Teaching Gardner's Multiple Intelligence Theory as a Tool for Differentiation: Intelligence for Opening Doors

Maura Sellars
University of Newcastle, Australia

The purpose of this paper is to examine the reactions, responses and results of 98 tertiary post graduate students when required to incorporate Gardner's Multiple Intelligences theory into their plans to support the learning of primary aged students in classroom mathematics activities and to showcase the potential of this particular psychological framework in teaching and learning contexts.

The paper discusses the challenges and complexities of teaching pre service primary teachers to implement Gardner's Multiple Intelligences Theory as a tool for effective differentiation. The students were post graduates studying to obtain a qualification to teach primary school curriculum area, including Mathematics. The context in which Gardner's Multiple Intelligences Theory was introduced was in the lectures and tutorials which focused on preparing the pre service teachers for teaching mathematics to students aged 5-12 years old. The challenges of teaching this cognitive theory include widening the perceptions of the tertiary students regarding the nature of intelligence, developing their understanding of effective learning in mathematics and encouraging them to investigate the potential of differentiated activities in this key learning area.

The strategies and tools utilized as tutorial activities were not part of any formal research plan or intervention. The aim of the strategies and tasks was to engage students with Gardner's Multiple Intelligences Theory and afford them first hand experiences with the types of activities that they may useful in supporting student learning in the classroom, given the wide diversity of student cultures, experiences, competencies and learning preferences that are found in many Australian classrooms. The students themselves were diverse in many ways; not simply in their undergraduate backgrounds, but also nationality, educational experiences and competencies in the knowledge domain being taught and so provided a suitable cohort with which to implement these activities.

The final grades for this course were better than previous years, with a large number of very high achievers. These results could have many explanations. Other responses, including individual feedback about the courses was positive. However, the activities and resources that these pre service teachers designed and planned for classroom implementation reflected a unique depth of understanding about how diverse student learning in mathematics is best supported and how mathematical thinking and logic can be fostered in students of all ages and competencies. Integrating a cognitive theory into content studies not only made a difference to the students' learning, but it also served to demonstrate the potential of Gardner's MI theory to support this positive outcome.

As a result, the real importance of this case study is not to do with mathematics or any other curriculum domain. The true value of this experience relates to teaching. It is possible that this cognitive theory, in particular the development of students' intrapersonal intelligence domains, may also prove significant in the teaching of Psychology itself, where deep knowledge, understanding and critical thinking are vital to student success and professional practice. In many ways, using psychology to *teach* psychology could be a very powerful pedagogical tool.

Australian Educational Contexts

As is the case in every practically country, Australia has documents and policies in place to guide the planning and set the standards for its educational practices. The *National Goals for Schooling* (Ministerial Council on Education 1999) and the follow up paper, *The Future of Schooling in Australia,* (States and Territories 2007 p.15) are amongst these, as are *The National Framework for Values Education in Australian Schools* (Australian Government: Department of Education 2005) and *The National Safe Schools Framework* (Taskforce 2002).Although not explicitly stated, these documents and policies are all underpinned by three insights into the learning process, all of which are evidenced two strong themes woven throughout these documents. Firstly, there is the conviction that all students have the potential to be successful learners; and secondly the importance given to preparing programs to suit diverse, individual learners. The first reflects an understanding that individual learners must actively construct knowledge (at times, not without a struggle) in a personally meaningful way and attribute meaning in dynamic personal and social processes. This is an important insight for those involved in the practical implementation of these policies. Generally known as 'social constructivism', (Woolfolk 2004) and based on the work of Piaget, Dewey, Vygotsky and others (Gruber and Voneche 1977; Hein 1991; Woolfolk 2004), this view of learning impacts on both learning theory and epistemology in that the nature of knowledge itself is personally mediated (Hein 1991). Abbott & Ryan (1999 p.67) explain 'Constructivist learning is an intensely subjective, personal process and structure that each person constantly and actively modifies in light of new experiences'. This perspective of learning challenges the Behaviorist views of Skinner, Thorndike and others (Woolfolk 2004) which maintain that knowledge can be transmitted, that learning involves the strengthening or weakening of association (Stimulus – Response) and this strengthening of knowledge can be assured by rote repetition. These Behaviorist understandings of learning dominated education practice from the middle of last century and can still be found in some classrooms today, hence the challenge created by the Australian national policies and other educational documents for some educational institutions and their teacher preparation courses.

The second insight refers to the awareness that if all students are constructing knowledge as individual learners, then programs of work must be planned that allow individual preferences both in the learning task itself and in the means by which these tasks are completed. This approach to teaching and learning is often known as differentiation and Dempsey & Arthur-Kelly offer a definition. They state 'differentiation refers to teacher modifications to classroom practice to meet the needs of individual students within the classroom'(2007 p.2-3). They continue by describing a wide range of strategies to support teachers in this task, as do O'Brien and White (2001). Tomlinson (1999; 2000a; 2000b) describes planning differentiation of content as a matter of determining the destination (the learning goals), then planning different, but suitable routes by which to help students achieve these goals. McGrath & Noble (1995a; 1995b; 1998; 2005) utilize two specific typologies to effect this 'modification' of classroom practices. The adaptations that constitute differentiation may be implemented in various ways, all of which have to potential to meet the needs of individual students and support improved student outcomes if they are developed and implemented in a manner which suits the learning preferences and capacities of the students. Armstrong, (1994; 2003) also emphasizes the importance of differentiation, identifying and describing how many of the Multiple Intelligence domains can be important in the successful development of skills in basic competencies.

Gardner's Multiple Intelligences Theory

Gardner has been described as the "…. the reigning progressive guru…"by Eberstadt (1999 p 1) and "…a favourite arts education guru." (Roper and Davis 2000 p 1). He has been consulted on every aspect of education from homework (Chaika 2000) to identifying the underlying factors that tip the balance between success or failure, in this case, in the soccer world (Gardner, 2002d). Gardner (1993a) refutes the theory that intelligence is a single fixed, uniform phenomenon. Instead his theory proposes a much wider, more encompassing view of intelligence, one that cannot be measured by the standard IQ tests. Indeed, Gardner asserts that intelligence is much too important to be minimized and simplified by the score on a standardized intelligence test.

Gardner established his multiple intelligences theory, hereafter (MI), according to carefully selected criteria drawn from a number of disciplines. Two of his criteria were from biological science, two from logical analysis, two from psychological research and two from traditional psychological research. It is the establishment of these criteria that distinguishes Gardner from other psychologists. Traditionally, Binet and others involved in the creation of standardized intelligence tests, relied wholly on psychological research. The interdisciplinary nature of Gardner's criteria gives MI theory a broader theoretical foundation than the traditional measures of IQ, which rely almost exclusively on linguistic and logical/mathematical intelligence strengths.

The broad interdisciplinary bases of the criteria Gardner has established to define areas of intelligence are also conducive to the identification of new areas of intelligence. This is evidenced in Gardner's early work (1983), which identified seven areas of intelligence and his more recent writings, which include eight intelligences which he believes are shared by everyone. 'These intelligences may be thought of in a neurobiological way' (Gardner 1993a). In other words, these intelligences are part of the genetic inheritance of the human species. What is significant is that people differ regarding their areas of strengths and weaknesses. No two people are exactly the same. Our intelligence profile is much like a fingerprint, each individual having a combination of strengths, which is unique. To add further complexity to the profile, cultural influences and personal experiences impact on these intelligences constantly changing the nature of the individual's intelligence and their relationship to each other.

Of the eight intelligences identified by Gardner, teachers and educators in traditional education more readily accept linguistic and logical/mathematical intelligences as legitimate as they are the mainstay of traditional classrooms and lecture halls. Nevertheless, MI theory has had enormous impact on all spheres of education. Classrooms in Australia (Vialle and Perry 1995; Sellars 2003; Noble 2004) and in America (Gardner and Hatch 1990; Campbell 1997; Arnold 1999; Cost and Turley 2000; Martin and Brunette 2000; McKenzie 2002; Armstrong 2003; Groundwater-Smith, Ewing et al. 2003; Jarvis and Parker 2005) utilizing Multiple Intelligences Theory (MI) are examples of what is happening in a variety of educational settings around the world.

Intrapersonal Intelligence

Of the intelligences identified by Gardner (linguistic, logical/mathematical, spatial, musical, bodily kinesthetic, naturalistic, intrapersonal, interpersonal and possibly existential) it is his thoughts on the concept and role of the intrapersonal intelligence, that are of particular interest. Gardner discusses both personal intelligences, the intrapersonal and the interpersonal, for the main part, together, although he does state, 'each form has its

characteristic neurological representation and breakdown' (1993a, p 241). He adopted this approach as, in normal environments and conditions; one is not usually developed independently from the other. So, by discussing these intelligences together, he would avoid both an artificial separation of the two, and also any duplication of material related to both intelligences. The 'personal intelligences' are, in many ways, significantly different in nature from the other intelligences, despite meeting the eight criteria that Gardner devised to designate an intelligence.

Firstly, although there are components specific to each, Gardner viewed them as interweaving to form a 'sense of self' (1993a, p 241). The other intelligences could stand alone. For example, the development of musical intelligence is less reliant on the development of other intelligences compared to interpersonal intelligence and intrapersonal intelligence which have reciprocal interdependence. The other intelligences were also observed to be less dependent on the influence of cultural norms.

The personal intelligences, however, are governed to a greater or lesser degree by these cultural and societal norms- i.e. what is considered 'normal' in one culture or societal group may not be acceptable in another. Furthermore, there was, and still is, a great deal of pressure to build skills and utilize the personal intelligences, as failure to do so may result in inappropriate or unacceptable behaviors, both of which have social, and perhaps even legal consequences. This would not be the case with any of the other intelligences. In addition, various illnesses or pathological conditions may impact upon these intelligences and therefore on the individual's social adaptation and enculturalisation processes. Lack of strength in any other intelligence would not result in the same degree of alienation from the wider community. Finally, Gardner (1993a,p 242) remarks that other cognitive psychologists have largely ignored these intelligences.

Interpersonal intelligence is intelligence about others. Individuals who have considerable capacity in this intelligence are characterized by abilities to cooperate in groups, be instinctively sensitive to the feelings of others, have good communication skills with a variety of people and naturally make distinctions between people easily. In contrast, intrapersonal intelligence is defined by Gardner as

> … the development of the internal aspects of a person. The core capacity at work here is access to one's own feeling life – one's range of affects or emotions: the capacity instantly to effect discriminations among these feelings and, eventually to label them, to enmesh them in symbolic codes, to draw upon them as a means of understanding and guiding one's behavior (Gardner,1993a, p239-240).

There is evidence that Gardner places growing importance on the development of intrapersonal intelligence. Ten years after the original publication, in the Forward to the second edition of 'Frames of Mind' (1993a), Gardner revises only one aspect of one intelligence, the intrapersonal. It is noteworthy that neither this text nor any later texts contain any new emphases on the other intelligences.

The changes that Gardner made as a result of his own reflection on his work are of interest. The addition of another dimension to both his criteria and definition of intrapersonal intelligence has highlighted both the evolving nature of his work on intelligence and the impact of introspective thinking. The new prominence of intrapersonal intelligence as an essential component of successful learning for all students, irrespective of the other strengths

they may have, highlights the need for pedagogies and practices that allow learners to develop accurate knowledge of themselves as students in educational contexts. Additionally, these pedagogies and practices need to be part of a total learning environment in which students have opportunities to use their self knowledge to support improved learning outcomes.

The Cohort and The Context

The student cohort discussed in this paper was not part of any formal research plan or intervention. However, the impact of one of the discipline courses they were required to undertake merits sharing. They were postgraduate students who had decided to pursue a career as primary school educators. They had studied educational psychology as an on line course the semester prior to commencing the mathematics course. They were a very diverse group, both in relation to their undergraduate study domains (and occupations for some) and their ethics and cultural backgrounds. Approximately half the group was comprised of Canadian students; the other half included Australian, Chinese, British and American students. There were enrolled in a one year, 'end on' program for preservice primary teachers at an Australian University. Many would not remain in Australian to teach, but all were still required to study and demonstrate the capacity to teach using the New South Wales, Board of Studies syllabus documents. These documents mandate the content, and in cases, the processes, that primary aged students in all educational systems in New South Wales were to study in the six Key learning Areas. Amongst these was the Key Learning of Mathematics. The K-6 Mathematics syllabus (Board of Studies, 2002) is the most recently developed of the syllabi for implementation in primary education and it contains no only content, but outcomes that focused on thinking skills, as mandatory content. As a result, it is perceived to be more challenging to implement in classrooms than some of the other syllabi.

Designed for implementation in constructive classrooms, the syllabus also clearly indicated the need to alter learning tasks, activities and environments in order to facilitate success in mathematics for all students, irrespective of the wide range of diversity inevitably found in every classroom, consistent with expectations of the national policies introduced previously. These considerations, combined with the course coordinator's experiences of teaching mathematics in primary schools settings, led to the development of a course that combined knowledge of the mathematics syllabus content with implementation strategies based on Multiple Intelligences Theory.

Implementation

It was hoped that the tertiary students would be able to combine their prior knowledge of educational psychology with MI theory to develop their understanding of effective teaching of mathematics for all students in primary settings. In particular they were asked to evaluate strategies to support the development of strong, accurate intrapersonal intelligence for primary students. To achieve this, however, the tertiary students were challenged in many ways not directly associated with mathematics. These included the need to revise their views regarding intelligence, increase their understanding of themselves as learners and develop an appreciation of how this self knowledge could contribute to understanding and meeting the learning needs of individual children in their classrooms.

The mathematical challenges depended on the students' prior experiences and competencies in this discipline. However, they also faced a common, additional challenge. They were required, through participation in group activities and differentiated planning for teaching and learning, to develop tasks and activities that would facilitate mathematical processes and

thinking for students whose preferred method of learning was any one, or combination of Gardner's intelligence domains. This was considered an essential component of this course because it offered one framework within which the students could begin to meet the syllabus requirement of varying tasks to meet learner diversity.

A brief introduction of Gardner's MI theory was greeted, in each of the classes, with heated discussion regarding the appropriateness of integrating discipline knowledge and psychology, even though the course was part of a teacher preparation program and the psychological content to be considered was a theory of cognition. Other debate focused on the nature of intelligence, with many students refusing to consider Gardner's wider definition of intelligence as useful in classroom practice, preferring to advocate the narrower, more prescriptive notion of intelligence as a fixed, measurable construct that remains static, irrespective of the quality of learning experiences and environments. Typical of these comments was this example offered by a student leaving the tutorial. Seeing his lecturer heavily loaded with books and equipment, he opened the door for her, commenting as he did so '*I suppose you will tell me that I have door opening intelligence next'*. He was not to that, in a slightly different sense, his remark would prove to be prophetic.

A quick show of hands in the following week's tutorial classes confirmed that many students had not enjoyed learning in mathematics, even in their primary school classes. The reasons offered were not unexpected. *It was too hard, it was boring, I just didn't get it* were the most commonly heard remarks. It very quickly became obvious, in each of groups, which students were anxious about the course, which were considering that they had passed already as they were confident in mathematics and which students were already asking for additional support when they got into difficulty! The students were then asked to complete MI profiles, justifying their answers when in paired discussions. The course coordinator engaged in and actively listened to the discourse that followed.

The contact time for the course was four hours per week for ten weeks. As each content strand and sub strand became a focus of the week's study, the tutorial groups were instructed to investigate ways of calculating, problem solving and explaining the processes in which teachers and students may be engaged in each component of the syllabus. Each group session included ways in which the thinking strand, entitled *Working Mathematically* (Board of Studies 2002), could be taught. These thinking skills needed to be promoted, facilitated and then extended with students in primary classrooms. Integrated into the exploration of the mathematical content and investigation of broad pedagogical approaches that allow children to develop mathematical competence were two other foci. Consistent attention was given to means by which the students could plan differentiated tasks from different learning perspectives, using the MI intelligence domains as the areas of strength. The other strategy involved students selecting which tasks they may choose if they were required to participate in the learning, discussing the different strategies selected by individuals and reflecting on the reasons for their choices.

All these aspects of curriculum, psychological frameworks and pedagogical strategies were eventually to come together in a very important undertaking. The major assessment task in the course comprised two parts. Firstly, the presentation of handmade (i.e. non commercial) resources that were to be used in a sequence of lessons. These resources had to be demonstrated to the class and questions relating to their effectiveness and design answered in question time. Then, in order to plan the lesson series effectively, students were required to incorporate knowledge of content, to select pedagogies to support student learning in the

discipline area, to demonstrate skills in differentiating the curriculum content to meet the needs of all learners and to determine appropriate strategies for individualizing tasks in order to provide inclusive practice in the classroom.

The Results

On completion of the MI profiles the students were asked to compile, it was very interesting to note that many of them who had nominated strength in the Bodily-Kinesthetic, Visual/ Spatial and Verbal/ Linguistic domains considered they had little or no strength in the Logical/Mathematical intelligence domain. It was not surprising that the majority of students who indicated they were strong in the latter domain had studied Economics, Business Studies, Accounting or Psychology in their undergraduate degrees. Additionally, much of the evidence the students provided in support of their answers to the MI questionnaire did not relate to knowledge of how they learnt as individuals, what interested them as students or what was required to pursue a given career; instead the evidence primary related to the areas they considered they were 'best' at in school.

The attendance at the lectures and tutorials was above the usual expectations. Students who missed their scheduled classes would attend another class so as not to miss any tutorial time. Discussion was lively and the students demonstrated a higher level of engagement than the course coordinator had previously experienced in the course. The individuals who had lacked confidence at the commencement of the course began to identify which strategies they found supported their learning most effectively and initiated requests for strategies to be explored more fully if they required that to happen. As the course progressed, the nature of the individual student support that was needed changed. Instead of students making appointments to discuss understanding of content, as happened in previous years' cohorts, these students came to discuss their own ideas of how they might approach the assignment tasks and/or the requirements of the primary students in their practicum settings. They appeared to support each more effectively than previous cohorts in this course and take more initiative in the teaching and learning arena.

The major assignment provided the students with an opportunity to design interactive resources that would support student learning in the sequence of lessons that followed. Whilst many of the resources were very creative and would be inviting to the age groups for which they were designed, without exception they reflected their creators' understanding of the syllabus content and what constituted sound mathematical teaching and learning. This understanding was demonstrated in resources such as those described here. Two dimensional shapes of different sizes, colors and in the case of triangles, different types were presented for use in orientation activities by kindergarten students. These were laminated and were accompanied by instructions that comprised icons and arrows. An example of skip counter, a resource that could easily be made by six to eight year olds to promote basic skills of subitizing and counting on, illustrated the traditional formations of dots or stars on one side and random arrays on the other. A moveable triangle was designed for students to explore the sum of the angles of any triangle. This simple design, made by folding strips of thin cardboard and needing no other equipment or resources, could again be easily made by students themselves. There were many board games that required knowledge of the properties of numbers, approximations, conversions and measurements. One student, who was very anxious about her competency in this Key Learning Area at the commencement of the course, made simple, practical equipment to illustrate the difference in representational and

proportional graphs. She then used the bar graph to create the equivalent pie graph directly onto the paper with the help of a pencil and two paper clips.

Many of the content strands from the syllabus were supported by a variety of different resources, designed to scaffold the learning of students with different learning preferences. Often, during the question and answer section of the presentation, it became apparent that these resources reflected both the students' understanding of mathematics and the students' own learning preferences. The activities and tasks that formed the remainder of the major course assignment were equally varied and designed to support a diverse group of students in classrooms. The grades for that assignment and others in the course reflected the enthusiasm and deep understanding that were beginning to be the characteristics of these groups. Using the psychological framework of MI had challenged the students to rethink their attitudes and past experiences in the teaching and learning of one discipline area. By becoming engaged themselves, they had begun to get an insight into a means by which to effectively engage students in their classes. The collective attitude of those students who were initially very confident, based on their previous educational experiences, that they would find this course easy and without challenge could be summed up by this comment from one such student, *' I guess just because I know it and find it easy, doesn't mean I can teach it'*.

It was planned that the final tutorial activity would include revisiting the MI profiles, giving the students an opportunity to answer the questions again and compare the results. This did not happen. When it was suggested, the students preferred not to complete this activity. As it was not a formal research study where the students had agreed to participate, the coordinator did not insist. Instead, students in each group preferred to give feedback about the course, in addition to the formal survey which they had completed. This feedback was mainly very positive, although some students, feeling that mathematics was a relative strengths, were of the opinion that planning for diversity was '*the long way around'* to teach mathematics.

It appeared that one of the main reasons for not completing a new MI profile was that small groups of students had already done just that independently during the 10 weeks of lectures and tutorials. Others had decided that their profiles would undoubtedly have changed and they could anticipate where these changes would lie, leaving the activity itself redundant. A number of students had even kept reflective journals in which they recorded their responses to the course week by week. There was extended discussion about the importance of intrapersonal intelligence and how this could support learning in a variety of contexts and for a diverse group of students. It was interesting to note that many students knew their relative strengths and has relatively strong intrapersonal intelligence, yet had never used this to support their learning in mathematics.

Discussion

The students' engagement with Gardner's MI theory (1993b; 1999b; 2000a) offered them an opportunity to explore several aspects of teaching and learning. It compelled them to consider alternative perspectives to those they espoused themselves regarding how mathematics is best taught and learnt. It obliged them to contemplate the practical implications of teaching diverse groups of students effectively. They became increasingly aware that effective teaching supports student learning, even when student cohorts in primary classrooms may have as diverse attitudes and competencies as they found in their own tutorial groups. Their reflections on their own approaches to tasks in mathematics encouraged them to actively consider different ways in which learning outcomes could be achieved. Importantly, they developed an understanding of the multiplicity of thinking and strategizing that any one

group of students of any age could bring to learning. This understanding gave a degree of confidence to the less competent mathematicians and allowed them freedom to express, investigate and solve problems in their own ways, using their areas of relative strength. The candid acknowledgement of different strengths and learning preferences that resulted from these students' engagement in tasks that supported the development of intrapersonal intelligence appeared to lend an authenticity to the rationales they offered in their planning for teaching. Exploring MI theory as a whole and developing strong self knowledge gave these students tools to become more effective teachers.

It can be argued that the real value of planning and implementing a course that integrated Gardner's MI theory is not content bound. This psychological framework can be implemented in any teaching and learning context. Student diversity is not unique to primary school classrooms, as these students discovered. Implementation techniques are innumerable and are easily customized to reflect the context of the learning and the learners. A substantial amount of psychological theory guides the work of all educators. The notion of using Gardner' theory of cognition to facilitate increased student success by differentiating the content to be learnt may be very useful for educators in all fields of educational endeavor. It may also prove to be an appropriate psychological framework for the teaching of psychology itself.

References

Abbott, J. and T. Ryan (1999). "Constructing knowledge, reconstructing schooling." Educational Leadership **57**(3): 66-68.

Armstrong, T. (1994). Multiple intelligences in the classroom. Alexandria, Association for Supervision and Curriculum Development.

Armstrong, T. (2003). The multiple intelligences of reading and writing: making words come alive. Alexandria, Association for Supervision and Curriculum Development.

Arnold, E. (1999). The MI strategy bank. Tucson, Zephyr Press.

Australian Government: Department of Education, S. a. T. (2005). National Framework for Values Education in Australian Schools, Commonwealth of Australia.

Campbell, L. (1997). "How teachers interpret MI theory." Educational Leadership **4**(1): 14-19.

Chaika, G. (2000, 11/06/08). "Help! Homework is wrecking my home life!" from http://www.educationworld.com/a-admin/admin182.shtml

Cost, P. A. and J. M. Turley (2000). "Teaching the food pyramid using multiple intelligence learning centers." Journal of Health Education **31**(2): 111-112.

Dempsey, I. and M. Arthur-Kelly (2007). Maximising Learning outcomes in diverse classrooms. South Melbourne, Thomson.

Eberstadt, M. (1999). "The schools they deserve: Howard Gardner and the remarking of elite education." Policy Review **97**: 3-17.

Gardner, H. (1983). Frames of mind. London, William Heinemann Ltd.

Gardner, H. (1993a). Frames of mind. Tenth Anniversary Edition. New York, Basic Books.

Gardner, H. (1993b). Multiple intelligences. The theory in practice. New York, Basic Books.

Gardner, H. (1999b). Intelligence reframed: Multiple intelligences for the 21st century. New York, Basic Books.

Gardner, H. (2000a). "Howard Gardner on making the most of young minds." The Education Digest **65**(2): 4-6.

Gardner, H. and T. Hatch (1990) Multiple intelligences go to school. CTE Technical Report **Volume**, DOI:

Groundwater-Smith, S., R. Ewing, et al. (2003). Teaching Challenges and Dilemmas. Southbank, Thomson Learning Australia.

Gruber, H. and J. Voneche (1977). The Essential Piaget. London, Basic Books.

Hein, G. (1991). Constructivist learning theory. international committee of museum educators conference, jerusalem, israel.

Jarvis, P. and S. Parker (2005). Human learning: an holisitc approach. Milton Park, Routledge.

Martin, G. P. and C. Brunette (2000). "Maximising multiple intelligences through multimedia: a real application of Gardner's theory." Multimedia Schools **7**(5): 28-33.

McGrath, H. and T. Noble (1995a). Seven ways at once. Classroom strategies based on the seven intelligences. Melbourne, Longman Australia.

McGrath, H. and T. Noble (1995b). Seven ways at once. Units of work based on the seven intelligences. Melbourne, Longman Australia.

McGrath, H. and T. Noble (1998). Seven ways at once. More classroom strategies and units of work based on the seven intelligences. Melbourne, Longman Australia.

McGrath, H. and T. Noble (2005). Eight ways at once. Frenchs Forest, Pearson Education Australia.

McKenzie, W. (2002). Multiple intelligences and instructional technology: a manual for every mind. Eugene, International Society for Technology in Education.

Ministerial Council on Education, E., Training and Youth Affairs (1999). The Adelaide Declaration on National Goals for Schooling in the Twenty First Century. Adelaide.

Noble, T. (2004). "Integrating the Revised Bloom's Taxonomy With Multiple Intelligences: A Planning Tool for Curriculum Differentiation " Teachers College Record **106**(1): 193.

O'Brien, K. and D. White (2001). The Thinking Platform. Marayong, K.D.Publications.

Roper, B. and D. Davis (2000). "Howard Gardner: knowledge, learning and development in drama and arts education." Research in Drama Education **vol 5**(no.2): p 217-233.

Sellars, M. (2003). The affective component of effective education. Education. Sydney, Australian Catholic University. **Master of Education:** 130.

Taskforce, S. L. a. S. S. (2002). National Safe Schools Framework.

Territories, S. a. (2007). Federalist Paper 2: The Future of Schooling in Australia.

Tomlinson, C. A. (1999). "Mapping a route towards differentiated instruction." Educational Leadership **57**(1).

Tomlinson, C. A. (2000a). "Differentiation of instruction in the Elementary grades. ERIC Digest." Retrieved 29/04, 2005, from www.eric.ed.gov.

Tomlinson, C. A. (2000b). "Reconcilable differences?" Educational Leadership **58**(1).

Vialle, W. and J. Perry (1995). Nurturing multiple intelligences in the Australian classroom, Hawker Brownlow Education.

Woolfolk, A. (2004). Educational Psychology. Boston, Pearson Education Inc.