AN INVESTIGATION IN TO THE EXTENT TO WHICH GARDNER'S MULTIPLE INTELLIGENCE THEORY (1983) FEATURES IN KS2 CLASSROOM PRACTICE, STRUCTURE AND CLIMATE

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Abstract

Inspiration to explore Multiple intelligence[1] theory (Gardner 1983) actively in the classroom derived from the findings of a second year research study which concluded that teachers where the catalysts to the successful implementation of this model, if it were to feature in the everyday classroom (Bruce 2003). For this dissertation, I conducted an ethnographical study which included a policy review of the new National Curriculum (2014) which allowed me to contextualise the findings of the 33 classroom observations made and 8 teachers interviewed over 3 schools. The schools were in different counties and were in varying socio-economic areas. Firstly, I found that the National Curriculum does not explicitly feature MI theory but, in some ways, does implicitly feature MI theory and also gives teachers 'room' for it. In addition, teachers themselves, according to the observation data, were unknowingly featuring an MI model in their classroom practice, structure and climate – contributing to the argument that MI theory may be naturally occurring (Gardner 1999). Lastly, teachers were positive about the effects an MI model could have for their pupils but concerned about what it would mean for the autonomy, time and abilities of teachers themselves. Overall teachers thought that governmental policy and politics had a significant impact on the future of MI in the classroom. Future considerations included that teachers should be aware of the multiplicity of intelligence at teacher training level but ultimately teachers should use the 'room' in the new National Curriculum to their benefit and should decide for themselves on the pedagogical practice which suits them and their classroom.

[1]Multiple Intelligence - Abbreviated as MI theory throughout the dissertation

Chapter 1 - Introduction

'Intelligence' is used frequently with little consideration of its definition (Gardner 1999). In fact intelligence is more than a word but a socio-scientific phenomenon which holds meaning which is embedded in the cultural fabric of society (Gould 1996 and Flynn 2009). Education is an institution which can not avoid this concept (Gardner 1991 and 1999). I would suggest the everyday existence of intelligence serves as currency for academic success in a classroom. Therefore it is vital to unpack this concept within the context of educational policy and teacher practice.

Over the last century the definition of intelligence has been subject to reconstruction (Gould 1996). In my research and opinion, Howard Gardner is a pinnacle figure in the reconfiguration of intelligence. Gardner claims the existence of eight and a half intelligence *types*. He has argued that MI theory can feature and be beneficent in everyday classroom practice (Gardner 1993). Armstrong (2009) extends the argument that MI *should* and *could* feature in classrooms through appropriate teacher intercession, but does it truly feature in the everyday and if so how, and if not, why?

'Multiple intelligences in the classroom' (Armstrong 2009) states the pioneering feature of MI in Japan, America and some sub-continent countries, but not in Britain. Literature where MI theory features within a British classroom context is rare and empirical studies even fewer (Gardner 1999:2). There is recent literature on 'learning styles' which have proved to have a positive impact for teachers and classrooms. (Coffield et al 2004 and Coffield et al 2004). Although 'learning styles' is not MI theory it does share similarities in

the understanding of the plurality of learning. MI theory is a way of knowing the world which coexists with the notion of general intelligence (Spearman 1904, Gardner 1983, Gardner 1999).

The KS2 classroom itself is a particularly interesting sub context, not only as an age group of interest for myself but also as an important stage of child development. This is explored by Piaget (2007), a figure whom Gardner frequently draws upon; the age of 7-11 is a significant period where children begin to develop socio-centricity and are more likely to actively engage in their own learning (Gardner 1993:110,112-118, Piaget 1952, Piaget 2007). This implies hospitality to a multiplicity of modes of learning. Hence British KS2 classrooms proved to be a promising context where MI theory may or may not underpin understanding in classroom practice.

My focus was on teachers as on a similarly themed dissertation I concluded that teachers are the catalysts of the successful implementation of this theory (Vygotsky 1962, Bruce 2003 and Kassim-Lowe 2014). Additionally, I aimed to know how and what MI theory means and could mean for teachers. Therefore teacher perspectives were invaluable within the context of this study, especially within a political paradigm, where writers such as Nias (2002) believe teachers are not listened to. The following research questions helped frame the dissertation:

1) *To what extent does Gardner's multiple intelligence theory feature in governmental **policy** by looking at the National Curriculum (2014).*

This question recognises the influence of policy over practice with the aim to contextualise contemporary teaching practice.

2) *To what extent does multiple intelligence theory knowingly or unknowingly underpin understanding in* ***a) Classroom practice[2], b) Classroom structure[3] and c) Classroom climate[4]?***

By taking in to account both the knowing and unknowing occurrences of MI, I will be able to contribute to the argument over whether or not MI is naturally occurring (Gardner 1999). Additionally, structure, practice and climate are the key areas in which, I have recognised, frame classroom practice.

3) *What are teacher's perspectives on* **macro, meso and micro** *conceptualisations of intelligence and how has this, in turn, reflected in and affected their teaching practice?*

This question was formed with the aim to be holistic in its investigation of teacher opinion in relation to their practice.

4) *To what extent does Gardner's multiple intelligences theory feature in policy, practice and teacher perspective?*

The final question is an overall question which encapsulates the above 3 questions.

Policy was explored through a critical analysis of the new National Curriculum review (2014). Secondly, semi-structured interviews provided valid teacher perspectives. Lastly, unstructured overt participate ethnographic observations completed the method of triangulation (Pole et al 2003). Thus policy, practice and perspective were investigated in order to fulfil the research

[2] *Classroom practice refers to a combination of activities, routines and values of how lessons are conducted with the teacher as the practitioner.*
[3] *Classroom structure is the systematic influences on classroom practice which can include the national curriculum, OFSTED and standard protocol.*
[4] *Classroom Climate is the classroom environment, the social climate, the emotional, and the physical aspect of the classroom. It's the idea that teachers influence student growth and behaviour.*

aims and ***investigate the extent to which Gardner's Multiple intelligence Theory (1983) features in KS2 Classroom practice, structure and climate.***

Chapter 2 - Literature review

This literature review aims to expose and contextualise intelligence as a socially constructed concept by looking at it from a historical and developmental perspective.

Intelligence: A contemporary construct with historical conceptualisation

Gardner (1993) argues that over the course of history intelligence has been subject to construction, pluralisation, contextualisation and individualisation.

The construction of intelligence

Exploring the origins of intelligence is more likely to enhance the understanding of its contemporary conceptualisation and relevance within a classroom setting. Prominent writers on the birth of this problematic concept argue that its founding father was Charles Spearman. Spearman (1904) established 'G' or general intelligence by adopting a psychometric, standardised, quantitative methodology which leads to the formation of IQ (Sternberg and Kaufman 2011:44). Subsequently a range of literary work and empirical research and IQ based testing has emerged over the last century (Binet-simon 1916, Burt 1921 and Weschler 1991).

The pluralisation and application of intelligence

In the mid 20th century, Spearman's(1904) work was applied and pluralised, featuring in different agencies including education. An extension of Spearman's (1904) work was Cyril Burt's development of the 11+ test which granted access to Grammar school, allowing some children to gain social

mobility (Burt 1921, 1944 education act, Brian 1953 and McKenzie 2001). Arguably the test still holds exclusivity in the form of favouring those with a particular form of cultural capital (Bourdieu 1969/2010 and Sullivan 2000). Burt's work fuelled the 1944 education act and the structural hierarchy of Tripartism. Famously Burt's work was falsified (Mackintosh 1995). Gardner (1983) identified the broadening scope of human potential in a new cultural discourse and argues that what we believe to be intelligent is 'purely sentimental' (Gardner 1993:84) to the early positivist origins of intelligence. Thus, he calls to further decode this concept of intelligence.

The contextualisation of intelligence

Figures such as Gould (1996) and Dewey (2013) have worked to broaden this 'narrow' construction of human ability and potential. Gardner is another figure who has worked to pluralise intelligence. Gardner (1983) argues that all MIs are possessed by all simply to different levels across different contexts. At the heart of his argument is that the active implementation of MI theory in classrooms would benefit wellbeing, academic success and attitude to learning because it makes knowledge accessible to all (Gardner 1983 and Armstrong 2009).

Gardner has conducted empirical research such as his Practical intelligence for school (PIFS) project (1983:122-133) as well as Project zero (Gardner 1999: 29). Gardner concluded that a structural implementation of MI, on a curricular level, in particular was beneficial for pupils and teachers emphasising the holistic process of learning – an MI Infused curriculum (Gardner 1993).

The individualisation of Intelligence

Armstrong (2009) argues that Britain is a particularly fascinating context to explore the re-birth of intelligence. Countries such as Japan and America have already begun integrating this model in to classroom practice. Britain has become static in what constitutes as valuable knowledge within discrete subject boundaries (Gardner 1993: 15 and Gerwitz and Cribb 2009).This is exemplified in how the Gifted and Talented programme (2008) gave recognition only with in discrete subjects (Gardner 1999:8).

Although Gardner conceived MI theory with the intent of equitability between different intelligences there is a perceived social hierarchy of importance, or value, with in the model itself which may or may not be reciprocated in class rooms (Lubinski 2004). Previously, I concluded that Linguistic and Logical-mathematical Intelligence were more likely to be valued, in retrospect, at every age of schooling from early primary to university level (Kassim-Lowe 2014). Subsequently we can begin to unpack this possible hierarchy within the context of the new National Curriculum (2014) which may or may not feature this implicit hierarchy.

Gardner: Application of theory in to practice

Gardner (1983 and 1999) states four important requirements of MI theory:

1) Each human possess each MI.

2) Most people can develop each MI to an adequate level of competence.

3) These MIs can exist and work together in complex ways.

4) There are many ways to be intelligent within in each category.

These requirements characterise intelligence as plural and multiple as opposed to singular, and can work to flower the diverse '...*interaction of human cognitive faculties'* (Gardner 1993: xiv). Armstrong believes that Gardner's work marks a paradigm in a modern age of inclusion and re-personalisation and teachers should have the opportunity to cultivate this flowering theory (Gardner 1999:147-8, Armstrong 2009, Rousseau 2009:5).

MI theory claims to be accessible to teachers and pupils of all language and learning capabilities. This includes EAL or SEN pupils as well as across gender, ethnicity or social class boundaries (Gardner 1993).

It is important to state what MI theory is not: MI theory is a definition of intelligence which co-exists with that of General, IQ based intelligence as an alternative interpretation of knowledge acquisition, not a replacement (Spearman 1904 and Gardner 2009). Additionally although MI theory has linkages to certain models of learning style theories and other multi-level conceptions of intelligence such as Kagan's learning styles (1963), it is different (Gardner 1999:8). (This statement is made without claiming that MI theory is superior to learning styles). The difference is that it is not just a way of learning, but a communicative capacity of knowing the world.

Since, Gardner's work has been developed to eight intelligence types, possibly eight and a half; Naturalist is the eighth. There is also the *contest* of a ninth intelligence: Existential intelligence, thus the half (Gardner 1991 and Armstrong 2009). For the purpose of this study this contested category of knowing the world will be considered as an MI. Perhaps the findings of the research may lend itself to the argument over its existence.

It is now important to establish what each MI is, how it can feature in a classroom practice, structure and climate. The following table includes the definition of each intelligence according to Armstrong (2009). Armstrong's consistent use of the words 'capacity' and 'sensitivity' are in keeping with Gardner's rules of MI theory (1983/99). Further more by giving examples, Armstrong enables the reader to contextualise each MI (see table 1).

Table 1. A table showing the ways in which each MI can feature in classroom practice, structure and climate modelled on the work of Armstrong (2009), created by Kassim-Lowe (2014)

Intelligence	**Definition**	**Comment**	**Practice**	**Structure**	**Climate**
Linguistic	' *The capacity to use words effectively, whether orally (e.g., as a story teller, orator, or politician) or in writing (e.g., as a poet, playwright, editor or journalist). This intelligence includes the ability to manipulate the syntax or structure of language, the phonology or sounds of language, the semantics or meanings of language, and the pragmatic dimensions or practical uses of language. Some of these uses include rhetoric (using language to convince others to take a specific course of action), mnemonics (using language to remember information), explanation (using language to inform), and metalanguage (using language to talk about itself).'* (Armstrong 2009:6)	This definition recognises the complexity of language and that it is not a mechanical form of communication but can be subject to sensitivity and manipulation. The practical appreciation of this intelligence can be varied and feature across the curriculum in a contemporary school setting.	*Learning/Teaching strategies:* eg) include story telling, brainstorming, tape recording and journal writing (Armstrong 2009:) *Memory:* Mnemonics *Other:* Self talking (Perkins 1981)	*Setting:* According to Linguistic intelligence *Classroom Management:* eg) writing 'silence please' (Armstrong 2009:117) *Assessment:* Reading/language tests as well as verbal sections of intelligence tests and process-folio (Gardner 1983)	*Permanent features:* A 'book nook' (Armstrong 2009:104) *Temporary features/activity centres:* Language labs or writing centres *Computer software:* audio file, earphone, talking books

Logical-Mathematical	*' The capacity to use numbers effectively (e.g., as a mathematician, tax accountant, or statistician) and to reason well (e.g., as a scientist, computer programmer, or logician). This intelligence includes sensitivity to logical patterns and relationships, statements and propositions (if-then, cause-effect), functions, and other related abstractions. The kinds of processes used in the service of logical-mathematical intelligence include catergorization, classification, interference, generalization, calculation and hypothesis testing.'* Armstrong, (2009:6)	Logical mathematical intelligence encapsulates both rationality and sensitivity in its definition and can be approached by a classroom teacher in a variety of ways to communicate through practice, structure and climate.	*Learning/Teaching strategies:* eg) coding of vowels and constants to remember spelling such as assigning a number to each letter of the alphabet. *Memory:* methodological approach to solving problems *Other:* Socratic questioning	*Setting:* according to Logical-mathematical intelligence *Classroom Management:* numbering rules, using a stop watch *Assessment:* non-verbal reasoning sections of intelligence tests, process-folio	*Permanent features:* maths lab or computer and science centre *Temporary features/activity centres: see above* *Computer software:* spreadsheets
Bodily-Kinaesthetic	*' Expertise in using one's whole body to express ideas and feelings (e.g., as an actor, mime, an athlete, or a dancer) and facility in using one's hands to produce or transform things (e.g., as a craftsperson, sculptor, mechanic, or surgeon). This intelligence includes specific physical skills such as coordination, balance, dexterity, strength, flexibility, and speed, as well ass proprioceptive, tactile , and haptic*	This particular intelligence highlights what is often taken for granted; communication not by verbal means but by controlled and intentional physicality which can feature both in simple and	*Learning/Teaching strategies:* learning through theatre, crafts, competitive and cooperative games, field trips, messy activities: gardening and cooking. *Memory:* encouraging children to mimic the actual	*Setting: According to bodily-kinaesthetic intelligence* *Classroom Management:* a teacher simply holding their finger against their lips and raising a hand to gain attention may serve its purpose. Role play can be used to exemplify appropriate and	*Permanent features:* clay or crafts, tactile learning such as puzzles or even a temporary drama centre for performances or even the use of puppets. *Temporary features/activity centres:* see above *Computer software:* virtual reality software, simulation

	capacities'.Armstrong, (2009:7)	complex ways within a classroom.	shape of a letter as well as use clay or sand to internalise letter formation. *Other:* use your body to solve specific problems	inappropriate behaviours. *Assessment:* dexterity tests and process-folio	games or three dimensional human anatomy guides.
Visual-spatial	*' The ability to perceive the visual-spatial world accurately (e.g., as a hunter, scout, or guide) and to perform transformations upon those perceptions (e.g., as an interior decorator, architect, artist, or inventor). This intelligence involves sensitivity to color, line, shape, form, space, and the relationships that exist between these elements. It includes the capacity to visualize, to graphically represent visual or spatial ideas, and to orient oneself appropriately in a spatial matrix.'* Armstrong (2009:7)	Visual-spatial intelligence, or as Armstrong names it Spatial intelligence, is essentially about perception and how one communicates what they perceive in a visual format. It is a diverse intelligence type and could as well as should feature in a variety of ways across a variety of disciplines.	*Learning/Teaching strategies:* visual puzzles, picture metaphors, diagrams, optical illusions, visual art and visual awareness activities, board games: Pictionary *Memory:* timelines, anagrams and visual representations of words *Other:* abstract - exploring meanings behind paintings.	*Setting:* according to visual-spatial intelligence *Classroom Management:* displaying a picture of an attentive class on the interactive whiteboard and visual reminders of appropriate behaviour. *Assessment:* visual memory tests and visual-motor tests and process-folio	*Permanent features:* visual thinking centre *Temporary features/activity centres:* Optical illusions *Computer software:* computer software animation programmes, clip art programmes and computer design programmes
Interpersonal	*'The ability to perceive and make distinctions in the moods, intentions, motivations, and feelings of other people. This*	The definition of Interpersonal intelligence	*Learning/Teaching strategies:* board games, involvement	*Setting:* according to interpersonal intelligence	*Permanent features:* A round table for group discussions encourages

Table 1 continued

	can include sensitivity to facial expressions, voice, and gestures; the capacity for discriminating among many different kind of interpersonal cues; and the ability to respond effectively to those cues in some pragmatic way (e.g., to influence a group of people to follow a certain line of action).' Armstrong (2009:7)	encapsulates both the verbal and physical dimensions of socio-centricity and communication. This has linkages with Piagetian(1952 and 2007) based theory where by children develop socio-centricity and move away from their egocentricity. This intelligence exemplifies successful personal development.	with the community, mediating conflict scenarios as a class, peer sharing and cross age tutoring *Memory:* a spelling game where by a teachers asks children to take each letter and spell in a group (Gathercole and Alloway 2008 and Armstrong 2009). *Other:* group problem solving through discussion.	*Classroom Management:* eg whispering to one child 'Its time to start, please sit down', and Class rules can be assigned to a group of students *Assessment:* social maturity scales, socio-grams and interpersonal projective tests and process-folio	collaboration *Temporary features/activity* Interaction centre for play Centres. *Computer software:* Interactive group software
Intrapersonal	*' Self-knowledge and the ability to act adaptively on the basis of that knowledge. This intelligence includes having an accurate picture of oneself (one's strengths and limitations); awareness of inner moods, intentions, motivations, temperaments, and desire; and the capacity for self-discipline, self-understanding, and self-*	The notion of being knowledgeable of ones self is an interesting one. Knowledge is deemed to be valuable or essential information, thus	*Learning/Teaching strategies:* choice time, periods for reflection and spaces to reflect. *Memory:* attaching personal meaning to something in order to	*Setting:* according to intrapersonal intelligence. *Classroom Management:* teach a lesson and allowing students to take charge of their own behaviour. *Assessment:* self-concept	*Permanent features:* Study 'carrels'. *Temporary features/activity centres:* experience centre particularly tailored for individual time or even board game sessions or individual games.

	esteem.' *Armstrong (2009:7)*	being self-aware or self knowledgeable implies knowledge of how one learns which is indispensible to both teachers and children.	remember it. *Other:* independent study.	assessments, projective tests and tests for emotional intelligence and process-folio.	*Computer software: n/a.*
Musical	*'The capacity to perceive (e.g., as a music aficionado), discriminate (e.g., as a music critic), transform (e.g., as a composer), and express (e.g., as a perfomer) musical forms. This intelligence includes sensitivity to the rhythm, pitch or melody, and timbre or tone color of a musical piece. One can have a figural or 'top-down' understanding (analytic, technical), or both.'* Armstrong, T., (2009:7).	Musical intelligence is arguably one of the most imaginative forms of expression and is accessible medium of communicating ideas and feelings for teachers and pupils in classroom settings.	*Learning/Teaching strategies:* rhythm, songs, raps, chants even discography, humming and whistling. *Memory:* songs associated with topics. *Other:* creating a mood.	*Setting:* *According to musical intelligence.* *Classroom Management:* clapping a simple rhythm for the children to clap back can gain attention. A way of establishing class rules. *Assessment:* music theory tests (Kassim-Lowe 2014) and process-folio.	*Permanent features:* structure a classroom day and creating a mood. *Temporary features/activity centres:* music lab, music performance space, listening lab which may include equipment such a stethoscopes, 'walkie talkies' and mystery sound shakers. *Computer software:* composition software or mixing software. (Kassim-Lowe 2014)

Table 1 continued

Naturalist	*' Expertise in the recognition and classification of the numerous species – the flora and fauna – of an individual's environment. This also includes sensitivity to other natural phenomenon (e.g., cloud formations, mountains, etc.) and, in the case f those growing up in an urban environment, the capacity to discriminate among inanimate objects such as cars , sneakers, and CD covers.'* Armstrong (2009:6).	Naturalist intelligence has recently been newly introduced by Gardner in addition to his original seven intelligences. It exemplifies an appreciation of nature and objects that occupy space. This awareness equates to survival in real world contexts.	*Learning/Teaching strategies:* Nature walks, nature videos, films and movies and use of natural materials *Memory:* using tangible objects to help remember *Other:* bringing outside in and inside out	*Setting:* according to naturalist intelligence. *Classroom Management:* or imitating a bird sound to gain attention and animal-associated class rules. *Assessment:* questions about animals, plants or natural settings and process-folio.	*Permanent features:* open windows to view nature occurring outside of the classroom. *Temporary features/activity centres:* a class pet or aquatic centre, plants in the classroom or even a class weather station. *Computer software:* nature reference guides, ecological awareness programmes both virtual and community based and gardening programmes.
Existential	*'The capacity to locate oneself with respect to the furthest reaches of the cosmos – the infinite and the infinitesimal – and the related capacity to locate oneself with respect to such existential features of the human condition as the significance of life, the meaning*	It is important to establish that this intelligence is merely contemplated by Gardner and his followers.	*Learning/Teaching strategies:* science experiments to force contradictions, tactile beliefs about representations in	*Setting: according to existential intelligence.* *Classroom Management:* Gaining attention with a thought provoking question	*Permanent features: Thought for the day.* *Temporary features/activity centres:* inspirational or thought provoking quotes by

Table 1 continued

	of death, the ultimate fate of the physical and psychological worlds, and such profound experiences as love of another person or total immersion in a work of art' . *(Gardner 1999:60 in Armstrong 2009:182).*	Armstrong states that there are many criteria which this intelligence does fit despite its contest. The rationale of including the contested intelligence, also known as Gardner's eighth and a half intelligence, is perhaps this piece of research may lend itself to the debate of its existence (Armstrong 2009:182-189).	paintings, features of expression through specific body language. *Memory:* Meaningful quotes or philosophies/figures (Kassim-Lowe 2014) *Other: n/a*	on the board (Kassim-Lowe 2014) *Assessment*: Process-folio and philosophical questions.	philosophers *Computer software:* n/a

MI theory and teachers

Teachers are the catalysts who, by understanding contemporary models of pedagogy, can transform the contemporary classroom (Kassim-Lowe 2014). An understanding of the role of teachers is essential in order further set the findings of the empirical section of the study in to context.

Historical context

A teacher who integrates MI theory in to classroom practice, according to Gardner, is giving themselves a chance to indulge deep pedagogical goals (1993:xvi).

Multi modal teaching is not a contemporary phenomenon; for centuries educationalist have explored different ways of knowing the world such as Jean-Jacques Rousseau in his book 'Emile' (2009) (Howlett 2013). Rousseau takes on the role of teacher in the intellectual sophistic relationship between himself and his 'nephew', Emile, and strives to give him access to valuable knowledge by contextualising his educational experience. Contextualisation is a key aspect of the move away from singular definitions of intelligence to plurality.

Gardner in a contemporary context

Although Gardner states that MI provides an educational model to access alternative cognitive structures its success is not without a certain extent of cooperation from institutional agencies and frameworks (Gardner 1993:60).

This highlights the debate about the decrease in self-regulation and autonomy of educators (Apple 1986) multiple modes of teacher regulation structure the contemporary classroom (OFSTED, Teaching standards 2012, National Curriculum

2014). It is important, however, not to generalise teacher experience and ask teachers about their opinions on intelligence, MI theory and the National Curriculum.

However the real issue here lies in the individual practicalities of MI theory for a teacher in their own classroom. Gardner (1991) acknowledges that, besides a content neutral framework and consistent teaching style, there are enormous challenges associated with using MI theory in the classroom. Gardner recognises that there are technicalities which prove difficult, but, more influential, is the lack of encouragement to 'break the mould' in classroom practice (1993:203). This lack of encouragement is partnered with a lack of familiarity of not just MI but contemporary approaches to pedagogy (1993:202); the implementation of an MI model takes care and experience.

Arguably teachers are in a problematic position and may find themselves in a pedagogical limbo of what they desire and what is required from regulatory bodies. This supports the rationale as to why their perspectives are valuable to the study as well as to liberate teacher opinion and voice (Nias 2002).

Gardner suggests that this tug of war between teacher's desire and structural requirements is due to the misconstrued ideology that there is one way of teaching and one way of learning (Gardner 1991 and Craft 2003). Gardner has concluded that a combination of thought, action and experience are needed to change our understanding of modern pedagogy and invite an MI model in to classrooms (Project Zero 1993:225-30).

This highlights the issue surrounding the fragmented relationship between theory, practice and policy (Whitty 2007 and Coffield et al 2004). Therefore this study also aims to de-fragment the relationship between theory, research and practice.

Thus a ‘bottom up’ approach by talking to teachers is necessary to further fulfil the research aims of establishing where, if anywhere, an MI model features in contemporary schooling by observing and talking to teachers.

Chapter 3 – Methodology

The following section aims to justify and explain the use of the research methods in order to achieve the aims of the study.

Theoretical and Sociological considerations

When considering the most appropriate methodology to use it was essential to judge the theoretical basis of the research which would drive the nature of the study (Bryman2012). This study is qualitative and values in depth research methods which aim to provide valid data in order to gain a true picture or 'verstehen' of a particular social context (Cohen 2007). This understating derives from a phenomenological perspective by which I mean ontological meaning is born an appreciation of social action and interaction (Creswell 2013).

Intelligence has been on a platform of debate throughout history (Gardner 1999). The nature of the social world derives from meaning constructed by the participants, legislation and societal values which surround education (Bryman 2012:69). Therefore, a holistic approach which explores the micro, meso and macro dimensions of the social world through a triangulation of methods best served this qualitative study. The key areas of interest, policy, perspective and practice will be given specific attention through such a methodology. I hoped that the triangulation of methods would give specific attention to these key areas and compliment other methods used.

I chose to adopt a post-structural stance in my critique of the National curriculum (2014) and aimed to invite the reader to unpack the, arguably, constructed conceptualisation of knowledge and intelligence (Kress et al 2000). Gardner (1991) implies that traditional values and ideologies, in this context of pedagogical practice

and the conceptualisation of intelligence, are kept alive through meso structures such as policy. Thus an exploration of contemporary policy through a textual analysis was beneficial for the holistic, ethnographic framework of the study.

Lastly, there was a concern of the relationship between educational policy, research and practice as being 'fragmented' (Whitty 2007). What may work in theory, whether in policy or research, may not work in practice and what may work in practice may not be in-keeping with policy requirements. There are barriers between all three agencies which, in order to achieve a balance of knowledge and experience, must collaborate (Gardner 1999, Whitty 2007). This piece of research aimed to be part of a movement of bridging the 'fragmented' relationship for the benefit of practitioners, in particular.

Research methods – Triangulation

There were many benefits to adopting triangulation. The weakness of one method was compensated by the strengths of the other where each method covered alternative levels of exploration (Bryman 2012). The literature review covered the macro world we find ourselves in; the policy review explored the Meso or structural context and observations and teacher interviews gave access to a micro understanding of the way in which MI theory may feature. Thus all avenues of how we understand and perceive the social world were exposed.

Policy: National curriculum review (2014) analysis

Firstly, a policy analysis aided the study in establishing a relevant social context to the practice and perspectives of teachers. Theoretically, Skinner (1945) argues that context is key in understanding every avenue of life, suggesting that an

analysis of a current, potentially impactful framework would initiate a valid context for the research findings. The National Curriculum analysis (2014) featured a series of annotation, memos and note-taking akin to a thematic analysis and a discussion of the extent to which each intelligence features.

Practice: Ethnographic, overt, participant lesson observations

Secondly, an analysis of practice through ethnographic overt classroom observations was conducted in internally-valid environments, acquiring data which served the purpose of the study. A wide sample across subject areas, classroom teachers and schools aided the research and improved its external validity so context-based conclusions could be made (Pole and Morrison 2003). 33 observations were recorded by hand across 3 schools with 11 teachers observed (8 interviewed). MIs feature in many forms and it was unlikely that I would bear every form in mind in 45 minutes of classroom time. So, I collected raw data, in the form of quick notes, followed by retrospective observation sheets consisting of three main sections; classroom practice, structure and climate- staying relevant to the main research questions (See introduction). Ethical considerations included access to schools, which had been acquired through letters and an information sheet. The schools were already known to myself and chosen on the basis of rapport and practicality for travel. The primary focus was on the role of teachers in their own classroom therefore there was no need for parental consent. Practically, a time table was discussed with senior members of staff and interviews arranged via emails to individual teachers (Cohen 2007).

Perspective: semi-structured interviews with KS2 classroom teachers

This particular method intended to serve the theoretical basis of the research as a qualitative method. For this purpose a semi-structured, informal interview best served the study by creating a comfortable interaction so that opinions and beliefs may be expressed freely (see Appendix 1). The first questions established a context in relation to the teacher's professional lives so that subsequent answers were put in to perspective (Skinner 1945 and Day et al 2006). The following questions were funnel like, beginning with questions on wider notions of intelligence, narrowing to the teacher's awareness and perspective on MI theory followed by questions relating to their own classroom practice. Each participant was briefed before-hand, informed consent was given as well as the right to withdraw. Recordings and transcripts were sent to the participant for final approval. 30 minutes were given for each interview which were arranged at a mutually convenient time and place for the teacher and myself.

Analysis

Interviews and observations were analysed in isolation to each other as they had bearing on the research question(s) in different ways and also not all teachers interviewed were observed and vice versa. Therefore there was little benefit to presenting observation and interview findings in relation to each other. The overall analysis was theoretically driven which assisted in my deduction of the relevant data and followed a thematic analysis with both initial and focused coding elements.

Observations

Observation data was collected in a raw data format and later typed in to a retrospective observation sheet – one for each teacher including all of their lessons. In order to distinguish MI theory in lessons I modelled my analysis on Thomas Armstrong's (2009) understanding of how MI theory can feature in the classroom; this seemed to be the most appropriate way of seeking out where and how MI theory features in order to assure validity and avoid researcher bias. Once coded and memoed the data was refined further in to a spreadsheet format. From this I was able to see general tends, across the data I had collected (for instance the least and most occurring intelligences) in order to draw reliable conclusions in my findings and to consider the bearing these observations had on the following research question: *to what extent does multiple intelligence knowingly or unknowingly underpin an understanding in KS2 classroom practice, structure and climate.*

Interviews

The interviews proved difficult to analyse from a comparative perspective as not one teacher gave exactly the same answer as another but this, in a sense, aided the aims of the study: to understand teacher's individual's perspectives. So instead, generally in keeping with a thematic analysis (Bryman 2012), I coded and memoed all the interviews in isolation and found common themes as opposed to common answers. This was followed by further coding of condensed interview data in relation to each other: specific themes were constructed in order to confine and include most of the teachers' perspectives (see figure 1: Interview findings section). A coding mind map was subsequently created which acted as a visual aid in which to structure the subsequent findings section of my dissertation and illuminate commonalities and

discussions which were not clear in the original raw data format. This gave clarity in order to answer the original research questions: *to what extent does multiple intelligence knowingly or unknowingly underpin an understanding in KS2 classroom practice, structure and climate* **and** *What are teacher's perspectives on the Macro, Meso and micro conceptualisations of intelligence and how has this, in turn, reflected in and affected their teaching practice?*

Chapter 4 - Policy review: The National Curriculum (2014)

The following section considers the explicit and implicit feature of MI, if any, in the National Curriculum in order to contextualise the other research methods.

Gerwitz and Cribb (2009) imply that a National Curriculum demonstrates implicit normativity through the construction of valuable knowledge. However, they also understand that the construction of this knowledge is not without implications to practice. The following critical textual analysis aims to answer the question –

To what extent does Gardner's multiple intelligence theory feature in governmental ***policy*** *by looking at the National Curriculum review (2014)?*

A thematic evaluation was implemented to inductively answer the above research question by focussing on assessment, language, the role of teachers, and implications for Key stage 2 classroom practice (Kress 2009 and Bryman 2012).

The current political paradigm in which the National Curriculum (2014) was conceived, although a conservative-liberal democrat coalition policy, is arguably dominated by conservative values of education thus favouring particular forms of knowledge and structure (Apple 1986/1993 and Moore and Young 2001). This has derived from a neo-liberal notion that good structure equates to good standards, providing a rationale for the introduction of the original National curriculum under the 1988 education reform act (Apple 1993). However with claims to help '*...engender an appreciation of human creativity and achievement'* (2014: 5) the current curriculum, to a certain extent, holds similar values of creativity to that of MI theory suggesting a valued consensus for educational outcome yet a contrast in means to that outcome.

This particular review focused on KS2 where the following subjects are taught: English, Mathematics, Science, Art and design, Computing, Design and

Technology, Languages, Geography, History, Music, Physical Education, Religious Education. However, the document states '*Schools are also free to include other subjects or topics of their choice in planning and designing their own programme of education' (2014:4)*. Freedom of choice is clear, suggesting that an MI model of learning could feature in schools. This may include a topic based, holistic or cross-cultural educational implementation by teachers.

Gardner (1993: 170) argues that recent work on differentiation of cognitive styles raises issues surrounding the standardisation of the National Curriculum. However the question that emerges for me was: Can a standardised curriculum exist alongside MI on a meso-structural level? Gardner states that for an MI model to succeed, a top down approach, where MI features on a curricular level, is necessary (1993:126-128) – an infusion curriculum (Gardner 1993).

The recognised instances have been modelled on the work of Armstrong (2009). The following instances of MI theory were found*:*

Table 2. Identification of multiple intelligence theory (Gardner 1983) in the National curriculum review (2014)

Intelligence	Subject	Example(s)
Linguistic[5]	English Science Languages	1) 'communicate and emotions to others' and 'develop culturally, emotionally, intellectually, socially and spiritually' (p13) 2) Spoken language and vocabulary 3) A new form of communication, new linguistic foundations
Logical-mathematical[6]	Maths	1) Problem solving 2) Maths in practical contexts 3) Use of formulae 4) Multiple representation of data

[5] 'Sensitivity to the sounds, structure, meaning, and functions of words and language' (Armstrong 2009:10)

[6] 'Sensitivity to and capacity to discern logical or numerical patterns ability to handle long chains of reasoning '(Armstrong 2009:10)

	Science Computing Geography	5) Power of rational explanation 6) Range of measurement 7) Logical thinking and creativity 8) Grids, compass
Interpersonal[7]	English Science Design Language	1) 'negotiate, evaluate and build on the ideas of others'(p10) 2) Spoken language – 'Cognitively, socially and linguistically' (p13) 3) 'Collaborative'(p17) 4) Responding appropriately to others (p39) 5) Understanding local environment 6) How design contributes to society (p192) 7) Understanding multiple perspectives 8) Liberation from insularity (p212)
Intrapersonal[8]	English History	1) Self reflection – emotive language (p38) 2) Own national history explored – increased cultural socio-centricity
Visual-spatial[9]	Science Geography	1) Visual example/representation of how light works (p155) 2) Geographical understanding through maps, globes and other visual resources (p198)
Kinaesthetic[10]	English Science Art and design Physical education	1) '…confident in using language in a greater variety of situations (…) including through drama' 2) Examples through models/images (p156) range of materials (p157) 3) Drawing, painting sculpting 4) Practical tasks 5) Excelling in physically demanding activities
Musical[11]	Languages Music Physical education	1) language through songs and rhymes (p213) 2) Universal language which embodies one of the highest forms of creativity (p217)/communication

[7] 'Capacity to discern and respond appropriately to the moods, temperaments, motivations, and desires of other people' (Armstrong 2009:11)

[8] 'Access to one's own 'feeling', life and the ability to discriminate among one's emotions; knowledge of one's strengths and weaknesses' (Armstrong 2009:11)

[9] 'Capacity to perceive the visual-spatial world accurately and to perform transformations on one's initial perceptions' (Armstrong 2009:11)

[10] 'Ability to control one's body movements and to and objects skilfully' (Armstrong 2009:10)

[11] 'Ability to produce and appreciate rhythm, pitch, and timbre; appreciation of the forms of musical expressiveness' (Armstrong 2009:11)

		3) Dance
Naturalist[12]	English Science Geography	1) Naturalist context of learning 2) Curiosity about natural phenomenon/observation 3) Relationship between structure and function 4) Understanding geographical processes 5) Field work
Existential[13]	English Science History	1) 'debate' (p17) 2) (p35) 'recognise themes in what they read, such as triumph over good and evil' 3) Understanding loss or heroism (p44) 4) Implications for the future of science 5) Developing own questions/abstract ideas/concepts (p159) 6) Illustrations 7) Historical inquiry, as a social construction

Findings

Firstly, yes - the National Curriculum *implicitly* features MI theory.

A key deduction is that each intelligence features within a certain subject-group boundary. For instance Logical-Mathematical intelligence only features in Maths, Computing, Science and Geography (Armstrong 2009:124). However, according to Gardner (1999), MI theory has the potential to transcend subject boundaries and should not be confined to disciplines. Comparatively certain subjects are more accommodating to multiple modes of learning than others: for instance English. On the other hand the extent to which MI features is in opposition to the

[12] 'Expertise in distinguishing among members of a species; recognizing the existence of other neighbouring species and charting out the relations, formally or informally, among several species' (Armstrong 2009:11)

[13] 'The capacity to locate oneself with respect to the furthest reaches of the cosmos - the infinite and the infinitesimal – and the related capacity to locate oneself with respect to such existential features of the human condition as the significance of life, the meaning of death, the ultimate fate of the physical and psychological worlds, and such profound experiences as love of another person or total immersion in a work of art' (Gardner 1999:60 in Armstrong 2009:182)

weighting of each subject in the document; a 2014 Primary charter states the over-devotion to Literacy and Numeracy (2014:12). Conclusively the document promotes an appreciation of multiple modes of learning which can be translated in to MI theory but does not, explicitly, inhibit an MI model.

Discussion

Assessment

Arguably part of the structural purpose of the National Curriculum is setting a framework in which to assess pupils' knowledge and understanding (Kress 2000). As of this year the quantitative levels system is now a matter of choice. This is in an attempt to empower teachers and trusting them to '*see appropriate assessment to set targets which are deliberately ambitious' (*2014:8). Gardner would argue that the level system is a form of assessment based on outcome as opposed to process (1983, 1991,1993). This criticism is in promotion of an ecologically valid and desirable account of individual difference with the use of '*intelligence-fair instruments'* (Gardner 1993:170-8) – in the form of a 'process-folio'.

In this sense, assessment in the National Curriculum has little or no attachment to MI theory. However, the document and MI theory do link as they share similar aims of promoting the maximum potential achieved by all children but through different instruments of assessment.

Use of Language

The document features both explicit language and implicit conceptualisation of intelligence. For instance the subject matter of the document is implicitly requesting to be delivered in a context which is relatable to children in order to enhance

understanding. This, to a certain extent, runs parallel with Gardner's notion of contextualisation as one of the steps towards the innovation of a multi-modal system of learning (1983, 1991).

More explicitly, the National Curriculum (2014) aims is to promote communication skills by being able to communicate '*...across a range of contexts*' (2014:17). This has clear linkages with the aims of an MI model of pedagogy. Each multiple intelligence is an ability, capacity or sensitivity to communicate (Armstrong 2009). Therefore, although not specifically featuring MI theory, the National curriculum does hold the same value of communication as an essential component of a curricular learning experience.

Previous school based projects such as the Gifted and Talented programme (2008) consciously took inspiration from Gardner's theory. I argue that Gardner's work was softened by the use of 'Gifted' and 'Talented' as opposed to intelligences. Additionally, each Gifted and Talented (2008) award was limited to subject areas which does not confirm the heart of Gardner's argument; that each intelligence is possessed by each child across subjects but to different extents. The project has lost impact in recent years (Armstrong 2009).

I deduce that what *is not* stated, rather than what *is* stated in the National Curriculum, implies room for MI to feature in classroom practice: it is, ultimately, the teacher's choice.

From a post-structural, conflict perspective writers such as Gerwitz and Cribb (2009)would argue that through the use of language in the document such as 'skills' as supposed to 'abilities' or 'knowledge' creates an implicit hierarchy as to the types of knowledge valued which limits access to knowledge not deemed valuable. This implies the singularity of statutory knowledge as part of a wider socio-cultural construction

which, perhaps, in the current political climate, is '*entangled*' with political ideologies about the nature of pedagogy (Gerwtiz and Cribb 2009:115).

Further more Gerwitz and Cribb(2009) argue that this pedagogical gaze regulates teachers and absorbs their autonomy. However, as stated earlier in the review, the content is specific but the delivery of this textual staging of knowledge can be interpreted by the teacher (Lather 1991:13). Thus the document asserts a political ideology in a different sense; it has been on the agenda of the current political government to give autonomy back to teachers. Arguably nearly 3 decades of state regulation (since the 1988 Education reform act) has shaped a dependency on policy and a fear of permeating the barriers of contemporary pedagogy. This has lead to institutionalised practice (Apple 1986/1993).

The role of teachers

The role of teachers is imperative to successful learning. However, we must not forget that modern teachers live within the structure of powerful agencies. The review states that '*….teachers can develop exciting and stimulating lessons to promote the development of pupil's knowledge'* (2014: 5). There is an underlying belief that teachers' delivery of the content has the opportunity to be, can be and should be, innovative. However, to what extent do teachers feel they can take this opportunity?

Furthermore, the document states '*With the right teaching, that recognises their individual needs…*' learning can be successful and enjoyable (2014:8). This has strong links with Gardner's notion of the individualisation of education which, in turn, shares linkages with the contemporary British notions of a 're-personalisation' of education (Gardner 1999:150). MI theory strives for inclusion; this is within the context of

everyday practice as well as within the current social discourse encircling SEN and EAL practice (Gardner 1999 and Armstrong 2009).

Structure is at the heart of this document with the implicit belief that a change in structure correlates with a change in standards (Apple 1986/93). The document infers that the requirements are not intended to constrain or constrict teacher's creativity (Literacy section, 2014). This implies that teachers are at the helm of the construction of their lessons. Critiques such as McLaren (1991) would argue that of teacher autonomy is an illusion and in fact regulatory structures are enfleshed within the educator (Apple 1986 and McLaren 1991). Therefore we should not be naïve about the invisible power of social policy. This only reiterates the importance of collaboration between policy and practice in order to give educators the tools to construct exciting, innovative and inclusive lessons (Gardner 1999).

Gardner also highlights the importance of other individuals such as head teachers, pupils and parents. In fact, he challenges complete teacher autonomy and calls for collaboration (Gardner 1993:154-5). He does not insist that this collaborative recipe of multiple intelligences would be easy to implement but it is important to understand it, be aware of it and have access to it (Gardner 1993: 156).

Conclusion

In conclusion the analysis of the National Curriculum has lent itself to the wider research questions in particular to the relation of meso embodiments of MI theory and has established a context in which to situate the perspectives of teachers (Skinner 1945). The document does not explicitly feature MI theory under Gardner's headings. Yet, according to my analysis, it can and does implicitly feature MI. If opportunity for personalised delivery and even additional subjects is given, then why

not take this opportunity? Perhaps educators prefer to stick to what they know works: the status quo (Apple 1986); perhaps they are unaware of the new pedagogical models that may feature in their classrooms. These are questions which have triggered further curiosity and I will keep in mind when analysing the findings of the interviews and observations.

The next 2 chapters, observation and interview findings, bear in mind that MI theory may implicitly feature in policy and explore teachers' opinions on the role of the National Curriculum (2014).

Chapter 5 – Observation findings

The observation findings section, presented in relation to practice, structure and climate, will give a holistic account of the known and unknown, ways in which MI featured in the classrooms observed in order to answer the following question: To what extent does multiple intelligence theory knowingly or unknowingly underpin understanding in ***a) Classroom practice, b) Classroom structure and c) Classroom climate?***

Linguistic intelligence[14]

LI[15] proved to be one of the highest occurring intelligences which showed diversity in the different subjects it featured in. Gardner (1991) argues that LI is one of the most valued in society and, evidently, in government policy with a clear emphasis on LI in the revised National Curriculum (see policy review).

Practice

Although LI was not confined to Literacy lessons the intelligence was most prominent in Literacy. Mnemonics occurred in several different classrooms and provided a linguistically intelligent way of unlocking prior knowledge; a valuable memory tool for those teachers who chose to use (Observation B2 and Armstrong 2009). LI also featured notably in a Music lesson where the teacher explained that Vivaldi wrote poetry in order to develop a piece of music and shared the poetry alongside his music which almost gave the piece 'Winter' linguistic meaning (Observation B3).

[14] 'Sensitivity to the sounds, structure, meaning, and functions of words and language' (Armstrong 2009:10)
[15] LI – Linguistic intelligence

Structure

An appreciation of popular cultural LI is evident in the majority of classrooms I visited where teachers used timeless authors to group children; one particular classroom had tables which took inspiration from alliterative names in Roal Dahl books: 'the fantastic foxes', 'the perfect peaches' etc (Observation C2). Additionally, a form of assessment a kin to Gardner's process-folio was recognised. In classroom B2, a 'topic book', the *Sky Hawk (Lewis 2011),* was used to create a chronological file which documented written work on Ospreys. This portfolio exemplified how intelligences can interlink in complex ways in the classroom as the children were also able to explore aspects of Naturalist intelligence. Additionally the idea of a 'topic book' allowed the teacher to plan around its contents in a variety of different lessons and achieve an almost cross curricular approach to learning a kin to Gardner's infusion curriculum(1993). LI made a consistent appearance in classroom structure reciprocating its value in policy.

Climate

A common permanent feature which showed how LI can successfully feature in the everyday classroom was the 'book nook' (Armstrong 2009). This is a reading corner filled with books, attractive and comfortable in order to encourage children to read with the aim of enhancing vocabulary and creating a love of reading from an early age.

Conclusively, LI is diverse and features to a large extent in the contemporary British classroom. Perhaps this is a reflection of the heavily weighted value and content

towards Literacy in the new National Curriculum? However, the book nook in particular implies a purposeful perception of Gardner's work yet otherwise there is an unknowing yet almost natural understanding of how to access and give opportunity to the development of LI.

Logical-Mathematical intelligence[16]

LMI[17] occurred to a fair extent with 20 occurrences across the lessons observed making prominent features in classroom climate and structure.

Practice

LMI was not exclusive to Numeracy. A D.T lesson occurred where the teacher encouraged a LM process of creation: design, create and evaluate (Observation B2). Class C3's teacher tested pupils at the end of the lesson, asking them to provide a fact about the number 180. In another classroom children had to name a multiple of three and five before leaving for break (Observation C2). LMI proved to be highly valued and diverse in the majority of classrooms observed.

Structure

Children were stratified in to groups according to their LMI in Numeracy; the groups were often names of shapes or operations. Moreover, the concept of time was stressed in classroom management which implicitly featured a LM approach. Time in the classroom is precious and wasting time in lessons would lead to the teacher taking minutes off their break.

[16] Sensitivity to and capacity to discern logical or numerical patterns ability to handle long chains of reasoning '(Armstrong 2009:10)
[17] LMI – Logical Mathematical Intelligence

Climate

A prominent key feature in all classrooms was a Numeracy working wall which assisted learning and showed an understanding that learning is not static but fluid therefore contributing to an up-to-date classroom climate (Fisher and Fraser 1983).

Conclusively LMI can be easily contextualised and has shown diversity in most classrooms observed therefore it features to a fairly large extent. However there is still the question as to whether its feature is actively implemented by the classroom teacher or naturally occurring: this will be discussed further in the interview findings section.

Bodily-Kinaesthetic[18]

BKI[19] was the highest occurring intelligence with 33 recognised features across 7 different subjects making particularly interesting appearances in practice and classroom management.

Practice

Teachers knew that lessons which embodied BKI were enjoyable for certain children and uncomfortable for other children. This was observed in a lesson where children conducted a tangible investigation of magnets and magnetic materials (Observation A2). Another example of BKI in the classroom occurred when a teacher encouraged participation from all pupils in a classroom by passing the string on to the next person who made a point regarding a debate in Literacy (Observation A1). This was a teaching strategy which, Armstrong (2009) would argue, shows the teacher's

[18] 'Ability to control one's body movements and to and objects skilfully' (Armstrong 2009:10)
[19] BKI – Bodily Kinaesthetic intelligence

own BKI. In the same classroom, a teacher used bodily-kinaesthetic means in order to test memory and knowledge of number bonds in a card matching game showing how MI can access memory (Armstrong 2009:162).

Structure

From the lessons observed BKI played an important role in classroom management and reiterated ideas of space, territory and control so teachers could democratically and diplomatically manage their classrooms. Therefore moving bodies tactically away from each other, standing up if naughty and removing a child from the classroom altogether served as powerful tools to educate children, in a BK way, of the consequences to their wrong actions (Armstrong 2009).

Climate

It was observed that the Numeracy and Literacy working walls did not only invite a fluid engagement in LI and LMI but also were an invitation to harness BKI in order to bridge understanding in Numeracy or Literacy; for instance the temporary feature of tangible strips on the wall to represent thousands, hundreds, tens, units, tenths and hundredths (Observation C4 and Armstrong 2009).

Conclusively, BKI was diverse and an active intelligence type in the classrooms observed. Furthermore the successful inclusion of this intelligence type, whether knowingly or unknowingly, displayed the teacher's own BKI in their use of and judgement of space in classroom management and climate.

Visual-spatial intelligence[20]

VSI[21] featured across lessons, teachers and schools observed. Consistent in its appearance in classroom climate where visually stimulating materials invited children to understand, remember and engage on a visual-spatial plane.

P*ractice*

Visual stimulation acted as a key gateway in unlocking the VSI of children in many classrooms. Computer software and technology played a fundamental role, in cases. For instance in a Numeracy lesson, software which showed a frog jumping from lily to lily as if on a time line enabled the teacher to reconceptualise a mathematical concept for the class in a visual-spatially intelligent way (Observation C2). Moreover, classroom B5's teacher emphasised how an illustration conveyed a character's emotions; particularly in the case of a mute character, Mr Munroe, in the book 'Ottoline and the Yellow cat' (Riddell 2007). Interestingly, this same classroom reflected a holistic appreciation for illustrations and Art which perhaps linked to the classroom teacher's background in Art and own VSI (Observation B5).

Structure

The organisation and classroom management of most classrooms reflected a conscious effort to depict rules, assessment criteria and routines in a visually stimulating way in order to act as a reminder for the children.

[20] 'Capacity to perceive the visual-spatial world accurately and to perform transformations on one's initial perceptions' (Armstrong 2009:11)
[21] VSI – Visual Spatial intelligence

Climate

Evidently a visually stimulating classroom environment is essential in engaging learning, in particular at a primary school level (Fisher and Fraser 1983). Yet the extent to which the concrete visual stimuli can be said to be VS intelligent and not simply wall paper was questioned by teacher B1.

Conclusively concrete and abstract instances of VSI were apparent but not necessarily conscious. Again, this leads me to agree with Gardner's suggestion that VSP, along with its other intelligence counterparts, is a *naturally occurring feature* in the classroom with no teachers explicitly stating it in their planning but it definitely featuring in their practice (1999).

Interpersonal intelligence[22]

Interpersonal intelligence occurred in almost every subject thus contributing to the idea of its diversity and also interacted with other intelligences in complex ways.

Practice

Specific lessons and activities harvested the development of collaborative qualities; a lesson on magnets challenged children who had to share materials and collaborate on findings about what is and isn't magnetic (Observation A2). Furthermore spelling in pairs or collaborative spelling which was witnessed in classroom B2 in response to children having incorrect spellings after a test is another example of Interpersonal intelligence in the classroom (Armstrong 2009).

[22] 'Capacity to discern and respond appropriately to the moods, temperaments, motivations, and desires of other people'(Armstrong 2009:11)

Structure

Across schools there has been a new movement of 'talk' partners; children are encouraged to discuss or work together in situations to balance personality types and abilities in different lessons, scenarios and contexts (Briggs-Myers 1995). This interpersonal structure is an opportunity for all students to exercise their strengths as well as be assisted in their weaknesses by their peers encouraging collaboration and context-specific interaction.

Climate

From what was observed Interpersonal intelligence featured most explicitly in classroom climates not simply from the physical features of classrooms but the feel and ethos which encircled classrooms. I got the impression that the majority of teachers observed knew their children very well, their strengths, weaknesses and who they work well or not so well with. This kind of mentality and value for each individual as part of a cohort of pupils is what makes the talk partner model so effective – yet simple.

The way in which this particular intelligence features can tell us about the contemporary construction of the British classroom as a social, personable environment where everyone is valued and are given the opportunity to develop their interpersonal intelligence as part of secondary socialisation process (Piaget 1957)

Intrapersonal Intelligence[23]

This intelligence did not occur vey often but featured across a variety of lessons and played a major role in classroom management in particular as well as in the

[23] 'Access to one's own 'feeling', life and the ability to discriminate among one's emotions; knowledge of one's strengths and weaknesses' (Armstrong 2009:11)

development of independent learners who are self assessing and regulating (Meichenbaum et al 1998).

Practice

Intrapersonal intelligence did not feature explicitly in the content of lessons but implicitly in self evaluation, self-regulated behaviour and self-confidence. One particular teacher was persistent in the aim of instilling confidence and conviction when children answered questions (Observation C3).

Structure

An Independent learning model was encouraged in most classrooms. Some lessons encouraged self marking in accordance with specific criteria; others had designated time for independent work. Additionally, constructive feedback was given to children on a regular basis in the hope they would consider improvements for the next lesson (Meichembaum et al. 1998).

Climate

The idea of creating an environment where children feel they can have confidence in themselves was echoed in the classroom climate of almost all classrooms. Thus reiterating the idea that a cohort of pupils is made of up individuals whose strengths should be praised and weaknesses, realised and improved. Some classrooms did display this belief in their physical classroom climate; one memorable classroom featured a wall of ‘superhero learning powers’ with cut outs of the children in super hero costumes, acknowledging their strengths (Observation C4).

This intelligence was the backbone of several classrooms; key in structuring but not necessarily visible. It was not apparent that MI theory was consciously considered but rather the aim to know ones self in the promotion of an independent and personal learning model was recognised.

Musical Intelligence[24]

MuI[25] featured disappointedly with only 9 occurrences over 2 subjects, one of which was Music, the other was French. This intelligence was likely to occur in classrooms where the teacher was confident enough in their own MuI.

Practice

Although MuI did not occur broadly, the instances in Music and French lessons were particularly enjoyable to watch. In the French lesson a song about numbers featured almost every week in order to help children remember how to count in French – accessing memory by musically intelligent means. MuI acted as a basis in Music lessons to illicit other intelligences such as BKI through movement to Music and LI through appreciation of the lyrical foundations of song and poetry (Observations B3 and B1) – reiterating Gardner's argument that the intelligences relate in complex ways.

Structure

There were few instances where MuI gave structure in the classroom observed except in gaining children's attention by shaking a tambourine or clapping a rhythm to copy (Observations B3, B4 and B5 and Armstrong 2009).

[24] 'Ability to produce and appreciate rhythm, pitch, and timbre; appreciation of the forms of musical expressiveness' (Armstrong 2009:11)

[25] MuI – Musical Intelligence

Climate

MuI did not feature explicitly or implicitly, knowingly or unknowingly in classroom climate within the lessons observed.

Conclusively to implement MuI in the classroom, the teacher needs a degree of confidence in possessing and expressing this particular intelligence themselves.

***Naturalist Intelligence*[26]**

Considering that NI[27] has only been newly introduced to MI it featured more frequently than MuI, for instance, playing a particularly notable role in classroom climate.

Practice

Although NI is primarily about the outside world, an appreciation and implementation of it needn't be outside– the outside can be brought in (Joyce 2012). Classroom B2, whose topic book was 'The Sky Hawke', in a lesson unseen but spoken about, viewed newly hatched Ospreys on a live webcam. This is evidence as to how lessons and the classroom can be an opportunity for children to interact with nature and develop their NI.

[26] 'Expertise in distinguishing among members of a species; recognizing the existence of other neighbouring species and charting out the relations, formally or informally, among several species' (Armstrong 2009:11)

[27] NI – Naturalist Intelligence

Structure

One example of classroom management which may have appealed to a naturalistically intelligent mind was the reward of 'dragon droppings' in a jar (stones) as a reward for good behaviour. It proved to be an imaginative way to manage a classroom and featured in classroom which had a topic of the Vikings (Observation C3).

Climate

When thinking of an NI classroom climate two particular classrooms can be mentioned in their appreciation and education of nature in a practical sense – with the use of classroom pets. One classroom had two small hamsters and the other had a tortoise which the teacher let children take home on weekends (Observation A1 and C3). This is a great way of encouraging interaction with animals. Moreover, many classrooms attempted to educate children, not just about their own local area, but also about other countries and environments, contributing to the development of their socio-centricity (Observation C4). One classroom had a visiting Viking who both brought the outside in and took the children outside to show them how to light a fire (Observation C3).

Evidently NI is adaptable and also encompasses other forms of pedagogy such as the Forest schools movement suggesting that MI theory needn't be an all consuming feature of a classroom but can co-exist with other theories and pedagogies - as Gardner reminds us: MI is not claiming to be an alternative to general intelligence but claims to co-exist with it in a post-structural pedagogical world.

***Existential intelligence*[28]**

When beginning this dissertation it was known that EI[29] is still a contemplated intelligence type; it was included in observations in the hope of contributing to the debate of its existence. EI was by far the least occurring intelligence with only 3 instances over 2 subjects. Arguably, its abstract quality was something that was not necessary in KS2 classrooms where concrete knowledge and objective learning must take place in order to fulfil the requirements of the new National curriculum (2014).

Practice

In a D.T lesson children discussed with talk partners the suspected purpose of the Neolithic balls that they would be replicating with clay. This particular lesson content also proved to link to NI as the study of an animate or inanimate object (Observation B2).

Structure

EI did not feature explicitly or implicitly, knowingly or unknowingly in classroom structure within the lessons observed.

Climate

EI did not feature explicitly or implicitly, knowingly or unknowingly in classroom climate within the lessons observed.

[28] 'The capacity to locate oneself with respect to the furthest reaches of the cosmos - the infinite and the infinitesimal – and the related capacity to locate oneself with respect to such existential features of the human condition as the significance of life, the meaning of death, the ultimate fate of the physical and psychological worlds, and such profound experiences as love of another person or total immersion in a work of art' (Gardner 1999:60 in Armstrong 2009:182)

[29] EI – Existential Intelligence

Conclusively, EI featured in classroom practice to a small extent and not at all in classroom structure and climate. Gardner draws on Piaget (1952) who would argue that the 7-11 age group is still learning predominantly from a concrete knowledge base. Perhaps an environment which promotes and engages existentialism is too complicated and abstract for a KS2 classroom and can not be prioritised in an educational and political climate where knowledge and content is so highly emphasised (Gerwitz and Cribb 2009).

Conclusions

In relation to the question of whether or not MI theory features in classroom practice, structure and climate the answer is yes it does – yet, in the majority of cases, unknowingly. It was observed in classrooms which adopted a cross-curricular approach that there was more room for MI theory to feature and also for the intelligences to interact as opposed to being confined to their related subject such as Musical intelligence was. Even in an educational paradigm where content is emphasised, implicitly an MI model can feature along side and even act as a point of access for some of the curriculum's high content by appealing to memory.

Overall, MI theory unknowingly underpinned an understanding to a large extent in classroom practice. This leads me to agree that MI theory is naturally occurring (Gardner 1999) - if so, perhaps a better informed cohort of educators would be useful in understanding its existence and if a more explicit feature is right for their classroom – for instance in teacher training. The choice to explore new pedagogies is essential in creating teacher identity and assuring autonomous, critically transformed and engaged NQTs (Furlong and Maynard 1995 and Gardner 1999). Practice should not be dictated by one form of pedagogy but access and opportunity should be given

especially with the notion that MI theory can exist harmoniously with other pedagogical beliefs and practices.

MI theory features in classroom structure to a lesser extent in that lesson plans did not explicitly prioritise MI theory nor was differentiation explicit on this basis. This model could be an interesting way in which to differentiate – this is discussed further in the interview findings with some teachers suggesting they already differentiate on an MI theory basis.

MI theory features in classroom climate to a certain extent; evidently organisation and established routine are key factors in the successful classroom climate - yet the classroom climate is the pupils, teachers and teaching assistants' construction and is reflective of them. Particular classroom climates were both an implicit and explicit externalised display of the teacher's own intelligences and that of the pupil cohort; forming an environment which values pupils as individuals.

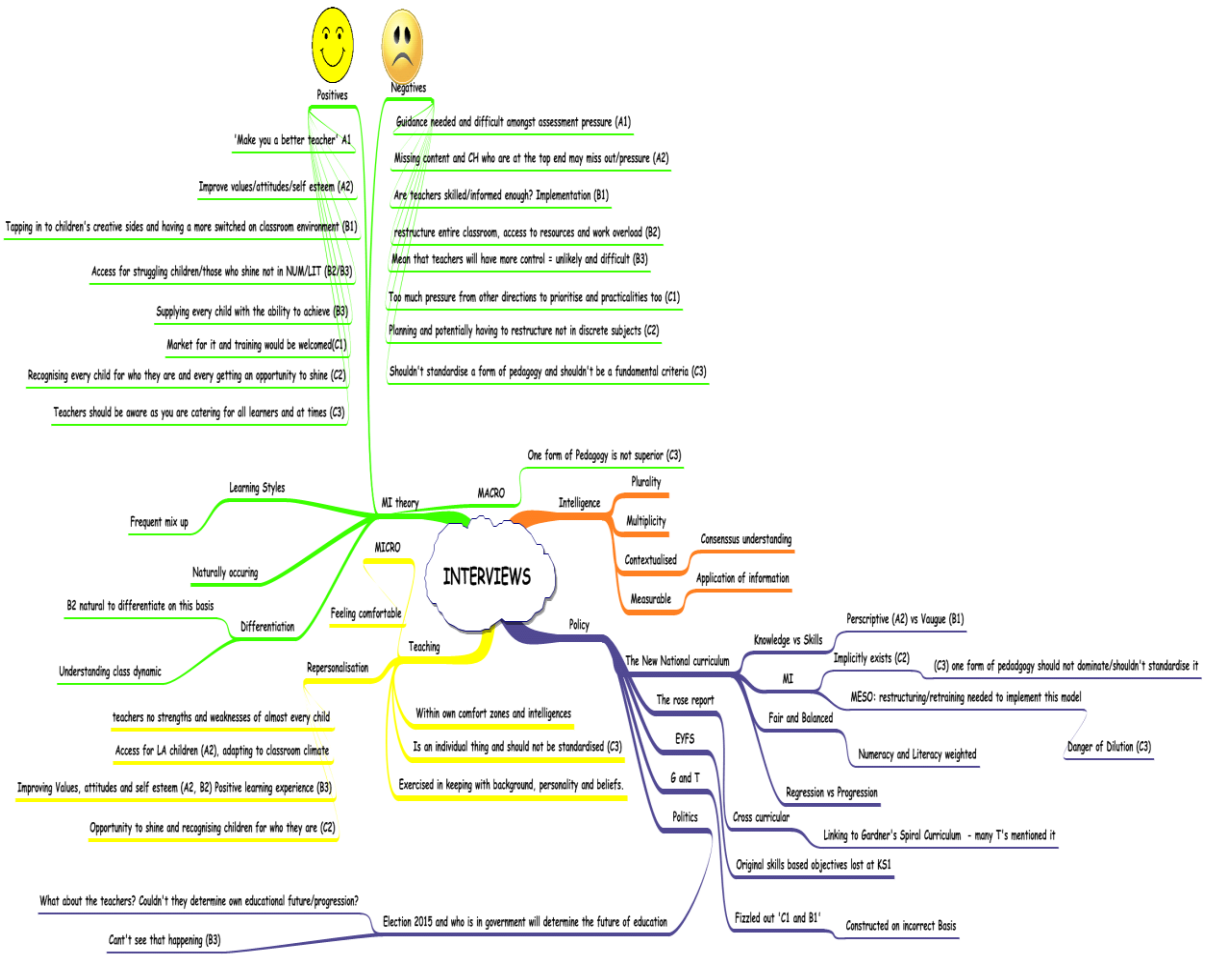
Ultimately, MI is about knowing your children, knowing yourself as a teacher and the children knowing themselves in the creation of that personal educational experience which has been labelled by thinkers such as Dewey (2013) as a 'child centred' education. There is space for this model in the near future as the majority of classrooms were at or were moving towards a classroom which captured the contemporary re-personalisation of education where teachers know their children so well – with MI they could potentially know their children in multiplicity.

Chapter 6 – Interview findings

The interview finding section is structured according to macro, meso and micro discussion before final conclusions are drawn in order to answer the following question:

2) *What are teacher's perspectives on **macro, meso and micro** conceptualisations of intelligence and how has this, in turn, reflected in and affected their teaching practice?*

Figure 1: An interview coding map to inform and structure interview data in accordance with Macro, Meso and Micro themes.



Macro

From talking to 8 teachers across 3 different schools, their individual qualities and experience shined through in their answers making it difficult to make broad generalisations. However, when asked to define intelligence teachers had a consensus understanding that intelligence exists differently in different contexts and also exists in plurality and multiplicity. These are all terms that Gardner has used in his understanding of intelligence inferring it is a common opinion amongst educators; one teacher remarked that their perception of intelligence has changed to this since becoming a teacher (Interviewee A2).

When the notion of MI was introduced to teachers, 'Gardner's Multiple intelligence theory' was unfamiliar except to one teacher. During the course of the interviews, however, many teachers, guided by the information sheet, accommodated this model of intelligence easily in their answers. However, some teachers would refer to learning styles i.e Kinaesthetic, auditory and visual (Kagan 1963). Learning styles is something teachers are aware of but why is MI theory not? Negatives and positives of an MI model featuring on macro, meso and micro levels of education were discussed and thoughts and opinions where as such.

Negatives of MI Theory

Teachers thought that the workload, preparation, implementation and pressure may make it impossible to prioritise an MI model in their planning (A1, A2, A3, B2, C1, C2). Other concerns were expressed about the structural issues of an MI model such as the suggestion that discrete subject boundaries would not accommodate this holistic model and that schools would have to *'get rid of subjects'* (C2) which would be problematic. Furthermore, Interviewee B2 noted their concern about having to

physically restructure their classroom in terms of setting and moving tables around in an attempt to accommodate, almost assimilate, an MI model.

The notion of MI featuring in governmental policy was greeted with positivity and enthusiasm from most teachers, except for one whose justification for their concern was thought provoking and valid; interviewee C3 argued that MI is a form of pedagogy and that '*this is a post-graduate profession'* so the government should trust teachers to use informed pedagogy on their own terms, and this should not be standardised (Hansen 2011). Later on this teacher went on to say that although teachers should be more aware of MI theory *'it shouldn't be fundamental criteria'*. On the other hand teachers A1 and B1 argued that some governmental guidance and control would be needed to successfully implement this model of learning. Lastly, teacher B3 remarked that this model would mean that teachers were to have more control and they *'can't see that happening'*. There were mixed ideas about the perceptiveness and the vagueness of the national curriculum document which will be explored further later. Gardner argues that MI theory is NOT an educational prescription and should not be made to be so (1999:89)

There was much talk from teacher's about how this would affect their practice and their profession as a collective, '*we*' and '*us*' for instance, where as there were few negatives highlighted for the children. However, one teacher did discuss the possibility of children on the '*top end'*, who thrive on a high content mode of learning, 'missing out' and may not do as well if an MI model were to feature (A2).

Positives of MI theory

As discussed, although the issues for teachers themselves were high, the benefits for pupils were expressed strongly by all teachers. However, there were some

recognised benefits to the profession as well. One teacher remarking that it *'would make you a better teacher'* (A1) and another expressing that they would welcome training about it and that there may even be a market for learning resources (C1). Even though the later interview questions were discussed in the hypothetical sense very few teachers recognised that MI may already feature, unknowingly, in their classroom. Two teachers explicitly expressed that they think they already implement an MI model, one teacher remarking that teachers *'naturally differentiate on this basis anyway'* (C2) and how they already *'do'* that intelligence. Teacher A1 remarked how this level of understanding is something that '*comes naturally as you develop as a teacher*'. This notion of MI, as a naturally occurring phenomenon, has been noted in the observations findings with all teachers observed, unknowingly, featuring aspects of MI theory. Furthermore it was unanimously agreed that teacher's should be more aware of this model of knowing the world. Perhaps teacher training is a fundamental area of which to increase awareness of this approach if it is not already doing so (C1).

Positives for practice, children and climate included having a more 's*witched on classroom environment'* (B1) which would give access to knowledge for children that struggle consequently supplying every child with the ability to achieve (B3). Teacher C2 felt strongly about this model and exclaimed that MI *'makes a person'* and should be recognised for that. Furthermore, C2 thought that an MI model would help teachers recognise '*every child for who they ar*e' where every child gets the '*opportunity to shine'*. This links with the progressive notion of a child-centred education where an MI model, could potentially, contribute further to the contemporary re-personalisation of education (Piaget 1957/2007, Dewey 2013, Gardner 1999, Rousseau 2009, Howlett 2013).

Meso

Policy and politics

When teachers were asked the purpose of the National Curriculum, and whether or not the new National Curriculum served this purpose there was a common view that the new National Curriculum is very much knowledge-based as opposed to skills based. The views were mostly negative and were mixed on the basis that it was either too vague, too prescriptive or tried to '*overfill*' children and even the notion that it had regressed back '*16 years'*(C2). Furthermore although most teachers claimed that a National curriculum should be '*fair and balanced'* this notion was challenged when considering the high Numeracy and Literacy content at the expense of '*non-traditional subjects'* (B3).

Teacher C2 argued that an MI model already, implicitly, features in the National Curriculum but is simply '*not labelled that way'* and it is up to the teacher to find it and adapt it which is reciprocated in the conclusions of the policy review. Some teachers even spoke about previous government policy which they believed did have links to an MI model.

Teacher C2 was enthusiastic in their claim that MI did already exist in the new National Curriculum but was not stated under the heading of MI. They went on to say the Early years and foundation stage curriculum (2014) came under headings which were more explicitly linked to MI theory, for instance; knowing the world and physical development (2012). The question is why do these headings lose importance when moving in to KS1 and KS2?

Teachers C1 and B1 mentioned the Gifted and Talented programme (2008) where by children were recognised for their efforts in subject areas. However both teachers agreed that this model '*fizzled out'*. The notion itself was wrongly constructed

upon Gardner's MI theory in that it confined it to 'gifts and talents' and subject disciplines as opposed to intelligences – which is incorrect (1999).

Finally the Rose report or '*the old new curriculum'*, as half the teachers remarked it, found way in to the conversation as a comparative to the new knowledge based approach of the new National Curriculum. Teachers who mentioned the Rose Report (2006) thought that a holistic, cross-curricular model would be more accommodating of an MI model. Teacher B2 recollected their experience of a cross-curricular school describing values and ethos for learning - which link to the aims of Gardner's Infusion Curriculum. Thus suggesting MI, on a more structural level, can work if a school were to deviate from the norm and take it on.

The notion of whether or not MI would ever feature on a structural level was unanimously political; for these teachers it is the government who will determine the future of education. But what about teachers? Do they not still have a degree of autonomy? Why can't teachers, as individuals, determine the future and progression of education in what form they think best? Or have they become more passive as government control has increased (Apple 1996)? Teacher B3 stated that a fully implemented MI model would mean that teachers having more control which they couldn't see happening.

Micro

Teaching

From conversing with teachers about their individual beliefs the initial questions enquiring in to their own educational 'blurb' reflected some of their choices, comments and personality. Teachers who contemplated the notion of MI, hypothetically (even though all were recognised to unknowingly implement it), would

talk about Musical intelligence being difficult, for instance, because '*I haven't got a musical bone in my body'* (B3). Thus the teacher's own MI, attitude, background and confidence had a personal bearing on whether they thought certain intelligences would be '*doable*'. As teacher C3 believes, the choice to adopt and MI model, or aspects of it, is an '*individual thing'* and '*you shouldn't standardise that*' because all teachers are individuals too, as well as children. In particular the notion of the unknown implementation was contested as some teachers unknowingly showed a knowledge of MI. An example of this occurred when in a classroom a student teacher walked in announcing that they will be doing a sign language club, the classroom teacher exclaimed, '*that's multiple intelligences*!' – And they were right as Armstrong (2009:11) has suggested sign language to be a new and strong form of Linguistic Intelligence.

Re-personalisation of education

A strong theme which implicitly ran through all transcripts was the notion of the re-personalisation of education and where MI can feature in that. What all teachers had in common was how well they new every child's strengths and weaknesses, class dynamic and the levels of support or stretching they would need in different contexts. Teacher A2 remarked how MI theory can provide access to the curriculum's high knowledge content for children who struggle.

What was most clear is the consensus idea that MI would help create a positive learning experience (B3) consequently leading to improving societal value systems (beyond the realms of education) where everyone feels valued and improve attitudes towards learning (Gardner 1991). MI gives every child the opportunity to shine as teachers will be able to recognise children for who they are – as individuals. Some

teachers even claimed that an MI approach comes naturally as you developed as a teacher and understood that intelligence means something different in the context of a classroom and that every child comes from different circumstances which impacts upon the variation in their intelligence types.

Conclusions

Overall the reception of the notion of MI was positive but there was a concern about physically, structurally, theoretically and personally assimilating an MI model in to their classroom. Yet it was recognised that all teachers observed unknowingly use an MI model to underpin an understanding – therefore it needn't be so complex to accommodate MI model because teachers already do, apparently unknowingly, but once informed they could recognise, knowingly, how MI can feature in their classroom.

MI could be key in empowering teachers who feel the new National Curriculum is too prescriptive or too vague. Teachers can use this as an opportunity to devise and adopt an innovative form of pedagogy which a) works for them and they have information about, b) is doable and c) works for their class (Gardner 1999:145). Each teacher had different perspectives on the notion of MI in the classroom based on their own experiences and interaction with children in their classrooms. An explicit adoption of an MI model should not be a coercive practice but teachers should be aware of it from the start and this should lead to natural development of not only the opportunity to know the world in multiplicity, but for teachers to know their children in multiplicity**.**

Future considerations

This dissertation has established that in the schools visited, lessons observed and teachers spoken to MI theory does feature in the classroom - yet for the majority unknowingly. Although the majority of teachers were unaware of MI, their values, experience and informed discussion demonstrated an understanding of the multiplicity of intelligence and the implications of an MI model. If the opportunity arises, a study actively implementing an MI model in a classroom and measuring the extent of its success would aid the debate as to whether or not MI should and could *knowingly* feature in the classroom.

Overall, the conclusions of the dissertation (especially the idea that MI is more 'doable' than teachers think) have the potential to be beneficial for teachers and pupils. Additionally, it has been, for me, partly reflexive with regards to the kind of pedagogies I hope to influence my future practice.

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APPENDIX 1 – Blank interview schedule

Research title: *An investigation in to the existence of multiple intelligence in KS2 classroom practice, structure and climate.*

Interview sheet:

Start time: **End time:** **Duration:**

Researcher: *Tazreen T. Kassim-Lowe – Keele university final year student*

I am now going to ask you some questions in relation to the notion of multiple intelligence in terms of your personal views, the national curriculum and classroom practice. The interview will be recorded with your consent (please see consent form). If you do not wish to answer any of the questions please let me know and we will move on. You have been chosen as you a teacher with experience in KS2.

Decoding the research title: define climate, structure and practice.

1) Context: educational past/life

1.1) Duration of teaching:

1.2) Age group:

1.3) Route in to teaching:

1.4) If your own education was a blurb (*In order to put subsequent answers in to a personal, individual context –give self as an example):*

2) Intelligence

2.1) How would you define intelligence?

2.2) Do you think this personal notion of intelligence has an affect on your everyday classroom – if so how?

2.3) Are you aware of Gardner's notion of multiple intelligences – if so, what do you know about them? *Subsequently Gardner's multiple intelligences are explained. (see diagram)*

2.4) To what extent are you conscious in the everyday of these intelligences in your classroom structure eg) lesson plans, assessment criteria and managerial influence

2.5) Practice eg) how lessons are conducted, how understanding is bridged, classroom activities

2.6) Climate, eg) environment and ambience

3) National Curriculum

National curriculum has come to some changes in the new academic year….

3.1) What, in your eyes, is the purpose of a national curriculum?

3.2) Have you recently had access to the new National curriculum? If so, does the new National curriculum fulfil this purpose?

3.3) With regards to the new national curriculum, do you think a multiple intelligence model *could* be integrated on a structural level – if so, why and if not, why not?

3.4) *should*

3.5) *will*

3.6) What other factors would implicate this notion of multiple intelligences existing in your classroom?

4) Classroom

4.1) If this model was more a part of the *societal* notion of intelligence what would the *positive and negative* implications be for classroom *practice, structure and climate*?

Eg) multiple intelligences was the norm

4.2) If this model was more a part of the *structural* notion of intelligence, for example the NC and government policy, what would the *positive and negative* implications be for *classroom practice, structure and climate*?

Eg) multiple intelligence were specified in the national curriculum

4.3) If this model was more a part your *own individual teaching practice/belief* what would the *positive and negative* implications be for *classroom practice, structure and climate?*

EG) This was in your mind during every lesson, part of your every day practice

Table 1: Positives and Negatives of the existence of multiple intelligences in relation to hypothetical placement in society, structure and individual teaching belief.

	Societal (Macro)	**Structural (Meso)**	**Individual (Micro)**
Positive			
Negative			