate previously developed teaching strategies. Nonetheless, all of the teachers wrote about what they saw as the positive contribution of these practices in their classrooms and even those teachers who were already creatively using multiple methods said that they expanded their repertoire by engaging with MI theory and practices developed during the project, a positive outcome in light of the discussion earlier in the paper regarding the continued dominance of didactic methods in Irish schools and an indicator that MI theory may offer benefits in a professional development context for teachers' classroom practices.

Perhaps more interesting and potentially more valuable was the growing realisation of the members of the project team that the biggest leap to be made in MI classrooms and beyond was not a methods-shift but a mind-shift. There was little resistance to describing particular individual capacities as 'talents', 'gifts', or 'aptitudes', but there was a reluctance to move away from traditional constructs of 'intelligence'. This was apparent in an almost unconscious attachment to descriptions of certain individual learners or groups of learners as 'weak'. Here was a strong indicator of just how embedded was the team members' construct of intelligence. The Irish MI project consisted of a group of people wholeheartedly

committed to the theory of MI and to understanding intelligence in egalitarian and inclusive ways, yet who still clung to a construct of intelligence with which they were emotionally as well as intellectually familiar.

However, as they began to re-appraise their own intelligence strengths and comfort zones it became easier to re-appraise learners' intelligence profiles. They recognised and appreciated diversity in themselves. They discovered comfort zones and zones of extreme discomfort. When this happened, the implications of their re-appraisal of intelligence for learners, teaching styles, and assessment practices began to emerge.

The journey of the team members to a holistic acceptance of what they intellectually believed involved excavating dearly and strongly-held beliefs in order to be able to embed new ones. Along the way, they were obliged to examine the language used by them when talking about learners, the way they planned and structured curricula in their classrooms, and the assessment modes and techniques used. Ultimately, the recognition of a need for system change became clear. They then began to understand the means through which curriculum, school system, public examinations structures, and much more premised on a narrow construct of intelligence, result in the exclusion of many.

Finally, they then arrived at the conclusion that the mediating effects of this narrow construct of intelligence on the Irish education system can and does cause suffering, humiliation, apathy, impaired self-esteem, life-long antipathy to learning, and irreparable damage to learners in schools and in their subsequent lives. This, it was held, was probably true of the 10,000 young people who leave school each year with no qualification whatsoever, and it may be true of many more for whom their schooling is an experience in being "lesser-valued". The nation's pride in high retention rates and the rapid increases in participation at primary, post-primary and tertiary levels should not, it was held, blind one to the needless misery caused to many by a narrow construct of intelligence.

Valuing learners and their diverse intelligences emerged as the most significant element of the project. Finding strategies, methods and approaches were important in enacting MI theory but the essence of MI classrooms, it was concluded, is how all learners can feel valued. The project team became conscious that in the haste to implement the new MI strategies, the more important factors which cause exclusion and failure were largely ignored. They recalled the article 'Beyond the Methods Fetish', by Bartolomé (1994) in which she pointed out that the focus on finding the right 'methods' to improve the academic achievement of students who have historically been oppressed "hides the less visible but more important reasons for their performance: the asymmetrical power relations of society that are reproduced in the schools, and the deficit view of minority students that school personnel uncritically, and often unknowingly, hold".

Conclusion

Student failure in schools is commonly constructed as lack of (academic) success in examinations, often resulting from lack of participation, and is commonly understood within a framework for understanding educational disadvantage that identifies social class, gender, ethnicity, and disability as agents of exclusion and oppression. The narrow construct of intelligence that permeates the Irish education system is a dimension of educational disadvantage that also deserves scrutiny in this regard. In Ireland, the emphasis on, and acceptance of, a narrow and untenable construct of intelligence, has made it an agent of disadvantage invisible within the education system. The scope offered by the category 'intelligence' to see and understand educational disadvantage is great. The mediating effects of "intelligence" on how classrooms and schools are organised, how the system prioritises certain students and certain abilities, and how certification is carried out and discriminates against many can assist us in understanding and combating educational disadvantage.

Although it may appear from writings over the last twenty years on MI and similar theories that the interrogation of intelligence constructs is a recent one, robust critiques of Galtonian conceptions of mental ability date to at least the 1950s (e.g., Simon, 1953; Heim, 1954), particularly in relation to the educability of students irrespective of social class, ethnicity, or gender (Chitty, 2011) and continue unabated (e.g., Kincheloe, 2004; Sternberg, 2007; Hatt, 2012). In that sense then, the application of MI theory in educational settings such as that described in this paper, represents another step in the fundamental epistemological questioning of how we know what it is to be human, intelligent, and educable.

Notwithstanding the important counter-arguments of critics such as Waterhouse that enthusiasm for the application of theories such as MI to classroom practice “should be tempered by an awareness that their lack of sound empirical support makes it likely that their application will have little real power to enhance student learning beyond that stimulated by the initial excitement of something new” (Waterhouse, 2006a, p.222), this action research project shows that teachers believe MI theory-in-use delivers direct benefits to their students’ learning, motivation, and self-belief. It also reveals the potentially more powerful indirect benefit of demonstrating how the social construction of intelligence that limits agency and affects equality may be questioned and undermined.

The insights of the Irish MI project suggest that the ideas educators and others hold about intelligence have more power than might be imagined in how young people are valued and educated. The reflective enquiry, modified perspectives and changed practices of teachers who participated in the project also show that the largely invisible but powerful hegemonic construct of intelligence underpinning Irish education, can not only be understood as an agent of educational failure, exclusion and oppression, but can be challenged and transformed.

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